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AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentler scion to the wildest stock;
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature,—change it rather: but
The art itself is nature."

Shakespeare.

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OF KNAP HILL,

THE THIRTY-FOURTH VOLUME OF "THE GARDEN"

Is dedicated.

W. R., January 5, 1889.

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INDEX TO VOLUME XXXIV.

(Illustrations in Italics.)

A.

Abelia floribunda, 25
Abies bracteata, 404
Abutilon Boule de Neige, 211; vexillarium, 451
Acæna Novæ-Zelandiæ, 193, 319
Acampe longifolia, 479
Acer campestre, 374; Lorbergi, 136; platanoides laciniatum, 112; pseudo-platanus, 568
Acineta Barkeri, 42
Aciphylla squarrosa, 180
Aconites, the, 104; winter, and Snowdrops, 58
Adlestone, flowers from, 596
Adiantum Pacotti, 510, 567; Veitchi, 461; Waltoni diffusum, 354; Williamsi in baskets, 257
Aeranthes Curnowiana, 170; grandiflora, 324
Aerides expansum Leonis, 169; quinquevulnerum, 324; Schrœderi, 42; Southgatiæ, 370
Æschynanthus, 14
Agapanthus, double-flowered, 217, 275, 322; umbellatus maximus, 311
Agathæa cælestis, 440; cælestis compacta, 125
Ageratums, two new, 357
Albuca Nelsoni, 25
Alburnum, 500
Alder, white, 508
Allamanda, fine, a, 244
Allium, a large, 194; flavum, 238; nobile, 17
Allium pedemontanum, 5, 44
Aloysia citriodora, 25, 451
Alpine and herbaceous plants, 179
Alpine plants at Zermatt, 21
Alpines, the past, present and future, 119
Alsine verna plenissima, 125
Alstrœmerias, 89 106, 121
Althæa frutex, 244
Amalfi, from the pergola at the Capuchin Convent, 573
Amboyna Lily, the, 121
Amaryllideæ, the, 67
Amaryllis aulica, 504; autumn-flowering, 440; Halli, 244; the, 489
Amasonia punicea, 425
Amelanchier alnifolia, 10
American blight, the, 208
American notes, 330
Amorphas, the, 586
Amorphophallus, 36
Anæctochilus, 517
Andromeda japonica, propagating, 65
Anemone, double-flowered, 165; Fannini, 202; Japanese, in Ireland, 287; Japanese, seeding, 299; rivularis, 406
Anemones, 501
Angræcum Chailluanum, 550; Dubuyssoni, 248; eburneum, 537; falcatum, 88; ichneumonense, 370; Scottianum, 43; sesquipedale, 66
Anguloa Ruckeri alba, 92, 169
Anguloas, 139
Anigosanthus coccineus, 82
Annuals, 17
Anomatheca grandiflora, 316
Ansellia africana, 353
Anthericum Liliago, 56; liliastrum, 56
Anthurium Andreanum giganteum, 425; Andreanum Thellusoni, 100, 162; Laingi, 14, 98, 286, 342; Rothschildianum, 82
Antigramma rhizophylla, 577
Antirrhinums 241
Aphelandra Margaritæ, 440
Apple and Pear conference, national, 355
Apple, American Crab, 206; Cornish Gilliflower, 469; crop, the, in Kent, 316; in Nova Scotia, 238; culture, profitable, 291; Domino, 366; Duchess' Favourite, 445; Golden Spire. 469; Grand Sultan, 469; growing of the future, 365; *Japanese Crab*, 206; Mr. Gladstone, 419; Mère de Ménage, 419; of the East, 56; Ribston Pippin, 291; Stirling Castle, 326; Sturmer Pippin, 388; Summer Nonpareil, 336; Sussex Nanny, 366; Worcester Pearmain, 316, 366; shoot, a prolific, 194; show, Chiswick, the, 481; tree, Blenheim Orange, a large, 381; trees, caterpillars on. 16; *trees, cordon, in fruit, horizontal-trained*, 542, trees, old, removing, 6
Apples, cider, Devonshire, 504; as horizontal cordons, 542; colour in, 516; conference on, national, 311; for Hertfordshire, 389; for limestone soil, 328; for profit, 380; garden selection of, 367; gathering, 345; good, 254; high colouring of, 559; newer, some. 326; on Paradise stock, 132; Russian, well-flavoured, 418; standard, for Britain, 237, 254, 346, 543; two good, 289
Apricots, 345; hardy, 80
Aquatics, stove, 35
Aquilegia Stuarti, 344
Aralia edulis, 64; evergreen Japanese, the, 413; reticulata, propagating, 580; Sieboldi, 565; *Sieboldi as a table plant*, 413; Sieboldi, propagating, 474; spinosa, 252
Araucaria imbricata, 32
Arbutus Unedo, 508; the, in flower, 494
Ardisia mamillata, 82, 425
Arenaria bifolia, 340
Aristolochia elegans, 36, 211; old, an, 25; rotunda, 56
Arnebia echioides, propagating, 344
Arnold Arboretum, notes from the, 175, 306, 374
Arthropteris tenella, 344
Arum Dracunculus, 17
Arundel, Tuberoses at, 210
Arundina bambusæfolia, 408
Asclepias incarnata, 165
Ash, flowering, 79; *flowering, the*, 78; *flowering, Himalayan, the*, 79; Manna, the. 46, 494; Lentiscus-leaved, the, 382; use of the, 20
Asparagus, autumn treatment of, 330; Chicory, 567; culture under difficulties, 600; decumbens in flower, 504; early, 550; planting, 251; summer treatment of, 39
Asphodelus acaulis, 573
Aspidistra lurida variegata, 216
Asplenium flaccidum odontites, 601; *formosum*, 421; formosum and its allies, 421; japonicum, 115; *rhizophorum*, 51
Asplenium for baskets, 51
Aster Amellus, 311, 498; Comet, 242, 294; corymbosus, 503; diplostephioides, 295; nanus, 360; Stracheyi, 3; Townshendi, 104, 310
Asters at Chiswick, 270
Aubrietias, 555
Auricula, the, 293, 605
Auriculas one hundred and thirty years ago, 394; self, 430, 487
Autumn flowers, 408, 457; leaves, 473; tints, 473
Azalea, a free pyramidal-trained, 424; indica in the house, 585; stem, growth on, 67
Azaleas, hardy, 416; hardy, propagating, 474; late, the, 17; training and forcing, 424
Azara microphylla, 10, 112

B.

Babianas, 74
Bamboos, hardy, 485
Banana, the, 131, 367
Bananas, 214
Baneberries, 103
Barbarea vulgaris plena, 459
Barberry, Ash, 63
Barkeria elegans, 517; Lindleyana, 518
Bath Floral Fete, the, 98
Bean, Indian, the, 399; Beal's Ne Plus Ultra, 173; Seville Longpod, 332
Beans, French, in November, 386
Beard, Turkey's, 18
Beardwood, trees and shrubs at, 136
Bedding plants, propagating, 300, 407
Bedding, subtropical, 89
Beech and its uses, the, 522, 568; charcoal, 334; Copper, caterpillars on, 16
Beeches, Weeping, the, 382
Beet, ornamental, MacGrigor's Favourite, 310
Beetle, Asparagus, the, 162
Begonia Carrieri, 440; Carrieri villosa, 14; Digswelliana, 14; fuchsioides, 425; General Chichester, 355; Haageana, 18; insignis, 499; John Heale, 100, 470; John Heale, propagating, 280; maculata corallina, 218; Mrs. Stark, 355; Octavia, 408; seedling, 170; socotrana, 451; socotrana, propagating, 344; Weltoniensis, 399
Begonias as bedders, 149; at Forest Hill, 128; in bloom, 128; open-air, at Zurich, 287; planted out, 287; tuberous-rooted, 13, 121
Bellflower, Oriental, the great, 604; wall, the, 5
Bellidiastrum Micheli, 557
Benthamia fragifera, 207
Berberis Thunbergi, 57
Beschorneria bracteata, 244
Bessera elegans, 381, 430
Billbergia thyrsoidea splendens, 381
Bindweed, blue Rock, 69, 336; *large white, the*, 531
Biotia corymbosa, 503
Bird's nest, yellow, the, 239
Bismarckia nobilis, 210
Blackberry v. Raspberry, 543
Bladder Ferns, 150
Bladder-nut, 281; Colchic, 281
Bladder Senna, Aleppo, 74
Bladder-worts, the, 36
Blandfordias from seed, 245; in bloom, 60
Blechnums, 478
Bletia hyacinthina, 43; verecunda, 518
Bluebells, New Zealand, 558
Bodnant Hall, 551; *view in the grounds at*, 551
Bog peat, mixed plantations on, 118
Bolbophyllum Dearei, 43; umbellatum, 248
Bollea Lalindei, 587
Bomarea Carderi, 65, 595
Books—
"Choice British Ferns," 67
"Cultural Directions for the Rose," 524
"Dutch and Cape Bulbs," 117, 140
"Flower Gardening for Amateurs," 11
"Observations on Injurious Insects," 309
"The Orchid Album," 67, 316, 435, 518
"The Tuberous Begonia," 189
Borage in the flower garden, 339
Bouquets, 478
Bournemouth, weather at, 591
Bouvardia President Cleveland, 170, 403, 440, 491
Box trees, treatment of, 400
Bracken, common, amongst Rhododendrons, 400
Bramble, double-flowered, the, 336; double white, the, 234
Brassavola Digbyana, 62; Perrini, 353
Brassavolas, two, 139
Brassia caudata, 98
Brighton, flowers at, 498
Broccoli crop, the, in Cornwall, 387; Gilbert's Late White, 496; protecting in winter, 442
Bromelia antiacantha, 287
Broom, Butcher's, the, 231; in Essex, 591; Pink, 161; Spanish, 280, 284
Broxbourne, flowers from, 499
Brunsvigias, 485
Brussels Sprouts, 538; a good, 331
Buck-eye, large, the, 373; the, 111
Buckthorn, Sea, the, 498
Budding, curious result of, 80
Buddleia globosa, 102
Bulb, hardy, planting, 394
Bulbous plant, new, a, 316
Bulbs, Daffodils, &c., mixed beds of, 395; for forcing, selecting and potting, 321; stove, two beautiful, 301
Burlingtonia decora picta, 588

C.

Cabbage, the Danish Ball-head, 194
Cabbages, 572; Colewort, 495
Caladiums, 129
Calandrinia oppositifolia, 89
Calanthe curculigoides, 518; Textori, 67 Veitchi, 536; veratrifolia, 67
Calanthes at Burford Lodge, 587
Calceolaria mexicana, 105; the, 392
Calceolarias, beautiful, two, 342; propagating, 233

Calla æthiop'ca 491; æthiopica from seed, 520; æthiopica ripening seed, 440
Callicarpa purpurea, 491
Callistemon rigidus, 525
Calochorti, 22, 74
Calochortus, 125; pulchellus, 5
Campanula collina, 121; garganica hirsuta, 5; Haylodgensis, 150; muralis, 5; pelviformis, 406; pyramidalis, 244; Vidali, 70, 218; Zoysi, 239
Candytuft Empress, 193
Canna Geoffrey St. Hilaire, 310; Paul Bert, 310; Souvenir de Louise Van Houtte, 342; Ulrich Brunner, 355
Cannas, 318, 457; dwarf, 101; flowering, 397; Gladiolus-flowered, 181
Cape flowers, gathering, 37
Cape Leadwort, 165
Cardoons, cooking, 567
Carex pendula, 5
Carnation Apricot, 89, 170; and Picotee, the, 125, 148; Barnham Beauty, 25; Celia, 193; Clara Bond, 193; competition, 261; Elaine, 92; Fair Maid, 121; Germania, 45; Guiding Star, 170; Miss Joliffe, 165; Mme. Carle, 264; Old Clove, 150; Painted Lady, 238; Paul Engleheart, 165, 170, 533, 574; Scarlet Bedder, 92; Surls' Queen, 556, 606
Carnations, 429; and Picotees, difference between, 359; dying, 261; from America, 98; from Cambridge, 165; garden, 295; in November, 499; in the flower garden, 191, 242, 244, 357; lateness of, 170; layering, 177, 221, 294, 486; layering, in Cocoa-nut fibre, 531; potting, 502; propagating, 38; scented, 243; seedling, 165, 170; selection of, 458; Tree, in America, 525; Tree, propagating, 432; winter-blooming, 398; yellow, 180, 221; yellow ground, new, 405
Carpenteria californica, 44, 65; californica in flower, 32; *californica growing on back wall of greenhouse*, 75
Carrots, wireworm in, 331
Cassia floribunda, 210
Catalpa, golden-leaved, the, 80; syringæfolia, 244, 399, 433
Catasetum Bungerothi, 169, 248, 384; Bungerothi salmoneum, 537; tridentatum and atratum, 43
Caterpillar plague, the, 16
Caterpillars, death to, 303; devastation by, 20; on fruit trees, 91, 449
Cattleya Aclandiæ, 248; aurea, 324, 384, 422, 455; Bowringiana, 370, 384, 423, 454, 602; calumnata, 323; chrysotoxa, 455; crispa, 67; crispa Buchaniana, 169; Dominiana, 353; Dowiana, 204; Dowiana and its allies, 285; Eldorado, 285; exoniensis, 588; exoniensis from Perth, 479; fausta delicata, 434; Gaskelliana, 43, 139, 169, 324, 408; Gaskelliana superba, 66; gigas, 66; gigas Sanderiana, 324; guttata, 537; Hardyana, 161; Harrisi, 401; Harrisoni, 238; intermedia, white-flowered, a, 43; labiata, 517; Lamberhurst hybrid, 401; Leopoldi, 116; Lindleyana, 286; Massaiana, 455; Mastersoniæ, 480; maxima, 479; Mendeli Rex, 139; porphyroglossa, 518, 537; Reineckiana, 13; Schofieldiana, 161; superba, 370; Trianæ, 589; virginalis, 204, 248; Walkeriana, 603; Wallisi or virginalis, 248
Cattleyas in the Chelsea Nursery, 88
Cauliflower, a valuable, 151
Cauliflowers and their culture, 136
Ceanothus Gloire de Versailles, 194, 207
Cedar of Lebanon on chalky soil, 330, 356
Cedrus Deodara robusta, 586
Celery for cooking, 40
Celsia arcturus, 91
Centaurea macrocephala, 125; *suaveolens*, 103
Ceratopteris thalictroides, 510
Cercis siliquastrum, 240
Cereus procumbens, 170; speciosissimus, 36
Chamærops excelsa in a Dorsetshire garden, 245; Fortunei, 171, 245
Chelsea, Ferns at, 211
Cherry, the, as food, 86
Cherries, 47; dwarf hardy, 132; Morello, 328
Chestnut, the, and its uses, 592
Chionanthus retusus, 56; virginicus, 17, 330
Chironias, two new, 69
Chiswick, Tomatoes at, 165
Choisya ternata, 381
Chou de Burghley, 493
Christmas flowers: white Azaleas in a large copper bowl, 585
Christmas notes, 569
Chrysanthemum Albert Victor, 438; Amy Furze, 512; Avalanche, 436, 488, 512; Blushing Bride, 411; Bronze Queen of England, 301, 571; buds, selection of, 227; Buffalo Bill, 487; Cæsar, 545; Capucine, 402; centenary of the, 475; Coquette de Castile, 571; Cottage Pink, 456; Cullingfordi, 488; cuttings rooting, 25, 174, 608; David Windsor, 487; Delphine Caboche, 411; Edwin Molyneux, 402, 438; Effie, 487; Elaine, 438, 488, 530; Elsie, 354, 436; Etoile de Lyon, 545; Fanchette, 265; Felicity, 529
Chrysanthemum Figaro, 487; Florence Percy, 438, 487, 488; flowers, cutting and arranging, 435; flowers damping, 437, 460, 487, 512; François Marrouch, 438, 487; George Daniels, 487; Golden Circle, 529; Golden Mme. Desgrange, 316; group, a good, 570; hæmatoma, 18; Hamlet, 487; H. Shoesmith, 402; *incurved*, 436; James Carter, 451; James Salter, 437; James Weston, 487; Jean Marty, 487; Julie Lagravère, 425; Lady Dorothy, 487; Lady Selborne, 438; Lakmé, 411; L'Automne, 498; leaves curling, 372; Leoni Lasalli, 371; Lincoln's Inn, 402; Lord Alcester, 488; Madame Baco, 487; Mme. Blandineries, 438; Mme. de Consanort, 487; Mme. Desgrange, 302; Mme. Desgrange flowering a second time, 397; Mlle. Blanche Pigmy, 497; Mlle Lacroix, 530; Maid of Kent, 571; M. A. Le Moult, 571; Mr. Garnar, 475, 488; Magicienne, 402; maximum, 193, 486; Miss Annie Lowe, 438; Miss Gorton, 438; Miss M. A. Haggas, 498, 531; Mrs. Cullingford, 411; Mons. Bernard, 487; M. Pankoncke, 487; Mons. Patrolin, 529; Mrs. Alpheus Hardy, 557; Mme. C. Audiguier for late blooms, 571; Mrs. Langtry, 558; Maroon Model, 558; Mrs. Bevan, 487; Mrs. Falconer Jameson, 487; Mrs. W. A. Harris, 545; Mrs. Hawkins, 264, 265; Mrs. J. Pitcher, 265; Mrs. Wheeler, 498; Mrs. J. Wright, 438, 488; Nelson, 402; notes, 5, 195, 250, 371, 412, 558; nudicaule, 229; odoratum, 557; Pasterisque, 460; Peter the Great, 570; Primrose League, 571; Princess of Wales, 512; Progne, 571; Roi des Japonais, 487; Sabine, 402, 487; Sam Henshaw, 372; season, prospects of, 396; season, the, 380; segetum, 174, 338; Snowdrop, 571; Source d'Or, 530; Souvenir d'Angele Amiel, 487; Stanstead Surprise, 402; Sunflower, 402, 438, 487, 488; Theodore Bulher, 487; Thorpe Junior, 438, 487; Tokio, 529; Violet Tomlin, 487, 488, 544; what constitutes a good bloom, 459; Wm. Holmes, 438, 451; William Robinson, 530
Chrysanthemums, 408; as standards, 529; at Camberwell, 438; at Kew, 488; at Putney, 411; deformed buds of, 282; for cut blooms, 250; early, 336; early, two valuable, 381; earwigs on, 5, 438; housing, 315; in the Temple gardens, 411; influence of wood ripening on buds and blooms, 530; in N. America, 558; in the parks, 438; Japanese, 436; judging, 396; keeping the blooms, 411; large Anemone, 488; late struck, 315; losing their leaves, 529; market, 607; miniature, 228; naturally grown, 529, 570; new, 487, 531; notes, taking, 5; on walls, 24, 571; outdoor in November, 529; perpetuation of sports, 283; planted out, 511; Pompon and border, 529; preparing boxes, &c., for exhibition, 353; preparing the plants for cuttings, 487; Princess Teck family, the, 557; propagating, 80; proper time to strike cuttings, 571; Queen of England family, 606; reflexed Japanese, 488, 498; seasonable notes, 173, 301; seedling, in Jersey, 530; sheltering, 460; single, 438; single, two good, 558; stimulants for, 106; suckers, removal of, 5; summer treatment of, 24; top-dressing, 283; types of, 437; wall and border, 558; wood, ripe and unripened, 120
Chrysogonum virginianum, 242
Chysis aurea maculata, 299
Cibotium Barometz, 344
Cienkowskia Kirki, 153
Cimicifuga racemosa, 104
Cinerarias dying off, 439
Cinquefoil, shrubby, 80, 318
Cirrhopetalum ornatissimum, 353; pulchellum, 286
Cistus algarvensis, 165; Gum, spotted, the, 32; ladaniferus maculatus, 32; Rock, 556
Cistuses in a Surrey garden, 253
Citrus trifoliata, 498
Clematis coccinea, 148; erecta, 17; graveolens, 287, 320; Jackmanni, 311; large-flowered, 457; *large-flowered, window garnished with*, 457
Clematises, summer-flowering, 532
Clerodendron fallax, 286, 579; speciosum, propagating, 432; trichotomum, propagating, 272
Clethra alnifolia, 316, 374; arborea, 508; arborea in Cornwall, 591
Clianthus Dampieri, 127; Dampieri marginatus, 170; puniceus, 126
Coal, anthracite, 567, 590
Cobs, 513
Cochliostema Jacobiana, 36
Codia bella, 587
Cœlogyne barbata, 587; cristata, 116, 141; Gardneriana, 537; ocellata, 517; Sanderiana, 45; speciosa, 161; speciosa viridis, 384
Colchicums, 316, 459; double-flowered, 406
Coleus, 14
Colours, typical, reversion to from white-flowered varieties, 501
Columbines, 271
Colutea haleppica, 74
Combination, a good, 115
Combretum purpureum, 490, 521
Commelina tuberosa, 193
Comparettia macroplectron, 537
Composts, 601
Conference, Apple and Pear, National, 141, 333, 418; fruit, at Chiswick, 378, 427, 498; fruit growers', the, 263
Conifer cuttings, 210
Convolvulus grandiflorus, 531; large white, 531; lineatus, 69; mauritanicus, 69, 336; Scammoni, 239
Coombe Wood, notes from, 564
Coprosma Baueriana, 129; hardiness of, 64
Coral Tree, Hume's, 25
Cordyline indivisa, true, 490
Cork, flowers from, 74
Cornflower, purple, the, 340
Cornus canadensis, 64, 222; sanguinea, 508
Coronilla iberica, 193
Correa cardinalis, 525
Corydalis cava, 242
Coryopteris mastacanthus, 330
Cosmos bipinnatus, 244, 408; hybrid, 403
Cotoneaster microphylla, 350; Simonsi, 585
Cotoneasters upon the Grass, 504
Cottonia peduncularis, 248
Cottonwood, 546
Cowdray Park, Midhurst, Sussex, 433
Cowslip, Californian, 3
Crassula jasminea, 127; lactea, 575
Cratægus crus-galli salicifolia, 509; Lælandi, propagating, 343; Pyracantha, 403
Crepis rosea, 193
Cress, Indian, yellow, 17; Indian, the scarlet, 126
Crinum giganteum, 244; Moorei, 65, 74
Crocosmia aurea in New South Wales, 170
Crocus Fleicheri, 406; iridiflorus, 499; lævigatus, 499
Crocuses, autumn-flowering, 316, 340, 359, 381; at Weedon, 311, autumn and winter, 573
Crossandra undulæfolia, 98, 246
Croton Warreni, 471
Crotons at Handcross Park, 595; propagating, 220
Cryptomeria elegans, 306, 508
Cucumber Tree, the, 305
Cucumbers, twin, 69
Cupressus Lawsoniana lutes, 112
Currant, crimson-flowering, the, 230; Fay's, 257, 330; *Indian*, 280; Red, fasciated, 98
Currants on north walls, 325; Red, 28; White, a use for, 133
Cuttings, hard-wooded, 552; root, 518
Cyananthus lobatus, 242
Cyathea dealbata, 577
Cycas revoluta, 99
Cyclamen africanum, 498; europæum, 121; hederæfolium, 339, 550
Cyclamens at Clovelly, Hounslow, 491; failing, 521, 580; grubs on, 587; planted out, 244
Cycnoches Warscewiczi, 12
Cymbidium elegans, 381, 537; giganteum, 370
Cyperus distans, 14
Cyphomandra betacea, 504
Cypripedium Amesianum, 116; barbatum nanum, 370; bellatulum, 88; bellatulum roseum, 169; californicum, 238; callosum, 536; calurum, 299; Canhami, 204; concolor Gardnerianum, 248; Curtisi, 161; Elliottianum, 408; Harrisianum superbum, 384; insigne, 591; insigne Sanderæ, 480; Leeanum maculatum, 602; Leeanum superbum, 517; new, a, 537; œnanthum superbum, 247, 423; Parishi, 204, 285; Sallieri, 587; Sanderianum, 285; Savageanum, 370; spectabile, 43; Spicerianum, 370; superbiens, 161; vexillarium, 247; Wallisi, 66
Cypripediums, 88; at Burford Lodge, 65, 423; at Camberwell, 299; at Shuttleworth's, 550; at Studley House, 352; at The Woodlands, 454; high-priced, 434; in France, 247; two good, 139
Cyrtanthus McKeni, 218; sanguineus, 313, 336
Cyrtopodium cardiochilum, 384
Cystopteris, 150

D.

Dabœcia polifolia, 359
Dacrydium Franklini, 452
Daffodil, Cyclamen-flowered, 90, 178; Hoop-petticoat, white, 498
Daffodils, bicolor, 226; *in the wild garden*, 227; Irish, 429, 533; many-flowered, 486; tortuose White Trumpet, 459, 502
Dahlia, curious, a, 311; flowers from Rothesay, 457; Golden Gem, 340; Henry Patrick, 360; imperialis, 490; Mikado, 264; Paragon, 320; Sensation, 340
Dahlias, 241; and their culture, 55; at Heckfield, 339; Cactus, 242, 270, 295, 311, 323, 340; dwarf, 339; from Cork, 381; single-flowered, 269, 286, 294, 311
Daisies, giant, 531; Michaelmas, notes on, 357
Daisy, great Ox-eye, 319, 408
Damson, Prune, 292; trees unfruitful, 420
Daphne Blagayana, 295; Mezereum, 160
Daphnes, propagating, 16
Darlingtonias at Horsham, 338
Davallia Tyermani, 601
December, flowers in, 555; in the garden, 547
Delphinium hybridum sulphureum, 104; Prince of Naples, 44; Ustane, 44; Zalil, 91
Delphiniums, 123
Dendrobium album, 384; bigibbum, 324; Dearei, 138; filiforme, 42, 353; Jamesianum, 423; Macarthiæ, 352; macrophyllum, 116; Pierardi latifolium, 139; rhodostomum, 323; splendidissimum, 603; stratiotes, 422; superbiens, 353; Treacherianum, 604; triadenium, 422
Dendrobiums, black-haired, 41
Dendrochilum filiforme, 88; uncatum, 537
Dennstædtias, 300
Desfontainea spinosa, 80, 153, 451, 508, 544
Desmodium penduliflorum, 410
Deutzias, 586
Dianthus Atkinsoni, 121, 222, 243, 319; cinnabarinus, 150; cruentus, 5; Grievei, 3; splendens, 264
Dianthuses, annual, 272
Dicentra eximia, 104
Dicksonia antarctica, 115; Berteroana, 86
Dicranoglossum furcatum, 601
Dictamnus albus, 5
Dictyogramma japonica, 461
Dipladenia boliviensis, 99
Disa, a blue, 194; graminifolia, 353, 451, 479
Disas at Dangstein, 66
Dodecatheon integrifolia, 503
Dogwood, the, 508; white, 207; wood of the, 546
Doronicum draytonense, 557; plantagineum, 533; plantagineum excelsum, 504
Doryopteris palmata, 115; sagittæfolia, 115
Dove Orchid, the, 423
Dracæna Evansiana, 526
Dracocephalum Ruyschianum, 243
Dragons, 17
Drop, Golden, propagating, 80
Dropwort, double-flowered, 22; single, 89
Dryas Drummondi, 557

E.

Eartham, rainfall at, 170
Earthworm, common, some doings of the, 584
Eastnor, notes from, 350
Eccremocarpus scaber, 499
Echeveria retusa, 440; secunda glauca, 458
Echinacea purpurea, 340
Edge Hall, notes from, 2
Eichornia (Pontederia) tricolor, 121
Elæagnus longipes edulis, 98
Elæocarpus cyaneus, 36
Elæodendron orientale, 401
Elder, 280
Elm, distinct, a, 32
Elms from seed, raising, 94
Ely, plants in flower in, 403
Eomecon chionantha, 18
Epacrises, propagating, 38
Epidendrum nemorale, 88; nemorale majus, 161; phœniceum, 587; radiatum, 139; Randi, 66, 384; stenopetalum, 602; vitellinum majus, 88; Wallisi, 66, 602
Epilobium angustifolium, 23
Epiphora pubescens, 116
Epiphyllum truncatum, 397
Epiphyllums, 526; propagating, 580
Eremurus Bungei, 89; robustus, 17, 194; robustus and its varieties, 56; Olgæ, 239, 264
Erica hyemalis alba, 471
Erigeron glabellus, 17; mucronatum, 90; speciosum superbum, 104
Eriobotrya japonica, 64
Eriopsis rutidobulbon, 41
Erpetion reniforme, 74, 105
Eryngium planum, 311
Erythræa diffusa, 69
Erythrina Humei, 25
Erythronium Hendersoni, 321
Escallonia montevidensis, 64, 112; Philippiana, 32, 44
Esmeralda Clarkei, 451, 596
Eucalyptus, fine, a, 244

Eucharis amazonica, 130; amazonica, culture of, 100; bulbs, unhealthy, 499; grandiflora, hardiness of, 520
Eulalia japonica, 358, 406; japonica variegata, 320, 407
Eulophia guineensis, 248; guineensis purpurata, 116
Euonymus, propagating, 38
Euphorbia capitata, 3
Europe, forests of, 20, 70
Eurybia Gunniana, 535; *ramulosa*, 534
Eurycles amboinensis, 121
Evergreens, moving, in summer, 373; planting, 307
Exacum macranthum, 82

F.

Feltham, notes from, 527
Fern, basket, a useful, 9; fronds drying, 9; Maiden-hair, and Pandanus, 408; notes, 273; Royal, 9; Royal, Japanese, the, 344; Silver Tree, the, 577; spores, sowing, 171; *wall, a*, 273
Fernery, the hardy, 140
Ferns, Adder's-tongue, epiphytal, 510; at Chelsea, 211; at Forest Hill, 140; at home, 257; basket, stove, 86; beautiful, 115; British, destruction of, 544; Carbonell collection of, the, 69; decorative, useful, 578; exotic, 114; Filmy, 151; Filmy, at Dangstein, 51; for a cool stove, 601; for exhibition, 139; recent, 566; seedling, 102, 245, 552; slender-stemmed Tree, 171; Tree, Japan, 344; upon iron, 434
Fig Negro Largo, 451; tree, a large, 202
Figs, 420; in Sussex, 49; in the open air, 346; on open walls, 48; roots of, moving, 49
Filberts, 513
Fire Pink, Virginian, 56
Fir, Scotch, the, 312; Silver, the, 404
Firs and Pines, 190
Flax, perennial, 319
Florists' flowers, 358; seasonable notes on, 431
Flower bed, choice, a, 339
Flower beds, beautiful, 359; in summer, 4
Flower garden, Carnations in the, 191; English, 119, 191, 270; notes, 23, 90, 105, 126, 149, 193, 222, 243, 295, 320, 340, 360, 395, 417, 431, 459, 486, 533, 556, 576, 606; Potato disease in, 182
Flower gardening and architecture, 218
Flower gardens, Ruskin on, 181
Flower holder, tubular, arranged, 39; *in basin*, 38
Flower holder, tubular, 38
Flowering plants, hedges of, 282
Flower names, ugly, 277
Flower of Ceylon, Rainy Month, 352
Flower show at Lausanne, 333
Flowers, a few good, 192; after the frost, 338; annual, 149; cut, packing, 569; *dome for holding*, 38; hardy autumn, some, 405
Forcing, 593
Forecourt gardens, 472
Forest, Ashdown, in summer, 219
Forest Hill, Ferns at, 140; tuberous Begonias at, 128
Forest tree planting on the prairies, 46
Forest trees, diseases of, 142, 166, 240, 288, 382, 452
Forestry, 214, 356, 610; at the Irish Exhibition, 190, 214, 288; conservancy in Upper Burmah, 452
Forests of Europe, the, 70
Forsythias, 473
Foxglove, noble, a, 89, 150, 193
Foxgloves, 5, 148, 488; hybrid, 531; *in the wild garden*, 489
France, Orchids in, 203
Francoa ramosa, 468, 469; ramosa, 520, 578
Fraxinus ornus, 494
Freesias from seeds, 332
Fremontia californica, 381
Fringe tree, the, 330
Frogs eating Strawberries, 133
Frosts, early, 360
Fruit, cold storage of, 328; borders, surface of, 480; crops, 232, 258, 283; crops and the drought, 8; crops, thinning, 6; exhibition of, 311; garden, the hardy, 561; gardens, wire-protected, 17; growers' conference, 25, 69, 213, 263; Growers Association, British, 333, 378, 456; growing, 389; question, the, 365; notes, 108, 453; notes from Eastnor, 325; operations, seasonable, 223; packing, carriage, and marketing of, 256; roadside plantations of, 543; *room, view of, in Messrs. Bunyard's nursery at Maidstone*, 365
Fruit tree, best form of, 291
Fruit tree stems, smearing, 559
Fruit trees, bush, 389, 445; foliage of, 289; hedgerow, 543; pruning, 444; smearing stems of, 482, 501; taking stock of, 278; winter notes on, 363
Fruits, bush, 48; Californian exhibition of, 491; eating for health, 418; hardy, 29, 156, 278, 365, 419, 467; under glass, 7, 49, 84, 109, 133, 168, 201, 225, 255, 291, 327, 347, 391, 420, 447, 483, 514, 541, 583, 594
Fuchsia, Californian, 372; centenary of the, 562; Countess of Aberdeen, 323; *Currant, Californian, the*, 230; dependens, 170; *fulgens*, 562; *microphylla*, 562; microphylla, 330; procumbens, 98; Riccartoni, 56, 64; Riccartoni and Hyacinthus candicans, 165; *splendens*, 563; triphylla, 82
Fuchsias at Kew, 178; from seed, 245; in the open air, 406; in mid-winter, 550
Fungus, a large, 165; in plantation, 287; with offensive smell, 68
Funkia, great white, the, 69
Furze, 329

G.

Gaillardias, 17, 105; propagating, 16, 272
Gale, Sweet, 78
Galeandra Baueri, 139; dives, 139
Galeandras, 479
Gardeners' clubs, 554
Gardeners in America, 513
Gardeners' Mutual Improvement, Birmingham, 402
Gardeners' Orphan Fund, the, 25, 117, 170
Gardeners' Relief Fund, Devon Rosery, 550
Gardeners' Royal Benevolent Institution, 19, 239, 504
Gardenia roots diseased, 68
Gardening, beautiful, 97; for profit, 387
Gardens, alteration in, 494; English flower, 191
Garland Flower, the, 342
Garrya elliptica, 64
Genista anglica, 565; elata, 18
Gentiana alpina, 574; angustifolia, 574; asclepiadea alba, 121; Clusi, 574; Kochiana, 574
Gentians of the acaulis group, 574
Geranium hymenoides, 557; Ivy-leaf Alice Crousse, 399; white field, the, 215
Geraniums as border plants, 320; hardy, 259
Geum miniatum, 22, 148
Gladioli, 244; early flowering, 69, 125, 580; French, new hardy, 593; in a damp cold season, 148; in wet seasons, 241; Lemoine's hardy hybrid from seed, 503
Gladiolus Bester, 264; Castro, 264; from Zurich, 316; Saundersi, 125; species of, the, 532; Ville de Paris, 458
Glen Cove, notes from, 56
Gloriosa superba, 129
Glory Pea of New Zealand, 126
Gloxinia, a Hose-in-hose, 165; flower, a curious, 316; maculata, 322; virginalis, 129
Gloxinias at Twickenham, 491
Gomphia decorans, 69
Gooseberries, 224; from Maidstone, 121
Gooseberry, the, 27; as a pyramid, 346; *Roseberry*, 27
Goring Hall, 170
Gourds, Snake, 490
Grafting old trees, 109
Grape, Black Morocco, 311; Cannon Hall Muscat, 133; culture, 290; culture for market, 593; Frontignan, 514, 543; Golden Queen, 278; Grizzly Frontignan, 584; Gros Colman, 591; Madresfield Court, 167, 278, 311, 366, 418; Madresfield Court not colouring, 224; Muscat Hamburgh, 167; Muscat Hamburgh, stoneless, 133; new, a, 456; West's St. Peter's, 202
Grapes, bottling, 560, 581; capricious, 289, 514; cracking, 345; cracking, the cause of, 132; good, rarely met with, 388, 467, 539; Muscat, defective fertilisation of, 560; scalded, 47, 108; shanking, 480
Grasses, ornamental, choice, 320
Greens, Winter, planting, 137
Greenhouse climbers, a few good, 308; plants in autumn, 375
Grevillea Fosteri, 403
Griffinia hyacinthina, 275
Gromwell, creeping, 3
Ground, vacant, 367
Grouse, Pallas's sand, 116
Grubs, the plague of, 26
Gum, Sweet, 456
Gum trees, hardiest, the, 400
Gunnera scabra, 320
Gymnogramma gloriosa, 115; Pearcei robusta, 44, 115; spores, 567; Wettenhalliana, 140
Gypsophila cerastioides, 56

H.

Habenaria bifolia, 13, 43; militaris, 298; viridis, 238
Hablitzia tamnoides, 104
Habranthus Andersoni, 26
Habrothamnus aurantiacus, 408; *fasciculatus*, 107; the, 106
Hæmanthus Katharinæ, 121, 217
Halimodendron argenteum, 32
Hamamelis virginica, 410
Hamiltonia lanceolata, 381
Hardback, 304
Hardy flowers, 380; a note on, 293; in December, 544; the arrangement of, 126
Hardy perennials, supporting, 181
Hardy plants, 22; in beds, 267; in July, 21; notes on, 56, 89, 124, 459, 557
Harpalium rigidum, 223; rigidum, 310
Harrow, Rest, the, 565
Haslemere, a note from, 165
Hawaiian Islands, scenes in, 591
Hazel, Witch, the, 410
Health, eating fruit for, 418
Heaths, hardy, 565; propagating, 80; winter-flowering, 473
Heckfield Place, Hants, view on the upper lake at, 361
Hedera algeriensis as a pyramid, 496; *canariensis*, 492; *digitata*, 493; *hastata*, 493; *lucida*, 492; *pedata*, 493; Rægneriana, 374, 492
Hedge robed in scarlet, a, 74
Hedges, old, repairing, 610
Hedychium coronarium, 239, 342
Helianthus anemonæflorus, 554; diffusus and its varieties, 430; japonicus, 104; lætiflorus, 575; multiflorus and its varieties, 358; multiflorus grandiplenus, 339, 406; multiflorus plenus, 294, 458; rigidus, 221, 575; tricuspis, 575; tricuspis and semiplenus, 532
Helianthuses from Ireland, 244
Heliotrope White Lady, 36
Heliotropes in winter, 564
Helleborine, broad leaved, the, 238
Helleborus purpurascens, 499; Riverston variety, 550
Heracleum persicum, 22
Herbaceous and alpine plants, 179
Herbaceous plants, 5; for forcing, 578; for the seaside, 606; staking, 103; supports for, 222
Hibbertia dentata, 127
Hibbertias, 82
Hibiscus syriacus, 330; syriacus, propagating, 332
Hickory, Shell-bark, the, 334
Hieracium aurantiacum, 5
Hippeastrum aulicum, 504
Hippophæ rhamnoides, 498
Hollies dying, 444; in Dublin, 544; killed by rabbits, 142; and Yews, moving, 69
Holly, Hodgin's, 10; hedges, 472
Hollyhock, 98, 269; diseased, 182; propagating, 102
Holwood Park, tree notes from, 443
Honeysuckle bush, the, 349; bush, 350; Dutch, in pots, 525; golden variegated, 64; Japanese, 194; Scarlet Trumpet, 300; the Swamp, 160
Honeysuckles, 62
Hornbeam, wood of the, 142
Horse Chestnut, the, 500
Houlletia Brocklehurstiana, 116, 353
Houses, damp, covering walls of, 177
Hovey collection, end of, 330
Humata Tyermani, 601
Huntleya albido-fulva, 116
Hyacinths, Roman, 451
Hyacinthus candicans, 294, 359; candicans and Fuchsia Riccartoni, 165
Hydrangea, a fine, 61; climbing, 280; grandiflora, 14, 26; hortensis, 64, 177; paniculata, 282; scandens, propagating, 16
Hypericum kalmianum, 244; nepalense, 316

I.

Impatiens comaroensis, 217; Hawkeri, 246, 307, 342, 526, 570; Hookeriana, 591
Indies, West, Flora of, 362
Indigofera floribunda, 160
Ipomæa Horsfalliæ, 451; rubro-cærulea, 323; Thomsoniana, 82
Iris aurea, 89; Enterprise, 92; Histrio from Ireland, 456; Japanese, 90, 576; Kæmpferi, 147; Kaiser Wilhelm, 92; orientalis, 5; Robinsoniana, 244; stylosa, 211; stylosa alba, 408; Vartani, 504
Irises at Dangstein, 18; late, two, 17; notes on, 4
Iron, sulphate of, as a Moss-killer, 129
Isle of Wight, notes from the, 72
Ismene calathinum, 336
Italian Exhibition, flowers at, 18
Ivies, propagating, 333; variegated-leaved, *Ivy, Arrow-leaved*, 493; *Bird's-foot*, 493; *Finger-leaved*, 493; *glossy*, 492; *Heart-leaved*, 492; *Irish*, 492; Irish, variegated, 350; on buildings, 282; on tree stumps, 10; on walls, 379, 403; purple-leaved, the, 508 scarlet-fruited, the, 586; the, 492
Ixia viridiflora, 22
Ixias, 74, 104
Ixora macrothyrsa, 170

J.

Jamesia americana, 252
Japanese Stuartia, 112
Jasmine, Chili, 60, Spanish, 609
Jasminum nudiflorum, 528
Jersey, New, a note from, 21
Judas Tree fruiting, 282
Juglans regia laciniata, 112
Juncus acutus, 90

K.

Kæmpfer's Flag, 147
Kennedya Marryattæ, 491
Kent, a note from, 504
Kew, Fuchsias at, 178; greenhouse at, 591; rock garden at, 25; the Royal Horticultural Society and, 547
Kitchen garden notes, 11, 40, 58, 76, 113, 137, 152, 172, 229, 251, 276, 303, 332, 351, 368, 387, 415, 442, 464, 496, 507, 538, 553, 572, 599
Kniphofia Canari, 121
Kniphofias, 396
Kœlreuteria bipinnata, 305; new, a, 305
Kropatsch, Louis, 550, 591

L.

Labrador, Tea, 31; *shrub, the*, 31
Laburnum, 30; *alpinum*, 30; *Scotch, the*, 30; Nepaul, 80; *vulgare*, 30; *vulgare quercifolium*, 30
Lælia albida bella, 536; amanda, 169, 353; Amesiana, 92, 116, 139; anceps Amesiana, 587; anceps Dawsoni, 384, 479; anceps Prothereana, 518; anceps Sanderiana, 588; autumnalis atrorubens, 517, 518; autumnalis Buchani, 370; Dayana, 370, 384; Dormanniana, 550; elegans, 165; elegans Turneri, 204, 299; Goldieana, 603; monophylla, 353; Perrini, 423; Perrini alba, 381; Perrini and its varieties, 434; porphyrites, 354; præstans, 370, 591; præstans, white-flowered, 588; prasiata, 204; pumila, 370, 384; purpurata, 299; Tautziana, 299; Victoria, 475; xanthina, 139
Lagerstræmeria indica, 153
Lamb, Tartarian, the, 344
Landscape gardening in India, 244
Landscape, natural, *v.* laying out, 361
Lantanas in flower, 100, 323
Lapageria alba, 210, 381; rosea and L. alba, 440; rosea superba, 98; *rosea, wreath of*, 321; the, 321; unhealthy, 400
Lapagerias in bloom, 308; propagating, 432
Larch, beauty of the, 94; disease of, 20; seed, 356, 404; the, 522; venerable, a, 94
Lasiandra macrantha, 585
Lastrea montana ramo-coronans, 92
Lastreas, exotic, hardy, 51
Lathyrus nagellanicus, 406
Lattice-leaf plant, the, 35, 61
Laurel, Alexandrian, 231; Colchic, fruiting, 330; varieties of the, 586
Laurustinus, 528; hedges and clumps, 473; variegated, 528
Lavatera alba, 339; rosea, 296, 339
Lavateras, 403
Lawn, making a, 381
Leadwort, Cape, the, 98
Leaves, colouring of, 528
Ledum, 31; *latifolium*, 31
Leigh Park, Havant, 385
Leiophyllum buxifolium, 31
Lepicystis sepulta, 566
Leptospermum scoparium, 36
Leschenaultia biloba, 59
Lespedeza bicolor, 31
Lettuce, Favourite, 367
Lettuces, 39
Leucojum autumnale, 239
Leucothoe, 62
Leycesteria formosa, 31, 64
Lilac, 328; *Charles X.*, 328; white, in July, 26

Lilies, beautiful, two, 25; at Kew, the, 287; at Tottenham, 102; at Twickenham, 98, 182; diseased, 67; Himalayan, 341; Mariposa, 22, 74, 125; notes on, 180; Orange, and Larkspurs, 24; Tiger, in bloom, 222; Torch, 223
Lilium auratum, a well-flowered, 14; auratum in gardens, 316; auratum, late planted, 457; auratum platyphyllum, 192; Batemanniæ, 243; Browni, 14; candidum, 105; chalcedonicum, 147, 194; elegans alutaceum, 5; giganteum, 89, 125, 395; *giganteum*, 269; Harrisi, 100. 375, 521; longiflorum, 121; neilgherrense, 504, 550, 591; nepalense, 264; speciosum, 319; speciosum album novum, 406, 458; speciosum vars, 358; superbum, 89; Wallichianum, 310
Liliums at Chelsea, 221
Lily, African, the, 338; Amazon, the, 309; Amboyna, the, 121; Belladonna, the, 311; Canadian, the, 88; canary-yellow Torch, 121; Jacobæa, the, 14; Madonna, the, 89, 91; Madonna, transplanting the, 223; Martagon, scarlet, 122, 147; Rockwood, 147; St. Bernard's, 56; St. Bruno's, 56; Scarborough, the, 246; season, notes on, 340; Swamp, the, 89; Torch, canary-coloured, a, 104; tree, Chinese, 276
Lily of the Valley, forcing, 375; fruiting of, 336, 360
Lime, 329; *common, flowers of the*, 329; Silver, the, 500; tree, the, 476
Linaria triornithophora, 74, 129, 340
Linnæa borealis, 3
Linum monogynum, 194; perenne, 319
Liparis spathulata, 518
Liquidambar styraciflua, 456
Liriodendron tulipifera, 31, 42
Lithospermum prostratum, 3
Littonia modesta, 178, 194
Llandilo, rainfall at, 239
Lobelia Die Shone Darmstaderin, 340; good basket, a, 103; ramosa, 320
Lobelias, bedding, 4; Mexican, seedling, 311
Locust, Clammy, the, 32
Lonicera, 62; acuminata, 80; flava nova, 80; *fragrantissima*, 62; japonica, 194; sempervirens, 18; sempervirens minor, 300
Loosestrife, purple, 193
Loquat, the, 64
Luculia gratissima, 564, 580; propagating, 580
Luddemannia Pescatorei, 285
Lycaste fulvescens, 434; Measuresiana, 603; plana Cumminsi, 518; Skinneri, 537; Skinneri alba, 384, 479; Smeeana, 517; tetragona, 88
Lychnis vespertina albo-fl., 242
Lycium europæum, 63
Lygodium flexuosum, 51
Lynx Flowers, the, 549
Lyonia, 31
Lysimachia clethroides, 150
Lythrum alatum, 340; roseum superbum, 150

M.

Maaregravia paradoxa, 236
Mackaya bella, 16
Magnolia, 62; acuminata, 305; conspicua, 276; grandiflora, 136, 176; hypoleuca, 306; purpurea, 400; Soulangeana in bloom, 373
Magnolias, wall of, a, 236
Mahonia, 63
Maiden-hair tree, the, 10
Maiden's Wreath, 468, 469; the, 578
Malva moschata alba, 104
Mandevilla suaveolens, 60
Manettia bicolor, 56
Maple, field, the, 374; Norway, the, 610; the Eagle's-claw, 112
Mardenia erecta, 121
Maresfield, coloured-leaved trees at, 160
Marigold, Corn, the, 338; African, saving seeds of, 294; pot or garden, 556
Market garden notes, 77, 108, 215, 286, 416, 455, 521, 589
Marsdenia macropus, 35
Masdevallia Chimæra, 139; coradella, 43; cucullata, 536; Davisi, 169, 517; macrura, 451; polysticta, 518; racemosa, 169; Schlimi, 88; tovarensis, 517; Wageneriana, 43
Masdevallias at Burford Lodge, 42
Matricaria inodora fl.-pl., 360
Maxillaria grandiflora, 537; lepidota, 588; præcrupta, 454; venusta, 43
Meadow-sweet, shrubby, 176, 252
Mealy bug on Vines, 448
Meconopsis Wallichi, 91
Medlar, common or Dutch, the, 63; *large-flowered, the*, 66; the, as an ornamental tree, 469
Melia Azedarach, 10
Melilot, common, the, 380
Melilotus officinalis, 380
Melon culture, 481; Scarlet Gem, 291
Melons, a fine crop of, 481; a house of, 286
Menispermum canadense, 63
Mertensia alpina, 295
Mesembryanthemum blandum, 456, 519; cordifolium variegatum, 272; uncinatum, 150
Mesembryanthemums, four good, 82
Mesospinidium vulcanicum, 247
Mespilus, 64; *germanica*, 63; *grandiflora*, 66
Meteorological observations in Germany, 240
Michaelmas Daisies, 408
Milla biflora, 149
Miltonia Clowesi pauci guttata, 537; Peetersiana, 169; Regnelli purpurea, 205; spectabilis Moreliana, 194
Mimulus moschatus ruber, 154
Mimuluses, 579
Mina lobata, 340
Mistletoe, 608; *Weeping*, 608
Mitraria coccinea, 63; coccinea, 64
Mitre Flower, Chilian, the, 63
Mocassin Flower, the, 43
Mock Orange, 135; the large-flowered, 207
Mohria thurifraga, 171
Momordica involucrata, 25
Monotropa Hypopithys, 239
Montbretia crocosmiæflora, 194
Montbretias, 192; at York, 244; in bloom, 99; propagating, 245, 552
Moonseed, Canadian, 63
Mormodes luxatum eburneum, 204
Morus nigra, 585
Moth, goat, the, 312; winter, the, 543
Mountain Ash, 207; berries, 410
Mulberries dropping, 202
Mulberry, the, 585
Musas, dwarf flowering, 14
Mushroom beds, late-bearing, 39; leaves for, 441
Mushroom spawn, making, 387
Mushrooms, autumn supply of, 57; in the open air, 415
Musk, Harrison's, as a bedding plant, 148; Mallow, white, 104
Myosotis dissitiflora, 24
Myrica, 78
Myricaria germanica, 78
Myrtle, common, the, 78
Myrtus, 78
Mystacidium filicorne, 43

N.

Nancy, nursery gardens of, 215
Narcissus Ajax bicolor, 243; *calathinus*, 90; calathinus, 119; cyclamineus, 223; incomparabilis Sulphur Phœnix, 486; *Johnstoni*, 55; Johnstoni, 89; monophyllus, 498; triandrus, sub-species calathinus, 180; viridiflorus, 3
Nardoo, the, 35
Nasturtium, Flame, the, 238, 311
Nectarine, Pine-apple, 28
Nectarines, 483; after fruiting, 290; two good, 17
Neillia opulifolia, 78
Neottia Nidus-avis, 13
Nepenthes cincta, 82; Dicksoniana, 354; not forming pitchers, 36
Nerine excellens, 310; Fothergilli, 322
Newry, notes from, 105
Nicotiana affinis, 520; colossea, 502
Nigella damascena, 360
Nine Bark, 78
Nightshade, Mexican, 106
Notching, 288
Nothochlæna Mulleri, 92
Novelty seeking, 403
Nuttallia cerasiformis, 78; cerasiformis, 78

O.

Oak plants with knots, 70; *Wilberforce, the, at Holwood Park*, 337
Oaks, Holwood, the, 337; November colour in the, 499
Obituary—
Court, W., 287, 403
Crabbe, Mrs. Eyre, 403
Crawford, W. H., 403
Dickson, F. A., 333
Laxton, Mrs., 499
Mackay, J. B., 287
Pitman, C., 69
Roberts, Mrs., 229
Rogers, Mr, 141
Soper, G., 93
Whitbourn, F., 93
Wooster, D., 355
October frosts, 544
Octomeria convallarioides, 588
Odontoglossum blandum, 603; cirrhosum, 285; Coradinei, 88; cordatum splendens, 13; crispum, 116; crispum aurantiacum, 13; grande, 287, 299, 480, 550; grande aureum, 353; Harryanum, 204; Harryanum nigrescens, 299; Humeanum, 587; Hunnewellianum, 587; Insleayi splendens, 384; Krameri, 161; Londesboroughianum, 603; maculatum Duvivierianum, 435; mirandum, 161; nebulosum, 370; nevadense, 299; Roezli, 536; Rossi Amesianum, 588; Schrœderianum, 161 603; tripudians, 169; vexillarium, 116. 204; vexillarium superbum, 139; Wallisi, 204
Odontoglossums in the open air in 1888, 517
Œnothera fruticosa, 243; glauca, 243; speciosa, 239
Oldswinford Castle, Stourbridge, 597
Olearia, 79; *Gunniana*, 535; Haasti, 160, 170, 232, 330; Haasti, propagating, 272; insignis, 25; *ramulosa*, 534
Olearias, 534
Omphalodes longiflora, 222; Luciliæ, 148, 242
Oncidium aurosum, 161; cheirophorum, 423; crispum, 479; crispum ochraceum, 602; *curtum, flower of*, 87; *curtum, showing habit*, 87; incurvum, 139; incurvum album, 248, 299; Jonesianum, 116, 299, 353, 370, 384; lamelligerum, 13; Lanceanum, 248; macranthum, 88, 299; macranthum Williamsianum, 324; Martini, 401; nigrastum, 116; ornithorrhynchum album, 264; Papilio, 88; phymatochilum, 116; Rogersi, 434; stelligerum Ernesti, 13; tigrinum, 423; triquetrum, 139; zebrinum, 139
Oncidiums of the crispum group, 87
Onion, Lord Keeper, 538; Piedmont, the, 5; Southport Red Globe, 475
Onions, 205, 571; culture of, for exhibition, 302; sowing, 152
Ononis arvensis, 565
Onosma taurica, 80
Ophioglossum palmatum, 566
Ophiopogon jaburan aureo-variegatus, 286
Orange Ball Tree, 102
Orange, Mock, the, 17
Orchard, 539
Orchards, old and new, renovation of, in the west midlands, 390
Orchid Album, the, 116
Orchid, Fairy, 353; Frog, the, 238; Goldchain, the, 88; house, climbers for, 82; Madeira, the, 455; notes, seasonable, 238, 369, 588; paintings by Durham, 88
Orchids, August-flowering, 247; at Devonhurst, 596; at Heaton House, Cheshunt, 516; at Lodsworth, 13; at Twickenham, 536; British hardy, 87; importing, 479; in flower at the York Nurseries, 550; in France, 203; native, our, 435; recent, 423; Swan, the, 12
Orchis foliosa, 455; hircina, 169; Lizard, the, 169; mascula, white-flowered, 42
Oreocome Candollei, 92, 105
Origanum Dictamnus, 193
Ornithocephalus grandiflorus, 13
Ornithogalum aureum, 74; unifolium, 17
Ornus europæa, 78; europæa, 79; *floribunda*, 79
Orphan Fund, Gardeners', 19, 68, 93, 238, 379, 425, 544, 545
Osmanthus ilicifolius, 609
Osmunda regalis, 9
Osoberry Tree, Californian, the, 78
Ostrowskya magnifica, 17, 44
Ourisia coccinea, 3
Ourisandra fenestralis, 35
Oxalis lobata, 360
Oxford, Tea Roses at, 122
Oyster plant, 295
Ozothamnus rosmarinifolius, 79, 409, 486

P.

Pachystoma Thomsonianum, 299
Pæonies, 8, 464; from Langport, 3; Tree, 102
Pæony, a good white, 3; *white*, 465
Palm, Sago, the, 99
Palms, Chusan, 17; for the open air, 209; in small pots, 216
Pampas Grass, dyeing, 91, 120
Pancratium speciosum, 36
Pansies, 295; fancy, 319; figures of, 299; in the flower garden, 103; propagating, 16; tufted, 221, 357, 512, 575
Pansy Archie Grant, 340; Countess of Hopetoun, 183; Snowflake, 5
Paper from wood, 312
Paphinia grandis, 370
Paphinias, 65
Paradise stock, Apples on, 132
Park, West Dean, Chichester, 317
Park scenery, the improvement of, 70
Parks, public, flowers in, 267
Parochætus communis, 459
Parsonia albiflora, 194
Passiflora cærulea, 110, 114; Constance Elliott, 98; Constance Elliott in Ireland, 403; kermesina, 342; princeps, 286, 504
Passion Flower, 110; new, a, 25
Paulownia imperialis, 79
Pavia, 111; *flava*, 111; macrostachya, 373; *macrostachya*, 110; *rubra*, 111
Pea, Everlasting, white, 56, 91; Omega, Laxton's, 381; Ne Plus Ultra, 331; Walker's Perpetual Bearer, 152; picking, 553
Peach, Amsden's June, 202; an early, 170; Dymond, 419; Hale's Early, 17; Malta, 328; stones, split, 155; the, as a market fruit, 465; trees in Dordogne in 1888, 326; Violette Hâtive, 419; Walburton Late Admirable, 366
Peaches, 483; after fruiting, 290; big, 239; big bad, 328; colouring of, 49; for succession, 49; in America, 49; large, 8; Red Magdalen, 328
Pear tree, bush, a, 389
Pear trees, cordon, 447; on low walls, 419; *cordon oblique-trained*, 539
Pear Beurré Superfin, 504; *Duchesse d'Angouleme*, 389; Jargonelle, 244, 286; names, 267; perpetual, a, 364; *White Doyenne*, 445; Williams' Bon Chrétien, 480
Pears, 313; and Apples, national conference of, 141, 311, 355; as horizontal cordons, 542; collection of, planted 148 years ago, 593; cooking, 380; dessert, 584; early, 360; for the million, 445; gathering 345; keeping, 484; November and December, 582; on walls, 366; perry, 360; standard, for Britain, 360, 514, 560; William, 254; 157 kinds in a private garden, 5.4
Peas, December, in Scotland, 550; dwarf, 113; early, second, 77; latest, the, 12; not filling, 137; tall *v.* dwarf, 414
Pelargonium Duchess of Teck, 153; Gloire Lyonnaise 74; Mme Crousse, 451; Queen of the Whites, 60
Pelargoniums, Ivy-leaved, new, 519; in winter, 424; zonal, 10, 438; zonal, at Langley Court, 456; zonal, for market, 342
Pellæa bella, 9; *intramarginalis*, 461
Pellæas, choice, of the Western Hemisphere, 461
Pentas carnea, 564
Pentstemon barbatus Torreyi, 243; heterophyllus, 104; rotundifolius, 15
Pentstemons, 126, 194
Perennials, hardy, for pots, 405; hardy, in winter, 573
Periploca græca, 18, 79, 136; *græca, flower-sprays of*, 78
Peristeria elata, 423
Pernettya mucronata, 80
Pernettyas, propagating, 65
Pescatorea cerina, 536
Petunias, 192; double, 216
Phaius bicolor, 451; callosus, 451
Phalænopsids at Kew, 248
Phalænopsis amabilis, 324; cornu-cervi, 336; *grandiflora*, 516; *grandiflora, showing habit of plant*, 517; Kimballiana, 13, 74; speciosa, 88; Stuartiana, 603
Philadelphus, 135; grandiflorus, 207; *grandiflorus*, 135; *hirsutus*, 138; *microphyllus*, 134
Phlomis fruticosa, 79, 80
Phlox stellaria, 221
Phloxes from seed, 401
Photographic competition, 590
Phylloxera in vinery, 167
Phymatodes, 509; *alboquammata*, 509; saccata, 51
Physianthus albens, 381; *albens*, 397
Physostegia virginica alba, 193
Phyteuma limonifolium, 5
Phytolacca decandra, 340
Picea Parryana glauca, 80; pectinata, 404; Veitchi, 380; Webbiana coning in Ireland 316
Picotee and Carnation, the, 125
Picotee Mrs. Sharpe, 248; rose-edged Nellie, 430, 486, 501
Picotees, 429; selection of, 458
Pilumna nobilis, 323, 537
Pine-apple, the, 417; growing, 202; growing at Goodwood, 28
Pine, Huon, the, 452; monster, a, 312; mountain white, 118; shoots destroyed by caterpillars, 67; Stone, Swiss, the, 266; the long-leaved, 166
Pine forest, Portuguese, a, 404; forests, the, of Western France, 426
Pines and Firs, 190
Pink, Blood, 5; Lord Lyon, 90; Pennsylvanian, 56
Pinks, a few good, 18; alpine, 503; propagating, 38
Pinus Cembra, 214; flexilis, 118; ponderosa, 266; ponderosa, weeping, a, 494; sylvestris, 312
Piper nigrum, 217
Piptanthus nepalensis, 64, 80
Pitting, 288

Plane tree pollen causing influenza, 18
Plant houses, work in, 15, 37, 81, 101, 128, 154, 177, 209, 217, 246, 274, 307, 322, 343, 376, 398, 439, 471, 490, 519, 526, 579, 596
Plant names, simplicity in, 165
Planting, 277, 476; ornamental, meaning of, 142; stupid, 46; utility of, 568
Plants, a few good dot, 124; elegant table, 210; grouping, 220; hardy, notes on, 406; herbaceous and alpine, 179; wet weather, 241; winter-flowering, 470
Plantations, mixed, on peat bog, 118
Platycodon grandiflorum, 150
Pleione lagenaria, 353; Schilleriana, 43
Pleiones, 451
Pleocnemia Leuzeana, 273
Pleroma macrantha, 591
Plum, Angelina Burdett, 194, 447; Chinese, double white, the, 472; July Green Gage, 133; Myrobalan, Purple-leaved, 330
Plum trees, cordon, 514
Plums, 388, 482; late, 480; late *v.* late Peaches, 446; market, early, 225; *v.* Peaches, 540; profitable, 201
Plumbago capensis, 98, 165; capensis and c. alba, 424
Plumiera bicolor, 408
Podocarpus andinus, 94, 136, 246
Poinsettia pulcherrima planted out, 275
Poke-weed, Virginian, the, 340
Polemonium flavum, 3
Polyanthuses, laced, 180
Polygonum, 100; sachalinense, 148; sphærostachyum, 503
Polypodium Picoti, 577; Picoti, 577
Polystichum venustum, 400
Polystichums, choice, 400
Pomegranate, 112, 408
Pomegranates, propagating, 81
Poplar, Balsam, the, 312; for timber, 288
Poplars, Lombardy, and lightning, 94; Lombardy, planting, 142
Poppies, 102; and Globe Flowers, 238; from Wantage, 89; Iceland, the, 24, 339, 531; Shirley, 213; variations in, 22
Poppy, Himalayan, blue, 91; new, a, 74
Populus balsamifera, 312; canadensis Van Geerti, 494
Potato crop, remarks on, 112; in West Cornwall, 40; the, 303
Potato, curious, a, 496; culture under glass, 506; disease, the, 182, 205, 351; Early Puritan, 152; Improved Ashleaf, 331; Tree, 280; tubers, influence of flowering on, 600
Potatoes, 17; an experiment with, 463; at the Royal Aquarium, 507; clamping, 507; disease-resisting, 251; early, 137; in frames, 553; lifting and storing, 331; profitable, 302; quality of, 215; will all the varieties degenerate, 414
Potentilla floribunda, 112; fruticosa, 10, 318; William Robinson, 150
Potentillas, 18
Pratia angulata, 5
Primrose, double crimson, the, 406; Evening, Missouri, 336; the Scotch Bird's-eye, 165
Primroses, 192, 432; coloured, from Ealing, 550; double, 368, 430; from Wantage, 544
Primula Auricula in full flower, 499, 555; Chinese, Cannell's Pink, 545, 567; Chinese, old double white, 564; floribunda, 16; frondosa, 459; japonica, propagating, 38; obconica, 406, 550, 580; prolifera, 456; sikkimensis, 222; suffrutescens, 3
Primulas, Chinese, 577
Privet, golden-leaved, 509
Prize, disputed, a, 544
Promenæa stapelioides, 88
Promenæas, 42
Propagation, rapid and ready, 98
Prunus, 135; domestica variegata, 44; pendula, 32, 350; Pissardi, 252, 472
Pteris, a few ornamental, 114; tremula elegans, 45
Pterocarya caucasica at Claremont, 219
Pterostyrax hispidum, 111; *hispidum, fruit of*, 111
Pulmonaria saccharata, 381; saccharata grandiflora, 125
Punica granatum, 112
Pusley, 566
Pyracantha, red, the, 330
Pyrethrum uliginosum, 243, 319
Pyrethrums, 23, 272
Pyrus, 206; *Aucuparia*, 207; *coronaria*, 206; *domestica*, 207; *Hosti*, 210; *Toringo*, 206

Q.

Quassia chips, 117
Quercus austriaca sempervirens, 25; concordia, golden-leaved, the, 80
Quince, the, as an ornamental tree, 409
Quinces, how to grow, 256

R.

Rabbits, Hollies killed by, 142; *v.* trees, 500
Radish, large, a, 367
Railway flower gardening, 311
Rain water, storing, 77
Ramondia pyrenaica, 125
Randia macrantha, 550
Ranunculus Lyalli, 147; the, 318
Raphiolepis japonica, 158; ovata, 32, 158
Raspberry *v.* Blackberry, 543
Rehmannia sinensis, 456
Renanthera matutina, 299
Restrepias, 66
Retinosporas, golden, 231, 509; in winter, 586
Rhipsalis cassytha, 316
Rhododendron brachycarpum, 282; calophyllum, 101; curious growth on, 141; Davisi, 591; ponticum, cutting and layering, 174; punctatum, 64; Purity, 92; retusum, 14; Souvenir de J. H. Mangles, 44; Yellow Perfection, 401
Rhododendrons, cutting down, 16; greenhouse, 100, 408; Japanese or Himalayan, 525; propagating, 273
Rhodora canadensis, 158
Rhodotypos kerrioides, 158
Rhus Cotinus, 176; *Cotinus on lawn*, 162; *glabra laciniata*, 158; *vernicifera*, 158
Rhynchospermum jasminoides, 381
Ribes, 220; *sanguineum*, 230; *speciosum*, 230
Ridging, winter, and its effects, 463
Rivina humilis, 399, 440
Rivinas in fruit, 322
Roadside planting, 582
Robinia, 174; *hispida*, 175; hispida, 18; *Pseudacacia var. Decaisneana*, 174; viscosa, 32
Rocket, yellow, double, 459
Rodriguezia secunda, 370
Roezera gratissima, 471
Romneya Coulteri, 69, 89, 121, 264
Rondeletia speciosa, 491
Root, Yellow, 372
Roots, lifting and storing, 463; and rockwork, 555
Rootwork, 605
Rosa Beggeriana, 315, 362; berberidifolia, 412; Brunonis, 71, 72, 428; grandiflora, 454; Hardyi, 53, 336; Harrisoni, 2; lucida, 21, 524; microphylla, 412; nutkana, 524; Pissardi, 72; pomifera, 336, 524; rubrifolia, 524; rugosa, 122, 215, 383; rugosa and its white variety, 314; rugosa for hedges, 429; semperflorens, 2; setigera, 362
Rose Adam, 314; Alphonse Soupert, 34; amabilis, 298; America, 336; Annie Laxton, 34, 314; aphis, remedy for, 330; Baroness Rothschild, 314; Blanche Moreau, 34; blue, a, 478; Boieldieu, 2; Brilliant, 54; bushes, pyramid, 52; Bruce Findlay, 163; Camoens, 163; Cannes la Coquette, 34, 268; Celestial, 315; Charles Dickens, 54; Comtesse de Castejà, 72; Cheshunt Scarlet, 92; Climbing Devoniensis, 34; Climbing Gloire des Rosomanes, 362; Comte d'Epremesnil, 34; Comte de Paris, 97, 268; Comte Henri Rignon, 268; Comtesse de Caserta, 268; Comtesse de Mailly-Nesle, 72; Comtesse Panisse, 54, 314; Crown Prince, 54; Danmark, 362; Devienne Lamy, 34; Ducher, 298; Duchess of Albany, 53, 163, 192; Duchess of Bedford, 72, 97; *Duke of Edinburgh*, 297; Duke of Edinburgh, 314; Dupuy Jamain, 268; Earl of Dufferin, 53, 96, 163; Eclair, 72; Elizabeth de Grammont, 268; Ella Gordon, 53, 197; Emperor, 54; Ethel Brownlow, 54; Fortune's Yellow, 33, 511; Fortune's, in Adelaide, Australia, 478; Francisca Kruger, 163; *Francois Michelon*, 249; garden, the, in early June, 1, 95; Gloire Lyonnaise, 71, 96, 413, 428, 454; Gloire de Margottin, 296; Glory of Cheshunt, 53; Grace Darling, 215; Grand Mogul, 53, 216; Guelder, the, 287, 349, 443; Heinrich Schultheis, 34, 97; Henri Ledechaux, 314; Her Majesty, 71, 383; Inigo Jones, 72; Jeannie Dickson, 71; Lady Castlereagh, 2; Lady Helen Stewart, 54, 268; Lady of the Lake, 54; Lamarque, 2, 33; Laura Davoust, 314; L'Ideal, 268; Lord Bacon, 97; Luciole, 163; Mme. André Duron, 298; Mme. Bois, 2; Mme. Crozy, 72; Mme. A. Etienne, 163; Mme. de Lartas, 97; Mme. Edouard de Bonnieres de Wierre, 298; Mme. Etienne, 298; Mme. Eugène Verdier, 163; Mme. Georges Bruant, 72, 298; Mme. Henri Pereire, 71; Mme. Hoste, 163, 314; Mme. Joseph Desbois, 34, 163; Mme. Lambard, 314; Mme. Norman Neruda, 163; Mme. Scipion Cochet, 298; Mme. de Vatry, 298; Mme. de Watteville, 34; Maiden's Blush, 54; Malmaison, 72; Marchioness of Lorne, 72; Maréchal Niel, 2, 33, 249, 380; Maréchal Niel, in Lincolnshire, 298; Maréchal Niel, on its own roots, 97; Marie Pare, 54
Rose Marie Van Houtte, groups of, 296; Marquise de Vivens, 72, 314; Mary Bennett, 2; Max Singer, 314; Merveille de Lyon, 97, 315; Mrs. George Dickson, 97; Mrs. George Paul, 55; Mrs. James Wilson, 296; Mrs. John Laing, 53, 54, 71, 268; Mrs. Sharman Crawford, 2; Mons. Noman, 314; Narcisse, 34; Niphetos, 95, 298; Niphetos, climbing, 523; notes from Cornwall, 33; old China, 2; Papa Gontier, 163; Paul's Single White, 34, 298; Persian Yellow, 2; Pierre Carot, 97; Pride of Reigate, 97; Pride of Waltham, 72; Princess Beatrice, 34, 71, 72; Princesse de Sagan, 268; Princess of Wales, 34; Prosper Laugier, 72; Reine O'ga de Wurtemburg, 412; Rivolli Charles, 72; Silver Queen, 53; Sombreuil, 294, 314; Souvenir de S. A. Prince, 71; Souvenir de Victor Hugo, 122, 314; The Bride, 54, 71, 163, 314; the Cherokee, 163; trees, grubs on, 91; trees, rust on, 163; Ulrich Brunner, 2; Vallée de Chamounix, 298; Viscountess Folkestone, 71; Victor Hugo, 268; walk at Kew, the, 2; Waltham No. 1, 97; W. F. Bennett, 249; what is a "cut-back," 215; White Baroness, 97; York and Lancaster, 54
Rose Acacia, the, 175
Rose Society's, National, catalogue, 25
Rosery, Devon, the, in Torquay, 267
Roses, 454, 511, 549; a suggestion about, 163; after the frost, 383; aphides on, in 1888, 362; at Forest Hill, 98; autumn-flowering, 362; bedding, 71; button-hole, 336; Chinese, 478, 524; Chinese, as autumn bloomers, 428; climbing, on Christmas Day, 335; exhibition, 296; for masses, 97; for the seaside, 95, 216; for wet seasons, 548, 604; from Berks, 96; garden, 268, 383; garden, list of, 250, 297, 362; Harrison's Yellow and Persian Yellow, 34; in Hampshire, 298; in July, 33; in November, 451; in 1888, 313; late, 523; late, in 1888, 97; Macartney, the, 298, 335; miniature, 34, 72; Monthly, 54, 215; new, 427, 453; new, at the exhibitions, 71; new, raised at Lyons, 297; old-fashioned, 71; own-root, 216, 268; planting, 477; propagating, 54, 524; red, best, 315; Rock, shrubby, 252; seedling, 523; seedling, raising, 604; selection and growing of, 478, 523; single, 97; successional blooming of, 53; Tea, at Oxford, 122; Tea, at Waltham Cross, 52; Tea for winter-blooming, 52; Tea, in 1888, 97; Tea-scented, 53, 510; Tea-scented, hardiness of, 96, 122, 163, 215; Tea-scented, pruning, 72; rains and red rust on, 249; two good, 97; wash for, 122; winter protection of, 362, 412
Roses, Christmas, 430, 485, 498; Christmas, diseased, 533, 606; Christmas, dying, 503, 556; Christmas, from Exeter, 544, Christmas, transplanting, 405
Royal Benevolent Institution, Gardeners', 499
Rougier-Chauvière, M., retirement of, 425
Rubus, 230; *deliciosus*, 74, 231; *odoratus*, 230; pomponius fl.-pl., 234; rosæfolius coronarius, 518
Rudbeckia purpurea, 221
Ruellia macrantha, 82
Ruscus, 231; *aculeatus*, 231; *racemosus*, 231
Rush, the banded, 105
Ruskin on flower gardens, 181

S.

Sabal Adansoni, 216
Saccolabium Blumei, 116; cœleste, 74, 92, 194, 238; gemmatum, 324; Hendersonianum, 299
Sage, Jerusalem, 80; *shrubby, the*, 79
Salisburia adiantifolia, 10
Salvia Pitcheri, 526; splendens, 526
Sambucus, 280
Sanvitalia procumbens, 239
Sarracenias as insect traps, 342; at Horsham, 333
Saxifraga fimbriata, 222; Fortunei, 456; juniperina, 89, 485; ligulata and its allies, 103; ohioensis, 242; sarmentosa tricolor, 100
Scabiosa caucasica, 407; caucasica amœna, 89; graminifolia, 295
Scabious, German dwarf, 342
Scarborough, a note from, 311
Schizandra, 280
Schizophragma hydrangeoides, 280; *hydrangeoides*, 281
Schizostylis coccinea, 381, 451
Schubert a grandiflora, 18, 60; *grandiflora*, 341; grandiflora, propagating, 65, 407; and Onychium, 543; is it a misnomer? 470
Scirpus zebrinus, 105
Scolopendrium cristulatum, 92
Scotland, a note from, 165; weather in, 383
Screen, pretty, a, 85
Scutellaria Costaricana, 36; Mocciniana, 397, 491
Scuticaria Steeli, 588
Season, mildness of, 498, 504; past, effects of the, 403; sunless, hints for the, 254
Seasons, wet *v.* dry, 339
Sedum dasyphyllum, 90
Seed saving, 75
Seeds, 407; old, value of, 386; pulpy, 407; raising of small, 189, 212, 218; tree, coniferous, notes on the longevity of, 214
Senecio pulcher, 533; propagating, 474
Sericographis Ghiesbreghtiana, 491
Shirehampton, notes from, 89, 103, 381, 458, 550
Shoelace Plant, the, 588
Shoots and Grapes scalded 108
Shrub notes, 232, 400, 528; American, 160, 444
Shrubbery beds and borders, 161
Shrubs, berry-bearing, 409; desirable, 64; evergreen, hardy, propagating, 300; flowering, 230, 280, 304, 348; for forcing, 274; for the seaside, 606; propagating, 518; wall, evergreen, 609
Silene pennsylvanica, 56; pusilla, 148; virginica, 56
Skimmia Foremani, 567; japonica, 10
Skull-cap, scarlet, the, 491
Slindon Hall, Sussex, 505
Smilax, 304; tamnoides, 304
Snake-root, black, 104
Snake's-beard, variegated, 286
Snapdragon, white, 316, 358; *White Swan*, 293
Snowberry, 282
Snowdrops and winter Aconites, 58
Sobralia leucoxantha, 67; macrantha, 66, 116, 299; xantholeuca, 324
Sobralias, 43, 422
Societies and Exhibitions—
Croydon Horticultural, 19; Crystal Palace, Chrysanthemum show at, 474; Dahlia show at, 262; fruit show at, 263, 377; National Auricula, 380, 402, 567; Carnation and Picotee, 93, 402, 567; Chrysanthemum, 239, 265, 355, 379, 425, 449, 498, 512, 545; at Sheffield, 497; Co-operative, 189; Dahlia Show, 589; provincial show, 570; Rose Show, 43; Rose Society, 412; Oxford Carnation and Picotee Union, 189; Royal Botanic evening fête, 19; Royal Horticultural, 17, 19, 44, 68, 69, 92, 117, 164, 212, 264, 286, 310, 354, 401, 449, 475, 497, 544, 547, 567, 580, 591; Southampton Royal Horticultural, 141; Surrey Floricultural, 117; United Horticultural Benefit and Provident, 379, 499
Soil, beaten, 130; influence of, on trees, 592; stirring the surface, 151; winter treatment of the, 386
Soils, 601
Solanum crispum, 280; jasminoides, 119 Wendlandi, 74, 129
Solanums, propagating, 401
Sonerila argentea, 526; Hendersoni, 526
Sonerilas, 454
Sophora japonica, 280
Sophronitis grandiflora, 602
Sorbus domestica, 207
Sowbread, Ivy-leaved, the, 339
Sowing, early *v.* late, 113
Sparaxis pulcherrima, 22, 239
Spartium junceum, 280; *junceum*, 284
Spathoglottis angustorum, 13, 247; ixioides, 139; Lobbi, 204; Vellardi, 451
Speedwell, shrubby, 348; *Willow-leaved, the*, 349
Spiderwort, good, a, 56
Spigelia marilandica, 165
Spinach, winter, 351
Spindle Tree, the, 508
Spiræa, 304; ariæfolia, 74, 176; astilboides, 125; Bumalda, 98; crispifolia, 176; Douglasi, 64; filipendula, 89; filipendula fl.-pl., 22; *Fortunei paniculata*, 308; gigantea, 295; grandiflora, 26; *lanceolata*, 304; palmata alba, 121, 218; prunifolia fl.-pl., 443; tomentosa, 304
Spiræas, late-flowered, 374; some good, 181
Spiranthes autumnalis, 353
Spruce, Hemlock, bark of, 500
Stachys affinis, 387, 496; tuberifera, 408, 464, 475
Stanhopea grandiflora, 537; platyceras, 194; the genus, 603
Stanhopeas, 549
Staphylea, 281; *colchica*, 281; *pinnata*, 280
Statice floribunda, 526; Suwarowi, 241
Stauntonia hexaphylla, 281
Stenochlæna scandens, 115
Stenosemia aurea, 344
Stephanotis flowers from Beckenham, 504
Sternbergia lutea, 451
Sternbergias 456, 503
Stobæa purpurea, 295
Stokesia cyanea, propagating, 273
Stove plants, a beautiful group of, 564
Strawberries, 47; barren, 108, 155; early, two, 8; first starting the, 540; flowering in Dorset, 456; forcing, 559; frogs eating, 133; late, 134; new, at Chiswick, 83; propping up, 132; reliable, 107

Strawberry, the, 84; as food, 86; crop, the, 7, 155; Docteur Morere, 28; garden, the, 83; James Veitch, 28; King of the Earlies, 28; La Grosse Sucrée, 8; Loxford Hall, 133; Noble, 28; plantations, old and new, 48; plants in pots, 156; plants, old and new, 28; runners, early, 28; Vicomtesse Héricart de Thury, 156; Waterloo, at Gunton, 98
Strelitzia juncea, 178
Streptocalyx Villerandi, 217
Streptocarpus, 153
Stuartia, 281; pentagyna, 336; pseudo-Camellia, 92, 112; *virginica*, 280
Stybarrow Crag, 123
Styrax, 281; americana, 56; japonica, 26, 56; obassia, 56
Subsoils, improving, 413
Suffolk, note from, 21
Sumach, Venetian, 176, 252; *on lawn*, 162
Sumachs, 306
Sunflower, double quilled, 555; perennial, dwarf, the, 316; *prairie, the*, 223; procumbent, 239; useful, a, 336
Sunflowers, double, 554
Sunlight on trees, influence of, 476
Swainsonia, white, 82
Swamp Milk-weed, the, 165
Sweet Leaf, 282
Sweet Sultan, the yellow, 103
Sweet Williams, 124
Sycamore, a noble, 159; the, 568, 592
Symphoricarpus, 232; *vulgaris*, 280
Symplocos, 282
Syringa, 328

T.

Table plants, 413
Table stands, dressed, 59
Tamarix, 329; *the*, 329
Taxodium distichum, timber of, 190
Tea plant, the, 63
Teak baskets, making, 537
Tecoma, 329; capensis, 504; radicans, propagating, 272
Telipogons, the, 535
Temperatures and forcing, 593
Thalia dealbata, 213
Theropogon pallidus, 121, 148
Thorn, an unhealthy, 141; Fiery, 403
Thuja Lobbi, 112
Thunbergia fragrans, 82
Thunia sulphurea, 67
Thymes, two beautiful, 17
Thymus serpyllum, 242; serpyllum coccineus, 25; vivicans, 193
Thyrsacanthus rutilans, 491
Thyrsopteris elegans, 86
Tigridias, wintering, 555
Tilia, 329; argentea, 500
Tillandsia Lindeni vera, 520; usneoides, 408
Timber, an enemy of, 266; bent, facts relating to, 190; felling, 382, 546; seasoned, 546; the black knot in, 118
Tinnea æthiopica, 35
Tobacco, 556; *sweet-scented*, 520
Tomato, Cherry, the, 84; culture, drawbacks in, 495; Hackwood Park Prolific, 25; plants dying off, 57; plants, moving large, 368; Tree, the, 504
Tomatoes, 84, 137; from Chiswick, 165, 275, 331, 499; pot, 205; winter, 172
Torenia Bailloni, 36; new white, 74
Torreyas, 609
Trachelium cæruleum, 82
Tradescantia virginica alba major, 56
Tree, Fringe, the, 17; *Japan Varnish*, 158; moving a, 288, 330; notes, 232, 528; Pagoda, 280; Plane, pollen causing influenza, 118; planting, care in, 592; roots, blasting, 500; seeds, 426; seeds, coniferous, notes on the longevity of, 214; stumps on the rockery, 501
Tree and shrub notes, 32
Trees and shrubs, flowering, 30, 62, 230, 280, 304, 348; hardy, propagating, 81; planting, 493
Trees, annual ring in, 404; a stone forest of, 190; at Maresfield, 160; berry-bearing, 409; composts for, 610; Daisy, 534; for chalk soils, 500; forest, diseases of, 100, 142; grafting old, 109; notching and pitting, 334; on iron-stone soils, 266; ornamental, planting, 94; planting, 334; propagating, 518; varied hardiness of, 142
Trellises, arched, for climbers, 272
Tresses, Ladies', the, 353
Trichinium Manglesi, 65
Trichocentrum albo-purpureum, 169
Trichocentrums, 115
Trichomanes auriculatum, 257; exsectum, 115; Luschnatianum, 257; reniforme, 566
Trichosma suavis Tautziana, 516
Tridax bicolor var. rosea, 89, 194
Triteleia laxa Murrayana, 104
Tritomas, 395
Tritonia aurea, 294
Trollius asiaticus superbus, 125
Tropæolum Hermine Grashoff, 375; Lobbianum, 526; polyphyllum, 17; speciosum, 311
Trumpet Flower, scarlet, the, 18
Tuberoses at Arundel, 210
Tulip Tree, 31; *the*, 42
Tulips at the Paris Exhibition, 1889, 550; garden, old, 294, 324; old-fashioned, 503
Turnips, 598; white, 463
Twickenham, Lilies at, 182
Twin Flower, 3
Tydæa reticulata, showing habit of plant, 441
Tydæas, 440; in bloom, 375; propagating, 16

U.

Ulex, 329; europæus fl.-pl., 64
Urceolina pendula, 425, 451
Urn Flower, drooping, the, 451; the, 425
Utricularias, 36

V.

Vaccinium, 329
Valeriana alba, 56
Vallota purpurea magnifica, 131
Vanda cærulea, 384; concolor, 352; insignis, 587; limbata, 204; lamellata Boxalli, 116, 604; Sanderiana, 324, 353; tes es, 74
Vandas, 324; from Wilton House, 13
Vanillas, 299
Vase of flowers, pretty, a, 294
Vegetable Marrow, the bush, 151
Vegetables, blanched, 350; needing protection, 462; notes on, 151, 229; nutrition of, 252; winter, cooking, 597
Venidium hirsutum, 340
Verbascum Chaixi, 148; phlomoides, 170
Verbena Purple King, 359; sweet, 25, 451; sweet-scented, hardiness of the, 338
Veronica, 348; chathamica, 193; maritima rosea, 193; prostrata, 5, 360; salicifolia, 25; *salicifolia*, 349; salicornioides, 319; spicata, 104; Traversi, 69, 80, 161; virginica, 121
Viburnum, 349; *macrocephalum*, 348; Opulus, 32, 65, 287; Tinus variegatus, 529
Vine, Hop-leaved, the, 348; borders, wet, 254
Vines, crowded, 167; fine-foliaged, 326; foliage of, the, 306; outdoor, 363; pot, 49; too thick, 156
Viola pubescens, 56; rothomagensis, 320; rotundifolia, 57
Violet, Australian, the, 74; Marie Louise, 504, 550; New Holland, 105; Rouen, the, 320
Violets, double-flowered, in boxes, 294; in frames for winter, 210; in November, 498
Virgilia lutea, 32, 329; *flowers and foliage of*, 329
Vitex Agnus-castus, 346
Vitis, 349; *heterophylla humulifolia*, 348; indivisa, 231

W.

Walk edgings, garden, 537
Walks, garden, 506, 598; formation and repairing of, 589
Walnut, Caucasian, the, at Claremont, 219; cut-leaved, 112; tree, the, and its uses, 546
Warrea tricolor, 550
Warscewiczella aromatica, 299
Water, soaking of, a, 50; scenery at Heckfield, 361; supply, a good, 552
Water Lily, rose-coloured, the, 36
Watermouth Castle, 195
Weather, severity of the, 333
Weather Plant, the, 257
Weigela, 350; *grandiflora*, 349; *hortensis nivea*, 352; rosea, 64; *rosea*, 349
Weigelas from seed, 407; white-flowered, 10
Wellingtonia, Weeping, 528
Whin, Petty, the, 565
Whortleberry, 329
Wild flowers in Kent, 104; in the Fens, 3; note on, 105
Willow, Babylonian, the, 527
Willow Herb, French, 23
Willows, Weeping, 527
Window boxes, flowers for, 246
Wire fencing, barbed, 476, 522
Wistaria, 372; *double-flowered, the*, 373; frutescens, 25; North American, the, 25; *sinensis on an archway*, 376
Witsenia corymbosa, 470
Wood, preserving, Boucherie's mode of, 214; water in, 546
Woodsias, 51

X.

Xanthoceras sorbifolia, 350; *sorbifolia*, 372
Xanthorrhiza apiifolia, 372
Xerophyllum setifolium, 18

Y.

Yellow Wood, flowers and foliage of, 329; the, 32
Yew, the Plum-fruited, 94, 136
Yews, fœtid, 609
Yucca aloifolia variegata, hardiness of, 207; a noble, 136
Yuccas, 407

Z.

Zauschneria californica, 372
Zenobia pulverulenta, 17; speciosa, 372 *speciosa*, 373
Zinnias double, 295
Zygopetalum cochleare, 587





COLOURED PLATES.

	PAGE
ANEMONE FANNINI	202
AQUILEGIA STUARTI	344
AZALEA OCCIDENTALIS VARS.	416
CALCEOLARIAS, A NEW RACE OF	392
CISTUS CRISPUS	252
DIGITALIS PURPUREA	488
ERANTHIS HYEMALIS	58
EUCHARIS AMAZONICA	130
GALANTHUS NIVALIS	58
GLADIOLI BLUSHING BRIDE, ROSY GEM, GENERAL SCOTT AND ROSEA MACULATA	580
HABROTHAMNUS NEWELLI	106
HIBBERTIA DENTATA	82
KÆMPFERIA ROTUNDA	154
LONICERA SEMPERVIRENS MINOR	300
MAGNOLIA CONSPICUA (YULAN)	276
NARCISSUS CYCLAMINEUS	178
NARCISSUS BICOLOR HORSFIELDI	226
NARCISSUS TRIANDRUS VAR. ALBUS	178
OLEARIA (EURYBIA) INSIGNIS	534
OSTROWSKYA MAGNIFICA	604
PÆONY VENUS	464
PANSIES QUAKER MAID AND JACKANAPES	512
PELARGONIUM SWANLEY SINGLE WHITE	10
PRIMROSE POMPADOUR	368
ROSE MME. DE WATTEVILLE	35
TULIPS, OLD GARDEN	324
TYDÆA MME. HEINE	440
WAHLENBERGIA SAXICOLA	558



The GARDEN.

VOL. XXXIV.

Rose Garden.

T. W. GIRDLESTONE.

THE ROSE GARDEN IN EARLY JUNE.

It is incontestable that one result of Rose shows and exhibitions has been to induce generally the cultivation of a single class of Roses to the exclusion of all others, or at least to the exclusion of all others but one.

The widespread practice of exhibiting cut Roses has been of immense service in extending the culture of Roses, in developing and maintaining a high level of skill among growers, in giving an impetus to the raising of new varieties with more and more perfect flowers and greater diversity of hue, and in fostering the love of Roses by affording thousands of people resident in towns, who would otherwise perhaps never see Roses of the greatest beauty, an opportunity of attending the court of the queen of flowers. But it is none the less to be regretted that the keen competition of the exhibition stage has resulted, generally speaking, in the neglect of all Roses but the Hybrid Perpetuals until lately, when the cultivation of the Tea-scented Roses has happily become greatly extended.

A collection, however, even of these two classes ought not to be held to constitute a Rose garden in the best sense of the term. In the first place, the Hybrid Perpetuals do not come into bloom until far too late, and though the display they make is unsurpassed while it lasts, its duration is all too brief.

There is no reason why the Rose garden should not be in a state of beauty from the early days of June if, instead of only growing Hybrid Perpetuals, which are rarely in bloom before July, a judicious selection be made of hardy, vigorous, free-flowering, and distinct varieties without consideration as to whether or not their blooms are available for exhibition. Roses of every class and kind, especially those that bloom early, must be admitted, climbing and dwarf, double and single, once-blooming and perpetual, provided only that they are beautiful when in flower.

Thus in a complete Rose garden Rosa rugosa should figure conspicuously, as it is one of the most distinguished looking plants, and among the earliest to bloom. The white-flowered variety is especially beautiful, and the pale rose form, R. coruscans, is also good.

The allied species, R. kamtschatica, is even earlier in blooming and still more vigorous, though its flowers are not so large as those of R. rugosa, and its foliage is not so rich a green colour.

R. pulverulenta alba makes a handsome plant and very early expands its substantial, albeit single white blossoms; and at the same time a dwarf mass of the exquisite native R. spinosissima makes an admirable foreground to a group of the larger, strong-growing varieties. The double-flowered forms, the so-called Scotch Roses, follow almost immediately, the yellow being among the earliest and the most beautiful, while the charming blush, Stanwell Perpetual, so deliciously fragrant and so invaluable again in late autumn, blooms simultaneously.

Then the glory of every Rose garden during the first fortnight of June, except after a winter of extreme severity, should be Fortune's Yellow, a Rose to whose beauty no description can do anything like justice. It should be grown on walls or fences, on a pillar, on an arch, on various aspects, to ensure as long as possible a supply of the striking flowers of mingled yellow and rosy red, so graceful in form in the bud, so unique and characteristic both in colour and outline when expanded. Anyone who has not stood before a great plant of Fortune's Yellow in full bloom on a sunny day must have a great gap in his Rose experience which no time should be lost in filling up, and no one who has ever seen a fine example of this glorious Rose in its greatest beauty will find it easy to call to mind any sight in the Rose garden more perfectly satisfying.

Almost before the flowers of Fortune's Yellow grown on sunny aspects have fallen, great bushes of Rosa punicea, standing boldly in the open, will be a blaze of scarlet petals. The inventor of the appellation Copper Austrian Brier for this Rose can hardly have been less than colour-blind. Externally of the colour of old gold, but lined within with dazzling vermillion brilliant as enamel, the flowers of this Rose are not easy to describe by a single term; but copper certainly seems as little descriptive of their wonderful colour as pink would be of that of A. K. Williams. The species R. lutea is not less vigorous, and is almost equally striking in its way, the full rich yellow of its flowers not having been approached by any other Rose. Even its double variety, Harrisoni, which blooms at the same time, and whose flowers appear so deep a yellow beside the Yellow Scotch, seems pale after the buttercup-yellow petals of the species, which is not rivalled even by the succeeding Persian Yellow.

The first few days of June will rarely be without blooms of the Teas and Noisettes that are grown against sunny walls, albeit after a mild winter such plants will flower even earlier. Maréchal Niel is almost invariably in evidence before the end of May, and is quickly followed by Climbing Devoniensis, while of the dwarfer section Rubens usually appears first, with Souvenir d'un Ami and Marie Van Houtte in close attendance. Such climbers as William Allen Richardson, Lamarque, Gloire de Dijon, Emilie Dupuy (which may well replace the too tender Belle Lyonnaise), quickly succeed; the rampant Jaune Desprez is one of the earliest blooming Roses, and its great trusses of buff and yellow flowers, if somewhat irregular in form, are of most delicious fragrance; while the red colour which so lights up the Rose garden at this time of year is supplied by the bright buds of Reine Marie Henriette, an absolutely hardy Rose that flowers to the very tips of its long shoots.

Earlier mention should have been made of the yellow Banksian which, where it can be well grown, makes a glorious early climber; and before leaving the climbing Roses attention must be directed both to the brilliant Reine Olga de Wurtemberg, which, in addition to its beautiful red flowers, has perhaps the most magnificent foliage of any Rose in cultivation, and to its companion variety Marie Lavallée with charming fresh rose-coloured flowers.

By the middle of the month, other species are in bloom, such as R. pomifera with pretty pink flowers; the exquisite R. rubrifolia with its rose-coloured petals and striking red foliage suffused with a bluish bloom; R. indica in several forms, including a very vigorous grower with pale blush flowers, and the dwarfer plant with great flesh-coloured petals, from Mr. Harpur Crewe's garden; and Rosa multiflora, figured as R. polyantha in the *Gardeners' Chronicle* for Nov. 26, 1887.

Among the Teas in the open, the long buds of the lovely clear yellow Mme. Chédane Guinoisseau are generally first conspicuous, but a good many such plants, if left entirely unpruned after a moderate winter like the past, will furnish early blooms which, if not as fine as those developed later, are very acceptable at the time. Notably is this the case with Mme. Bravy, of which curiously rough-looking buds expand into extremely good flowers, and Mme. Lam-

bard also affords many fresh red buds; the coppery red somewhat quaintly formed Comtesse de Caserta blooms very early, and Rubens, Adam, Souvenir d'un Ami, Amazone, Marie Van Houtte, and the pretty Noisette Narcisse may be similarly cited; while the lovely hybrid Grace Darling, however pruned, is invariably among the first to gladden the rosarian's heart with its delightful rosy flowers.

Among dwarf Roses the little Burgundy is soon in evidence, and additional bright colour is furnished by the Chinas, such as Cramoisie Supérieure, &c., which are again eclipsed by the brilliant semi-double flowers of the vigorous Gloire des Rosomanes. A good pillar or two of Souvenir de Pierre Dupuy is invaluable, for the handsome and well-formed purple-crimson flowers are early, freely produced, and most fragrant, and although the variety is not autumnal, the fine foliage and growth render the plant always ornamental.

Ayrshire splendens, in spite of its doubtful odour, makes a grand climber of unlimited vigour and hardiness, but of all the Roses of early June few are more generally attractive, more vigorous, more profuse, more fragrant, with larger, fuller flowers than the beautiful, but none the less neglected, Mme. Alfred Carrière. No better example than this charming Hybrid Noisette could be found to indicate the absurdity of the unwritten law practically made by Rose growers who grow Roses only to exhibit, that no Rose that is not useful for exhibition is worth a trial.

Here is a Rose which, because it is not announced as an exhibition variety, no one will so much as make a trial of. It is nearly ten years since it was first offered by Schwartz, the raiser of A. K. Williams and other good Roses, and it might probably be safely asserted that Mme. Alfred Carrière has not found cultivators among amateur Rose growers at the rate of one a year, in spite of possessing all the recommendations of a first-rate garden Rose.

Thus it is that, in spite of all the wealth of material cited in the above list, which is by no means exhaustive, there are so many gardens roseless until almost, if not quite July; and as long as rosarians whose opinions are sought after by other growers will not be at the pains to make actual trial of any Roses that are not advertised as available for exhibition, so long will this absurd anomaly continue.

For there are no other means than the reports of cultivators by which the merits of garden Roses may be made known, since some Roses lose their chief beauty under the ordeal of a journey to an exhibition, and others cannot be exhibited in July for no other fault than that their flowering is over long before. So that if people who are not familiar with Roses generally have to obtain their selection of names of Roses to plant from growers who cultivate Roses solely for exhibition, or if they plant only those varieties whose names they see reported in winning collections at the July shows, so long there will be planted nothing but Hybrid Perpetuals and a few Teas. As it is obvious that nurserymen will only grow Roses for which there is a demand, so long also will be propagated only those Hybrid Perpetuals and Teas which produce flowers large enough and late enough for exhibition in July, whereby the innumerable beautiful early and free-flowering vigorous or climbing Roses become little known and less distributed, to the discouragement of the raisers or introducers of some of our finest garden plants, and to the great detriment of the Rose garden in June.

Rose Marechal Niel.—I am sending a few blooms of Maréchal Niel Rose cut from a tree budded close to the ground on Brier. The plant is growing against a south-east wall at a height of 520 feet above the sea level. It has been fully exposed through the winter to the bitter east winds, also 28° of frost without the slightest protection. I have not seen another in this locality planted out of doors. Do you consider them good flowers?—W. C. B.

*** The flowers sent us were as fine as we see from a greenhouse; the colour rich, the form excellent, and the petals firm.—ED.

Rose Luciole (Guillot, 1886).—The buds of this Tea-scented Rose are exquisite in colouring, of mingled shades of yellow and rose, and their long pointed shape renders them invaluable for cutting. In the present cool weather it seems almost as though it might be full enough to stand the ordeal of exhibition, but this is a point that a few hot days will no doubt decide.

Rose Madame Bois (C. Levet, 1886).—This Hybrid Perpetual Rose, which was noted last season as one of the most attractive of the novelties, is flowering finely and gaining much admiration. The flowers are large and of a pure and brilliant rose colour, in the way of those of Marie Finger, but with the colour better carried up to the margins of the petals. The growth is strong and free, and the fragrance of the flowers is greater than was anticipated from one of the Victor Verdier race.

Rose Harrisoni.—This beautiful Rose should undoubtedly be far more generally grown, on account of its vigour, hardiness, freedom, and beautiful yellow colour; but it seems odd that so experienced a grower as "J. C. C." (p. 598) should call it "the only really double-flowered yellow Rose in cultivation" until the advent of Maréchal Niel, for it is rarely more than semi-double, while Persian Yellow, deeper in colour, is nearly always of perfect globular form, and was in cultivation for close upon thirty years before the Maréchal appeared.

Rose Boieldieu.—Mr. B. Cant, of Colchester, sends very beautiful maiden blooms of this variety grown on Brier cutting stocks, and recommends the Rose as a reliable and valuable one for exhibition. Boieldieu was raised by Garçon, and sent out by Margottin in 1877, and is of the race of Mme. Boll, than which, however, it is far more beautiful. The plant is hardy, vigorous, and said to have been raised from Jules Margottin × Baronne Prevost; while the flowers are large, very full, and rose-coloured, on cut-backs opening best in a hot season.

SHORT NOTES.—ROSES.

Mary Bennett (Bennett, 1884) is now producing the most exquisite blooms on plants about 9 inches high. If it would only grow, this Rose would be perfection.

Old China Rose (Rosa indica) was in full bloom (July 1) on a wall at Kew, every branch almost tipped with bunches of the lovely pink and deliciously scented flowers.

Rosa semperflorens is conspicuous now with its brilliant crimson flowers. It is not a bad Rose for a wall, and the fragrance—the greatest charm of all in the Rose—is most marked.

The North American Rosa lucida is rich in flowers now. These are of beautiful shape, almost as perfect as those of a Camellia, and of a lovely pink shade. It is in bloom on a wall at Kew.

Mrs. Sharman Crawford.—Another new Tea-scented Rose raised by Messrs. Alexander Dickson, with a white flower, perfect in form and outline, and carrying on apparently the race of Madame Bravy.

Ulrich Brunner Rose.—I noticed a small plant of this the other day, certainly not more than a foot high, carrying three splendid blooms, the colour a brilliant shining rose. As marked as the flowers is the robust character of the stem and leaf.—E.

The Rose walk at Kew shows a wealth of flowers just now. There are large, healthy specimens of climbing Roses trained up pillars and along chains, wreathed in the season with bunches of flowers. Such a feature should be seen in every garden of any pretensions.

Rose Lamarque.—A specimen of this Rose, twenty years old, adorns the wall of the house of Mr. Rogers, at Lodsworth, Sussex, and those who know the Rose and the treatment with which it flowers can well imagine what a beautiful picture it makes here. It is worked on the Brier.

Persian Yellow Brier.—Growing in a loose natural manner in an open sunny position, this Brier has been most beautiful in several cottage gardens in this neighbourhood; indeed, it would be difficult to suggest anything more gorgeous than a freely-grown, well-flowered bush. It is not seen half as often as its merits deserve.—HANTS.

Lady Castlereagh.—Fine blooms of this new Tea Rose, received from Messrs. Alex. Dickson and Sons, Newtownards, Ireland, confirm the good impression made by the variety last season. The flowers are large and full, of a pleasing shade of buff-yellow margined with a rosy tint, while the foliage is magnificent.

FLOWER GARDEN.

NOTES FROM EDGE HALL.

ALPINE PLANTS have never flowered so well as this spring. This is perhaps owing to the bright sunshine of last summer, which ripened their growth better than usual. I have made a few notes of several of the less common kinds which are now flowering in this garden. Amongst the larger border plants, Inula Hookeri is very conspicuous. The flowers are about 4 inches across, bright yellow, borne singly on tall, leafy stalks, rising thickly to a height of 5 feet. Orobus roseus, a Caucasian plant, also deserves notice. The stems rise about 2 feet from the ground, curving over, and presenting a broad spreading surface, much branched, of very bright green foliage, and the flowers, of clear rose colour, are abundantly produced in clusters of two or three from the axils of the leaves. Like most of its class, the plant is very difficult to divide, and should be raised from seed. Another good Vetch is O. lathyroides, figured in the *Botanical Magazine*, No. 46, bearing in June dense clusters of rich purple flowers. Campanula cenisia can hardly be called a Bellflower, its narrow petals making a flower which might better be described as star-shaped. They are almost sessile; its low leafy tufts present a very neat appearance, and the plant is very distinct. It grows well on the sunny slope of a rockery, and seems pretty hardy. I have raised it from seed as well as imported it, and when once established it does not seem difficult to keep. Another good Campanula is a large form of C. Portenschlagiana, which I had from Paul's Broxbourne nursery. The flowers are at least twice as large as those of the type, and it seems as easy to grow and as free in flowering. C. Raineri, a good and favourite kind, is just beginning to flower. I formerly lost it as soon as I tried to establish it, but a few years ago I saw it growing beautifully at Munstead in a well-drained and moist soil out of the sun. From a piece then given to me I have now an abundant and flourishing stock, having learnt that a north aspect and protection from slugs are the two things needful to its well-being. Mr. Anderson-Henry's hybrid Campanula G. F. Wilson is flowering so freely as nearly to hide its sickly-looking yellow leaves. If the leaves could be made green, it would be a very good plant. Aphyllanthes monspeliensis is a pretty little Rush-like plant bearing a profusion of small bright blue flowers. It is never shabby, and likes to grow out into the full sun from under a stone. I have had it for many years, and have never known it injured either by frost or wet. It may be subdivided to any extent. Perhaps the best June flower of its kind is Hieracium villosum, with leaves as downy as a young swan, and prostrate bunches of flowers of the clearest pale gold. It is perennial, but comes up abundantly from seed round the old plants, and the seedlings of this spring will flower next June. I hardly know why any garden is without it. No spot can be too sunny for it, and when the flowers are over the leaves are ornamental as long as they last. Of mountain Pinks I will mention only two—Dianthus neglectus, of which the best form grows only 3 inches high, and has enormous flowers for the size of the plant of a pale cherry colour. It is more enduring of wet in winter, and lives longer than any other of its class. It may be increased easily by cuttings

skilfully taken, or by seed, which it ripens in abundance. But the most beautiful flowers in shape and colour are borne by D. silvestris. This is little more than biennial, but its large flowers, as round and as flat as a florin and of clear pale rose, make it worth growing, though the stalks are too long and the foliage too grassy to be neat. Achillea argentea is perhaps less commonly grown than A. Clavennæ, but it flowers more freely, and I think is in many ways a better plant in the same style. Geranium argenteum is now very full of flower. Its elegant and silvery leaves look well in a mass, and its pale rose-coloured flowers suit the leaves well. It sows itself all round, rooting in cracks in the stones where it could hardly be planted, so that it completely covers the space assigned to it, which should be not less than a square yard. Some of its seedlings seem to pass into G. cinereum; one has appeared this year with flowers of the purest white, which I hope may be continued by seed. Amongst the small-flowered Rock Roses, Helianthemum rosmarinifolium is very neat, though rather tender; few of them are better in habit or more flowery than the native Helianthemum polifolium, which was sent to me originally from its wild home in Devonshire. It has twice produced in my garden a seedling with clear rose-coloured flowers, all the other characters of the type being preserved without any indications of a cross. Houstonia serpyllifolia, which I had from Paul's nursery, seems to continue in flower longer and to spread faster than its relation cærulea. The colour of the flower is pale blue. A large piece stood well through the winter with a piece of glass laid over it, and flowered profusely in April, being still in flower. Amongst many beautiful Saxifrages one of the most striking is S. mutata, with pyramids of flowers nearly a foot high of a deep rich yellow. It may be grown with the greatest ease from seed, making a single very neat rosette, smaller and more compact that S. longifolia, but growing on the same terms, to die after flowering in the third or fourth year of its growth. Lychnis Lagascæ is seldom grown well as a perennial, because its tender evergreen shoots cannot stand exposure to alternate snows and thaws, unless it is planted under a projecting stone; but in such positions with a south aspect it makes a very good show and lasts two or three years, being easily renewed from seed. Aquilegia pyrenaica, which I mention last, is the neatest and prettiest of the Columbines. I have never seen a good one grown in England from seed. The young plants must be imported from their mountain homes; they then maintain their dwarf character, and last for several years. The most exposed and stony tops of the rockery suit them best. The leaves are as finely divided as those of a Maiden-hair Fern. The flowers are very large and bright blue, and do not rise more than 6 inches from the crown. The true plant must be seen to be appreciated. Seed bought in England is worthless. In a generation or two the plant passes in cultivation into ordinary forms of A. vulgaris, of which it is, in fact, a high mountain variety.

Edge Hall, Malpas. C. Wolley Dod.

Pæonies from Langport.—A collection of double and single Pæonies from Messrs. Kelway and Sons, of Langport, Somerset, shows the flower in its best character. Such single varieties as Bridesmaid, blush pink, and Aphis, rich purple, are exceedingly graceful and delicate. For more gorgeous colouring we must seek the double varieties, of which Lady Bramwell, rich rose-magenta; Princess Beatrice, brilliant rose; and Don Juan, purple-crimson, are the finest. Venus is an ideal double Pæony; it is as full as a Rose, and of a lovely peach colour; Marcella has very large pink guard petals; and Maria Kelway is a variety of a similar tint, the centre petals deeper; Queen Victoria is a flower almost white, with a few flakes of crimson; and Agnes Mary Kelway is of a blush colour on the broad guard petals, the central ones yellow.

NOTES ON HARDY PLANTS.

Aster Stracheyi.—Though I have grown this for at least five years, it only bloomed during the present spring. The flowers are small and the stems dwarf. The plant has shining, almost spoon-shaped leaves. The habit is stoloniferous, but the growth only moderate, and especially so for an Aster. It may be compared to a bright lilac-coloured field Daisy. The habit, however, is more straggling, and the stems of the stolons are nearly red. It is a very suitable plant for sunny positions on the rockwork where there is a good depth of silky loam.

Ourisia coccinea.—I have grown this plant at least ten years, and fairly successfully. Still, it has never flowered so well with me before as at present. Those who know this choice plant need not be told how lovely a good patch of it looks. The plant loves moisture, and is grown on the north side of a hedge on a sloping bank formed of coal ashes and strong loam almost as stiff as clay.

Polemonium flavum.—At first, when I saw the flowers of this Jacob's Ladder, I was inclined to destroy the whole of the plant, but as the flowers developed they became what was, to my mind, a pleasing, pale fawny yellow colour, and with age they pass to almost the primrose hue. The flowers are very lasting. I should like to suggest that the spikes be cut and used with Grasses, when I have little doubt they will be much appreciated. The colour is a very unusual one, and as the flowers are of a good starry form and remain well expanded, they have a very rich effect when used indoors.

Euphorbia capitata.—This minute creeping species is charming; the flowers are not of much account, but as they give way to the little fruits, the plant assumes its most pleasing feature. The clusters of seed form little knobs of an almost crimson colour, each about the size of a small Pea. These are dotted over the dwarf plant, which scarcely rises from the ground, and is almost blue from its glaucous character. Its hardiness is beyond doubt, and it spreads moderately by means of its underground stems.

Twin Flower (Linnæa borealis).—Nothing could be more interesting than plants of this beautiful evergreen native creeper. I have always been at a loss to understand why it is not more grown, for, given two conditions, its cultivation is very easy indeed. Those two conditions are: a half shaded aspect where bottom moisture is not wanting, and a good deep vegetable mould of a friable character.

Creeping Gromwell (Lithospermum prostratum).—I have been familiar with this for many years, but I never remember to have seen it in such beauty as during May and June. My note has reference to a specimen 3 feet across, which has neither been trimmed nor any branches removed for cuttings since its last summer's growth. Then the growth evidently became thoroughly ripened and otherwise fitted for making the present grand display. The shrub is literally a mass of blue of the richest shade. It does better in these parts in a very light soil.

Californian Cowslip (Primula suffrutescens).—This very distinct Primrose, which as yet, I believe, is not in general cultivation, proves to be well suited to our climate when once it has been established. I am aware there have been difficulties about its culture, but I believe they have mainly arisen from the fact that the material dealt with was not acclimatised. In short, though good pieces might have been experimented upon, they refused to grow. The thick round stems of a half-woody character would rot in spite of the greatest care in watering. I never had any success until I adopted the plan of covering them in finely broken pot-sherds, the pots being stood in cold frames to start the plants naturally. In time the stems sent out new roots through the hole in the pot; then soil was given and washed well into the crocks, and the weather being suitable the pots were plunged out of doors. At the right time (in summer) the plants were taken up, the rooted stems cut to pieces, each piece having a growth and potted in small, but deep pots. The roots are thick, long, very strong and much-branched, and more like those of a young shrub. Established plants push out their new stems in a tufted manner. When these growths become firm they may be cut off and inserted into sandy soil. I find it is, however, better not to remove the leaves, and I should not think of propagating the plant in this way, except in the summer season.

Woodville, Kirkstall. J. Wood.

WILD FLOWERS IN THE FENS.

Improved drainage and cultivation have banished some of the rare bog and water plants from the Fen districts; at least, I miss some of the plants I was acquainted with twenty years ago. I do not know now where I could find the Grass of Parnassus (Parnassia palustris), which was once easily found here. Other rare plants have also disappeared, or have become much less common; but there is still plenty of beautiful flowers in the Fen dykes and watercourses. In its way, very few things are more beautiful at this season than to see a long stretch of a couple of hundred yards of the Water Violet (Hottonia palustris) such as I came upon the other evening in a Fen dyke near the old town of Ramsey, deep down between banks covered with Reeds and other coarse herbage. By-and-by, when its blooming season comes round, I know where to find the largest bed I ever yet saw of the Arrowhead (Sagittaria sagittifolia), and one cannot form an idea from the little bits seen in the aquatic tanks in gardens how beautiful it is in a mass many yards in extent. The Flowering Rush (Butomus umbellatus) is common in isolated patches, and is now just opening its very striking flowers. The Water Crowfoots are everywhere. The surface of every grassy pond and dyke is silvered over with the white starry blossoms. The white and yellow Water Lilies are also common enough, while the Yellow Iris, or Water Flag, as it is called, is a special feature. Large patches of Myosotis palustris brighten up the margins of many a sluggish stream. By-and-by the purple Loosestrife (Lythrum Salicaria)—Long Purples of Shakespeare—will be rising up in large clusters along the margins of the dykes. Later on, when the brighter, more interesting plants have finished their work and disappeared from sight, the great Reed Mace (Typha latifolia), the Bur Reed (Sparganium ramosum), and other species of the Reed and Rush tribe will afford examples of a larger tvpe of vegetable life. E. H.

Dianthus Grievei.—Amongst the many Pinks that enrich the rockery at Kew in July this is perhaps the most striking. On the first day of the month the large mass of it was one sheet of bloom. It is a supposed cross between D. alpinus and D. barbatus, and the parentage is seen in the large flowers that remind one of those of the alpine Pink, and the habit and leafage which partake of D. barbatus. It seems to thrive admirably and increase quickly, as we noticed the same plant last year, but it has spread considerably since then.

Narcissus viridiflorus.—In The Garden, June 30 (p. 610), "D. K." says that N. viridiflorus is found on the rocks of Gibraltar. This is a mistake. It has never been found on the rock, being confined to low flat ground outside the English lines and chiefly within the Spanish lines, being commonest near Algeciras. I can confirm "D. K.'s" experience that all the Narcissi of Morocco are very intractable. Apparently healthy bulbs sulkily refuse to make any growth here, upwards or downwards. The same may be said of the little N. canariensis, of which I once got some imported bulbs.—C. Wolley Dod.

A good white Pæony.—Among a small collection of Pæonies at Lodsworth Nursery, where hardy flowers receive considerable attention, was an unnamed double white variety. The flowers were very large, the guard petals having a delicate suffusion of blush,

while the inner portion of the flower passed gradually from white to a beautiful cream tint. A group of several dozen plants was most effective.—A. H.

NOTES ON IRISES.

This is an opportune moment to make a few notes on the species of Iris, and most of the following were the other day in bloom with the Messrs. Barr in their Tooting nursery :—

The Siberian Iris (I. sibirica) is a well known species, and happily one of the commonest, as it is grown in most gardens worthy of the name. This is not surprising, as its extreme elegance, abundant Grass-like leafage, and tall spikes with two, and sometimes three clustered flowers entitle it to a widespread recognition. It is well distributed over Southern and Central Europe, and also has a home in Asia. I find it requires a fair amount of sun, and not too dry a soil, but it is by no means fastidious. The variety lactea is of rather more robust growth than the type, the leafage stronger and the stems taller, but the flowers are about the same size, differing in the colour, this being of a decided milky white. Minor is of dwarfer growth and has blue flowers, with the falls, however, reticulated with white. Another form is acuta, so named, I presume, from its more acute foliage than is characteristic of the parent. It is also much dwarfer, growing about 1½ feet in height, the flowers blue, with white pencilling. I see a note in last week's Garden (p. 601) recommending the Siberian Iris as a ditch plant. This would be a rather uncommon way of growing it, but its hardy vigorous character would fit it for such a trial.

Iris orientalis, of which an excellent plate is given in The Garden for September 10, 1881, is a flower all should grow who admire the Iris. It is of the richest blue possible, a lovely shade; the standards upright, of the same depth as the lip, with the blade of a paler tint. The base of the lip is a dull guinea gold colour, spotted with red, around this a white suffusion. It rises to about the same height as I. sibirica, has its strong character, and was once regarded as a variety of this, but it is far bolder and finer. It is the same as figured in the *Botanical Magazine* as I. sibirica sanguinaria, and its chief home is Japan and Eastern Siberia. I consider this one of the most beautiful Irises of its season, eclipsing even the grassy sibirica.

Iris setosa is a beardless Iris, uncommon, though interesting. It is practically without standards, as these are reduced to bristle-like processes that are quite characteristic. The flower is frail and delicately beautiful. The flower of the one I have is rather paler than usual—a very pleasing lavender-blue, except at the base of the lip, where it is white, this running into the limb. Like many of the Irises, its fragrance is sweet. The stems rise about 2 feet or more; the leaves thin, long, and abundant. It has something the character of I. sibirica, and is found in Japan, also being distributed in Eastern Siberia. This is also blooming at Kew.

I. ochroleuca is so beautiful, that mere words give but a faint idea of its lovely flowers. These are of large size, fully 5 inches across, and of a clear ivory white in both standards and falls, the latter enriched with a brilliant blotch that intensifies the ivory whiteness. Its robust sword-like foliage and sturdy stem that rises about 3 feet high give it a distinct and imposing character. It is of uncertain habitat.

I. ruthenica is a Russian species of charming beauty. Its flowers, clustered amongst the grassy tufts of foliage which is 1 foot or more in height, remind one of those of I. reticulata. It blooms for a lengthy period, and is an Iris that well deserves careful culture. Loamy soil and a position fairly well exposed to the sun suit its requirements.

The Gladwin (I. fœtidissima) is the species that is common in the south of England, where it may be found on banks and amongst shrubs. I was greatly surprised to find a thriving batch of it in the Tooting nursery, and though the Water Flag (I. Pseudacorus), flowering hard by, was far showier, it is by no means without beauty. It is of bold growth, and the flowers in the present instance were of a pale whitish yellow, with a little dull pencilling. The leaves are narrower than in the case of those of the Yellow or Water Flag, and when the plant is bruised it gives off a very disagreeable odour; hence the specific name and the English one of "Stinking Gladwin." It is thought more of for its brilliantly coloured scarlet or orange-red berries, sometimes used in decorations.

The Yellow Flag (I. Pseudacorus) needs, of course, no description, as it is abundant in moist meadows, by the sides of streams, and marshes in England. It is strange that in the garden this wild flower is not more often grown; it is as handsome a plant for fringing a lake or pond as one could imagine, yet seldom thought of. The variegated variety has its sword-shaped leaves coloured with white, yellow, and green, and is extremely ornamental.

I. (Xiphion) juncea, the Rush-leaved Flag, is something like the Spanish Iris californica; it is of the most brilliant yellow, with Rush-like leaves, and does not grow very tall. Such a species as this, from the warm African shores, should become more common; its striking beauty entitles it to consideration.

Iris versicolor was in flower the other day at Kew, and there are few of the Irises so finely coloured. There is a large mass of it, the leafage abundant, about 1 inch across, and hiding somewhat the lovely flowers, which are claret-purple in colour except at the base of the lip, which is white, pencilled with the same rich claret tint. It is one of the North American Irises.

Iris spuria Reichenbachiana was also blooming at Kew. It grows about 3 feet in height, and the cheerful blue-coloured flowers are well displayed.

C.

BEDDING LOBELIAS.

It is very evident that in the raising of bedding Lobelias from seed, quality and average evenness of character are greatly dependent upon the strain. I have had many opportunities of testing this, and have invariably found that only strains can be trusted which have a long pedigree and have been raised from seed for several years. Only last season I saw growing in a garden in a comparatively isolated position plants of a beautiful blue of the compactum form. I obtained some of the flower-stems and secured seed from them. The product was all sorts of habits and shades of blue, some even being quite white whilst lacking robustness. That was a thorough, but still characteristic disappointment, as the seed parent of this variety was probably a chance good form from an irregular strain, and although the variety had been increased, by propagation only, for several years, yet the old irregular blood broke out from seed as bad as ever. On the other hand, I got some eight years ago from a friend a fine strain of the speciosa type, which I have grown ever since. But a few years ago I found a few plants to show promise of compactness, whilst retaining the deep blue tint of the flowers, and by constant selection every year a strain has resulted which gives from seed 90 per cent. of the true compactum type. That shows what can be done by sticking to seed strains and constantly selecting. I have no doubt whatever but that next year the strain will be absolutely perfect. So easily are Lobelias raised from seed, that the securing of a seed strain which will give certain evenness of character in a good *compactum* form is a great boon to those who wish to have plants in thousands for bedding purposes. Where bottom-heat is not available, as with me, the best plan is to sow a few pans with seed in October, and keep the seedlings in them till March, then to dibble them out into shallow boxes thickly, and they will make capital plants for transplanting by the middle of May, and being thus seasoned will bear exposure to cold air far better than will plants which have been propagated in heat. As an instance of the variableness of some Lobelias, I may mention that I once had a strain of a free-growing form which produced very deep blue flowers. In a few years it began to produce plants having flowers of a reddish claret hue, the product, perhaps, of the strains of earlier parentage, and eventually and in spite of persistent weeding, so large a percentage of reddish flowers came yearly that I had to get rid of it altogether. White Lobelias present exceeding difficulty in the matter of seed strains, and somehow revert to the original blue, often to the extent of from 50 to 60 per cent. It will, I think, require many years ere a white strain can be pronounced true to colour. That reversion is all the more odd because the plants all give white seed, or at least of a colour, the which is of a sandy whiteness, whilst all blue Lobelias have seed of a dark brown hue. It is evident, therefore, that the colour of the seed affords no guarantee that whiteness of flowers will result. Of course, all white Lobelias sported from the blue forms originally, and the sport is very hard to fix, except through propagation. White forms of the speciosa type seed fairly well, but those of the compactum type very little indeed. Some will not seed at all, but the same may be said of some of the very dwarf growing blue forms. I have got some white forms of compactum from seed this year, and hope to be able in time to have as good a seed strain from them as I have now in the blue colour; but work of this kind needs not only much care and patience, but also a quiet submission to numerous disappointments.

A. D.

FLOWER BEDS IN SUMMER.

The ground was so dry in most places when the summer bedding plants were put out this season, that there is every probability of the soil getting too light and open for the different subjects to grow satisfactorily, unless it was well trodden before or after the plants were put out. If this was not done, it is very necessary that it should be attended to at once. All plants grow better for it, because the air will, to some extent, be excluded, and by this means the ground will not become dry so quickly. I always choose dry weather for treading between the plants about a fortnight after they are put out, and where we cannot get between the plants with the feet, a long-handled wooden rammer is used, which enables the man to work closely round the smallest seedling plant. As a matter of course, all subjects are not dealt with alike. The green-leaved zonal Pelargoniums require a firmer soil than the tricolor and white variegated kinds. Heliotropes, Petunias, and Ageratums require the ground to be moderately firm. When the soil is light and open they make long and straggling growth, but in a firmer medium the shoots are short-jointed and the flowers more numerous. I do not agree with the common practice of raising the centres of flower beds above the ordinary level, unless it is in low situations where the ground is heavy and of a retentive nature.

Crowded flower-beds are more often seen than is desirable. This, in many cases, arises from a mistaken notion of putting in the plants too closely together at first. Of course, a good deal depends on the character of the soil and the weather, but I am satisfied that it is wrongly directed zeal to put in the plants so closely together that there is no room left for them to grow. The greatest number and the strongest trusses of flowers are always produced by those plants which have room to develop in a gradual manner, but if the growth is crowded the opposite results will follow. As a rule, unless the soil is very strong, Pelargoniums do not suffer so much in this way, but such plants as Ageratums, Verbenas, and Heliotropes are often seen in the autumn growing in such a mass as to be comparatively worthless as regards making an effect. This need not be so, even if the plants were put out too thickly; a judicious thinning out of the growth at different times through the summer would ensure a constant succession of young branches which would produce a constant display of well-developed flowers as long as the weather was favourable. This matter of thinning out the growth in good time more especially concerns those who find it necessary to bed out early, and to plant rather closely together for the purpose of making an early effect. In such cases, even in ordinary soils and seasons, the growth of most plants is sure to become crowded before the season is over. But I have proved in

practice that even the Pelargoniums may have the branches thinned out with advantage before the usual time of taking cuttings comes round, and I have also proved that many other subjects may be dealt with in the same way. J. C. C.

Herbaceous plants.—Wherever a portion of ground can be spared for the cultivation of herbaceous plants, such will always be valued as a most useful adjunct to a well-appointed garden. For supplying cut flowers, as well as affording continuous interest to proprietors of gardens, they are not excelled by any other class of plants. The culture of these is greatly on the increase, and it is very remarkable that position and soil can hardly come amiss to them. Some years ago a piece of waste ground, covered with Nettles, Docks, and other weeds with an aspect to north-east, was trenched deeply. The soil throughout appeared to be a mixture of almost inert clay and brown sand. Rotten manure was given liberally, and a selection of plants was made, in which large numbers of the following were planted: Asters, Irises, Dielytras, Delphiniums, Pæonies, Spiræas, Liliums (many sorts), and other showy species. While I write these are in full flower, some of them in long, irregular lines and massive in appearance. They have grown wonderfully and afforded so much pleasure that the stock has been largely increased. There is a large collection of dwarf plants, hardy in character, grown for covering the ground among the large species. Alpine Auriculas, Aubrietias, Iberis, and Polyanthus form a large portion of the general collection, and carpet the ground, thus forming a pleasing combination. Hollies (golden kinds), Retinosporas of sorts, Fuchsia Riccartoni, and some other plants, which give variety and enhance the effect of this herbaceous garden, are introduced in prominent positions. To have such plants in the most attractive character, it is of little use arranging them merely as a botanical collection. They should be in large masses and arranged so that their distinctive features may be seen to advantage. The revival of the culture of hardy flowering plants has given a decided "shunt" to the system of bedding out tender and half hardy plants. In many places carpet bedding has become extinct. The system never became popular in Scotland, always being looked upon as a kind of "baby gardening." —Scot.

SHORT NOTES.—FLOWER.

Dictamnus albus is a bold rock plant; its spikes of white flowers are a feature in the border at Chiswick and also at Kew. A most useful plant to obtain.

Blood Pink (Dianthus cruentus) gives life to the rock garden now by reason of its intense crimson-coloured flowers. A large patch of it is remarkably showy.

Calochortus (Cyclobothra) pulchellus is a lovely flower, and is exceptionally fine on the bulb border at Kew; its drooping bright yellow flowers are borne with the greatest freedom.

Iris orientalis, of which an excellent coloured plate appeared in The Garden for September 10, 1881, is in bloom in the Epsom Nursery. It is a finer flower than that of the type, and of rich blue colouring.

Lilium elegans alutaceum is quite a dwarf Lily, not more than about 1 foot high, the flowers orange-scarlet spotted with crimson. Messrs. Barr have one without the spots called Prince of Orange.

Phyteuma limonifolium, in flower in the alpine house at Kew, has narrow, rather sparingly produced leaves, and a slender stem that rises about 2½ feet; the flowers star-shaped, small, and mauvy blue.

Campanula garganica hirsuta is an excellent Bellflower for pots; its trailing stems are studded with pale blue flowers; the leaves are hirsute. There are some plants of it in the alpine house at Kew.

The Piedmont Onion (Allium pedemontanum) is exceedingly graceful for an Onion, its large rosy purple bell-shaped flowers appearing in a drooping cluster of about six together. It is a neat little rock plant.

The Wall Bellflower (Campanula muralis).—At Hurst House, Midhurst, this pretty little Harebell is planted on a small rockery and does remarkably well, spreading out into large tufts studded with a profusion of delicately coloured flowers.

Hieracium aurantiacum.—For planting in the herbaceous border where low-growing plants are required, this Hieracium is well worthy of a place. Its orange-red flowers are freely produced during the greater part of the summer.—M.

Foxgloves show their stately character on the higher tiers of the rock-garden, also amongst shrubs and in positions where they are set off by deep coloured foliage. We have now a great variety; those flowers that are quite white with deep spots are extremely beautiful.

Pratia angulata, in bloom at the present time, is an interesting little plant, creeping over the surface of the soil and covering it with dense mossy growth. The flowers are quite as large as those of a good Lobelia and white. It is synonymous with Lobelia littoralis.

Carex pendula.—For planting in shallow water or on the margins of ponds this Carex is very useful. Its black flower-heads are showy when bursting, and afterwards they assume a brown colour, whilst the foliage is deep green and very graceful in appearance.—M.

Veronica prostrata.—At the present time this Veronica is very conspicuous on the rockery. Its deep blue flowers are very effective when in a mass, as it soon grows thickly when planted in moderately rich soil. No rockery, however small, should be without this gem.—M.

Tufted Pansy Snowflake.—This white tufted Pansy, shown in excellent condition by Mr. J. Chambers, Westlake Nurseries, Isleworth, at the recent exhibition of the Royal Botanic Society, promises to be a really good white variety. The flowers are large, well formed, pure, and freely produced; while the habit appears to be all that can be desired.

CHRYSANTHEMUMS.

E. MOLYNEUX.

NOTES.

Owing to the damp, sunless, and at times cold weather, I find mildew is fast making its appearance upon the bottom leaves of the plants. In such weather as we are now experiencing, mildew will spread quickly if not checked in time. A small canister having a perforated lid is a good means of applying the sulphur to the surface of the leaves. Choose a dry day, so that the leaves are not wet, as sulphur applied to wet foliage loses much of its efficacy. As yet the mildew is visible only on the top side of the leaves.

During the present showery weather the plants grow very fast and the leaves are generally of a good colour; owing mainly, in many districts, to the absence of cold spring water, the recent rains have been almost enough for the plants. Growth made under such conditions as described is liable to be soft and sappy. The most should be made of the room by spreading out the shoots as thinly as the existing space between the plants will allow, as then the shoots derive all the benefit obtainable from the sun, the growth is rendered more solid than when the branches are allowed to run one into another, and the manipulation of the shoots is more easily managed.

The plants which are growing with the object of producing large blooms have most of them made their first natural break into growth. If the instructions previously given have been carried out, the plants will now be furnished with three shoots, or as many more as was determined they should carry with the object of producing the same number of flowers. Almost daily attention is required to keep the new growths secure from high winds and heavy rains, by tying the branches securely to the stakes. At this stage they are very brittle and quickly snap off if the shoots are allowed to buckle, that is, the top tie being so tight that the ligature does not move up the stake as growth progresses. More shoots are broken by this careless method of tying the stems than almost any other cause. Experience of this will only prove to the operator the importance of loosely, yet securely, tying the new growth to the stakes as it progresses. It is not a little disappointing to find two out of three branches broken off a plant, and perhaps this is a new variety and the only plant. Some varieties, notably Val d'Andorre, Criterion, and Marguerite Marrouch, I notice, have shown a disposition to form another bloom-bud in the points of the growth made since the first break occurred. What to do then is puzzling to the beginner. The number of shoots the plant was intended to carry was determined at the last break. Remove all additional growths on the new break, except two at the point; the reason for leaving two now is to give the grower a chance of selecting the strongest and most promising, which will be easily seen in a few days; the second, or weakest one is then removed, restricting the plant to the same number of growths as it had before. This last, or premature break into new growth was caused by the persistence of flower-bud formation.

Special attention will be required now during showery weather to see that the plants are not watered artificially when not required, as the continuous rains are at times deceptive in this way. Sometimes sufficient rain does not fall on to the soil, through the leaves of some varieties overhanging the sides of the pots. In such cases, plants are sometimes dry at the root when it is thought otherwise; therefore, greater care is needed in watering during showery weather than is required in fine weather.

Removal of suckers.—There is a right and a wrong way to perform what appears to many a trifling operation. Much harm may be done to the plants by doing it carelessly. Suckers or offshoots spring freely from the base of most varieties, though there are some that are very shy in producing suckers. In all cases if they were allowed to grow they would rob the plants of strength, which should be utilised in a much better manner until the flowers are being produced. After that period no harm is done by allowing the suckers to extend for the production of cuttings. The safest manner is to break them off with the finger and thumb. In careful hands a knife may be used with advantage, but care should be exercised that the surface roots are not injured by the operation, or one more check will be administered to the plants.

Earwigs on Chrysanthemums. — I have never seen earwigs so destructive to Chrysanthemums as they are this season. We have already lost several points of leading stems through their depredations. The small earwigs are equally as destructive as the larger ones, as they are more easily hid when young, and stand a better chance of escaping notice. Earwigs coil themselves up in the young leaves, and in a very short space of time the extreme point is eaten out of the plant, thus necessitating a new start into growth. Great care is necessary to find them. I know of no other means than handpicking for removing these pests when once located in the shoots. Trapping them with small pots filled partly with dry Moss, and placed upside down on the top of a stake, and a little later on with dry Bean stalks, 6 inches long, thrust among the leaves, are good plans.—E. M.

Taking notes.—Young growers of Chrysanthemums who wish to become proficient in the culture of this flower for exhibition should take careful notes of the varieties as growth progresses. It is only by hard practice and a determination to excel that a beginner can hope to succeed. Taking notes I have found of the utmost benefit; there is a method to be followed even in this. Especially should be noted in separate columns the names of varieties—the date when propagated—when first break, crown and terminal buds were "taken"—at what height from the soil these natural breaks were formed—how long each requires to reach that stage—how the blooms develop later on from each bud—when feeding the plants commences, and with what stimulant, and how and when—when they are housed—after treatment—what size the buds of certain kinds were at that time—the time from the date of housing each variety required to develop, and how long the blooms remained fresh after expansion—the size of each bloom both in diameter and depth. These notes, if taken copiously and in a careful manner, will prove most useful if studied during the following season. By such observance the peculiarities of varieties are ascertained and a re-

petition of former mistakes can be avoided. Persistence in studying the note-book will do much toward achieving success when November comes round again.—E. M.

FRUIT GARDEN.

W. COLEMAN.

RENOVATING OLD APPLE TREES.

AT last, better late than never, I turn my attention to the questions contained in an article by "A. D.," p. 519, upon this important and interesting matter. Fairly dissected, his paper runs thus: (1) Why allow the stock growths to remain the first and possibly the second year after grafting? (2) Why not head back old trees as for grafting, and bud the young shoots, of which there will be scores fit for working by the month of August? (3) Why attach a great number of grafts to small branches when a more compact tree can be made by heading hard back and attaching several grafts to each stump?

The original query put to me in sum and substance ran thus: "My Apple trees are from thirty to fifty years old; can I cut off the heads and regraft with better sorts with any degree of success?" Having the querist's full address before me, I knew the question was genuine, and further, having within 200 yards of my room a number of aged trees which I had successfully treated, I unhesitatingly said, "Yes," giving, or rather repeating a few directions for the preparation and future management of the trees. Repeating, I say, for every reader of THE GARDEN knows why I advise light amputation, as well as my reasons for allowing the scores of shoots from the old trunks to grow for a year or two after the grafts are attached.

"A. D." assures me that he has had great experience in orchard work, but evidently he does not approve of my method, hence the courteous questions I much regret having been unable to answer earlier. A great number of people, myself included, at one time shared "A. D.'s" views upon this matter, but thirty years' experience in the largest Apple county in England has convinced me that close decapitation followed by hard disbudding is the stepping-stone to failure and death. Here upon this estate I have tried the two methods, and having the improvement of our orchards thoroughly at heart, I have always taken great pleasure in giving honestly to others the benefit of my successes and failures. Doctors, as a matter of course, sometimes disagree, but few, I think, would suggest amputation of the two arms of a patient at the elbows when nipping a couple of joints off each of the fingers would answer equally well. The performance of either operation to skilled practitioners would be as simple as the beheading a tree is to me, but the careful surgeon would choose that which would be accompanied or followed by the slightest shock to the system. A healthy tree of fifty summers worth grafting must have an extensive ramification of roots, which must be kept alive and active after the head has been taken off, and the most feasible method, in my opinion, is light amputation, the retention of spurs behind the scions, which may fruit if they will, and speedy restoration of the flow of sap by the encouragement of abundant leafage. A tree of this age headed back in January will be bursting with sap by the end of March. Why, then, should we force it back to stagnate and rot the roots, when numerous channels in the scores of young shoots pushed from the trunk can be so quickly secured for keeping it in motion, when every new leaf gives relief, and enough and to spare is left to feed the grafts? This is my theory, but I may be wrong; if so, those who respond to "A. D.'s" invitation to discussion will, I have no doubt, put me right. At the same time, perhaps, they will explain to me why the rosarian allows a few shoots to grow from the heads of his Briers, when the buds of delicate varieties do not go away vigorously. Why the grafter of Vines allows his stocks to burst into full leaf before he puts on his grafts. Why the plantsman allows his cut-backs to break before he shakes out for repotting, and defers pinching until after they have recovered from disrooting and repotting in fresh compost. Why the planter of a Quickset hedge or a fruit tree defers cutting back the first season, or the disbudder of a large Peach tree performs the operation piecemeal, when, just as well, he might take off every superfluous shoot in half an hour. In all these cases one idea guides, and that is the prevention of stagnation of the sap, but in none of the few I have named is the shock half equal to that which the old Apple tree undergoes when suddenly deprived of its head, and Nature is deprived of her balancing power by the removal of every shoot as the latent buds push into life. If the Vine leaves robbed the scion, or a forest of young shoots the Apple graft, and a most vigorous growth were the only consideration, why then we might repress, but quite the reverse is the case, for in the vinery we wish to prevent flooding and over-gorging the sap vessels. In the orchard our aim is a great number of shoots, not too strong, but strong enough to form flower-buds the second year. Turning from the aged tree to the pyramid, the bush, or the horizontal trained Apple or Pear in the fruit garden, say of seven to twenty years' growth, our space being limited, we shorten each shoot we intend to graft pretty close home, but we do not—at least I do not—remove the spurs and buds clustering about the bole. Every one of these I encourage until the ligatures require loosening and the young growths are capable of keeping the roots in action. I then commence shortening back the stem shoots, leaving a few leaves for shelter and shade throughout the summer. If the spurs escape spring frosts, the fruit in due course is thinned and allowed to swell to maturity, but this intermediate treatment does not prevent the scions from making shoots 3 feet in length and forming fruit spurs their whole length the second year. I now have wall trees grafted in March, 1886, measuring 12 feet across the breast and well cropped with fruit; others, espalier and pyramid, grafted this spring, and carrying good crops of fruit on the spurs behind the scions, but this cropping certainly does not rob the grafts, as many of them already have been pinched to a single shoot with the view to their forming spur buds near home. Mr. Barker, in an article upon waste of force in a recent issue of THE GARDEN, recommends timely stopping; but for what? Why, for fruit. But in my case, in the plantsman's case, in the planter's case, the object is just the reverse. We do not wish for fruit or flowers. Our great anxiety is the preservation of the patient's life, and this theorists and physiologists tell us—our own daily practice tells us—is best secured by a speedy restoration to leaf and wood growth.

As to budding the young summer shoots pushed out by old trees, I must confess my inability to express an opinion, and for these reasons: When I decide upon operating upon an aged tree, it must be sound in bole and limb and perfectly healthy. Then, having headed back, not too close, I introduce say forty grafts where half that number will form a good head. The superfluous grafts are a host in themselves at the outset, not only in forming leaves for the benefit of the roots, but also in covering up the stumps of the largest limbs, and at the end of two years they form the best of wood for future operations. Sometimes a large tree deceives me, but in the majority of operations 90 per cent. of the grafts take, and I do not find it necessary to resort to budding. If, however, I may be allowed to express an opinion, I must say I do not think budding will answer "A. D.'s" purpose. Not that he will experience any difficulty in getting the buds to take, as I see no reason why they should not grow as freely as upon a young stock, but having removed the ligatures and shortened back, each shoot from the bud will require constant attention with sticks and ties to prevent its being blown out by the wind, and then, unless the old tree is a very strong grower, the young shoots selected for stocks, so to speak, will not keep pace with the buds. The experiment, I have no doubt, has been tried, and I shall be glad to hear the result.

THINNING FRUIT CROPS.

AFTER repeated experiments I have well satisfied myself that a timely thinning out of the flower-buds on very free-flowering fruit trees is one of the surest methods of securing a good set of fruit, and, consequently, fully agree with the sound advice recently given on this subject in THE GARDEN. When, many years ago, an old and very intelligent fruit grower warned me not to be too sanguine with regard to the fruit prospects, our trees at the time being crowded with bloom, I was rather inclined to disagree with him, thinking that nothing but the most unfavourable weather would militate against a good set. As I then, and several times since, found out, it is quite possible to have too much bloom; and, unless I am much mistaken, not a few fruit-growers are somewhat mystified with the behaviour of numerous trees this season. Various Apple, Pear, Plum, Cherry, Peach, Nectarine and Apricot trees flowered most abundantly, yet from no apparent cause the crops set in many cases are *nil*. In this district no frosts nor very cold winds injured the flowers, and even if these had crippled the bloom, it is very certain that those trees that failed under glass were not all thus damaged. The real cause of failure must be traced to a different source, and the truest solution of the difficulty will most surely be that the trees failed to properly furnish every flower with pollen. Trees in good or robust health rarely produce too much bloom, the tendency in this case being rather to form a fair proportion of wood buds. Those in failing health, or any that have either had their roots severely pruned, or which have long since exhausted the available food supply, are usually the most free-flowering, but it often happens that a very poor crop is obtained from them. Naturally free-bearing varieties frequently fail every other season, not because there was no bloom, but simply because the production of a heavy crop of fruit in the previous year completely exhausted their energies, and a year's rest is needed before they are sufficiently recouped. This latter fact is especially marked this season, most failures to set a crop occurring in the case of trees that perfected a heavy crop last year. If we could more often persuade ourselves to thin out first the flowers so as to ensure a good set, and subsequently the fruit in order to avoid over-cropping, fruit of the best quality would be more often obtained and failure less frequently result. In the more northern counties few fruit growers are troubled with too much bloom, quite the reverse being the usual complaint. We who live in more favoured districts have therefore the greater need to practise timely thinning out of the buds, and may safely do so without any fear of over-doing it.

I am informed, on good authority, that in some districts in Surrey there are complete failures in numerous Peach houses, not a tithe of a crop being set. Those in charge cannot well account for these fail-

ures, seeing that abundance of blooms expanded on all the trees, and the only conclusion generally arrived at is that it must be attributed to deficiency of sunshine at flowering time. In advancing this theory they quite overlook the fact that abundance of fruit is usually set in early houses at midwinter, or when there is no sunshine for several weeks together. The sunshine may have the effect of drying the pollen and rendering it more easy of being distributed, but if the flowers fail to form plenty of pollen, no amount of sunshine will ensure a good set. Our late unheated Peach house is situated in a very sunny position, and, as a rule, the wood ripens thoroughly and flowers most abundantly. This year the trees flowered very freely, but fortunately I took the precaution to sweep off nearly all the underside buds and spent several hours thinning out those on the outer and upper surface of those respectively trained against the back wall and on the front trellis. Ten good-sized trees were treated in this manner, the consequence being plenty of pollen, and as this was well distributed with the aid of a rabbit's tail on a long stake, a capital set resulted on all but one tree of Pine-apple Nectarine. As far as time would permit, various choice Plums, Cherries, Pears, and Apricots also had their buds thinned early with the best of results, those reserved being greatly strengthened and nearly all set. Nor should thinning the young fruit be delayed. Better by far to anticipate this most weakening attempt of the trees to swell off as many as possible by careful thinning. It is not because the flowers are not properly fertilised that so many young fruit drop prematurely, but rather in consequence of the trees' inability to swell off all that are set. If the thinning is done early, leaving only a fair crop of well-formed fruit, there will be no dropping off of these during the stoning process, and I unhesitatingly freely thin out all stone fruit long before the stones commence to harden. If more fruit are subsequently pulled off, it is only where they have been left more thickly than originally intended. Outside choice fruit stands equally in need of timely thinning, and this is done whenever the time can be spared. Small flavourless fruit is not needed now-a-days, if ever it was, and the aim should be to grow moderately heavy crops, which, if not wanted for home consumption, can be readily sold in the markets. W. Iggulden.

Somerset.

THE STRAWBERRY CROP.

Thanks to some good showers of rain during the second week of June, accompanied with a fairly warm temperature, the condition of the Strawberry plantations has improved immensely. Before the welcome showers fell, the plants were suffering for the want of root-moisture, and the prospect was not at all bright. Although there is enough blossoms to furnish a crop of fruit, it is many years since I saw so little bloom in our plantations. The quantity of bloom, I observe, varies according to the sorts. There are most flowers on Black Prince, King of the Earlies, and Comtesse Héricart de Thury. They are not, I know, the best Strawberries, but they are the most reliable, as they invariably do well wherever planted, and having here about a score of sorts to compare them with, I think their value is pretty well tested. The next most reliable kinds in our soil are Sir Joseph Paxton and President, both of which regularly bear good crops of large and good flavoured fruit. I have carefully gone through our trial sorts, and noted the condition of each. This will show, at least so far as the soil here is concerned, the kinds that are best suited for it, and that we cannot do better than confine our attention to the five above-mentioned sorts.

I find the next in point of merit is The Captain, as the promise is fairly good, and I hope to give it another trial. Auguste Nicaise last season produced a good crop of very large fruit, and retained a vigorous growth all through the heat and drought of last summer, while this season half of the plants are blind, and those that are fruiting have only a truss or two of flowers on each plant.

Helena Glœde is in about the same condition as Auguste Nicaise. Bicton Pine—all the plants of this sort are blind. Frogmore Pine—plants weak, but showing sufficient bloom to produce a crop. Eleanor—two-thirds of the plants are barren. Goldfinder is in a fairly vigorous condition, but not more than half of the plants have any blossoms on them. The plants of The Countess are weakly, but show a good average crop of blossoms. The plants of Loxford Hall and Lucas are all sterile. Looking at the various conditions to be found in the above sorts, all growing exactly under the same conditions, one becomes more than ever impressed with the idea that soil, climate, and varying conditions of the seasons influence in a great measure the behaviour of Strawberries. If I had not grown in quantity the kinds I had before proved to be adapted to the soil, our supply of fruit this year would have been a short one, but as the usual space is occupied with the sorts I mentioned first, I do not anticipate any scarcity, although there is every probability of the crop being under a good average. With regard to the earliest Strawberry, I still think that Black Prince holds the first place.

J. C. C.

FRUITS UNDER GLASS.

Vines.

By this time the thinning of Grapes in the latest houses will have been brought to a close, and one of the most tedious operations over which men cannot hurry will be thankfully left behind. The next difficulty to be encountered in the Lady Downe's and Muscat houses is scalding, if a disease which affects certain berries far away from the sun's rays can be called scalding. The disease attacks the berries during the stoning process, and is always most virulent in unsettled, stormy weather, when ventilation, no matter how well it is managed, does not avert sudden jumps and depressions, and the external temperature, as at the present time, falls extremely low. Under these fluctuations it is not at all unusual for the night temperature of the house to descend to a low figure, when the berries become cold before daybreak. A bright morning succeeds, the temperature of the house rises faster than that of the Grapes, condensation of moisture takes place, and a portion of the cuticle is destroyed. Prevention being better than cure, I would suggest starting the fires early in the afternoon to maintain a high night temperature with air, a diminution in the supply of atmospheric moisture, and a profusion of air by day. Draughts, as a matter of course, must be guarded against, otherwise rust will put in an appearance; but a low day temperature being the main object, this can always be secured by abundant apex ventilation. The dangerous period does not extend over twenty-one days; consequently, the little time lost is easily regained when shutting up with heat and moisture is resumed.

Early Hamburghs.—When all the Grapes are cut, the first step will be thorough cleansing of the foliage with syringe or hose, not only once or twice, but night after night, until all traces of red spider are swept away. The next will be repeated watering to restore the internal borders to a healthy growing condition. When this has been secured, old Vines may be the better for a thorough mulching with short manure, otherwise, having been well cropped, a fresh flush of lateral growths, a very important matter, may not be readily obtained. Young Vines, on the other hand, may not require stimulating, but unquestionably they will derive benefit from a covering of some kind that will keep the roots near the surface moist and cool. Fresh horse litter answers as well as anything, but I have seen complete mats of roots drawn to the surface of the border by the promiscuous deposit of a quantity of flags, flat stones, or thick slates or tiles. When these are used the mulching, first of all, should be removed from the spots they are intended to occupy, otherwise roots will be drawn into the manure, to be eventually destroyed when it gives way to the annual top-dressing of turf and bones in the autumn. As no good Grape grower buries a layer of old mulching manure beneath a thin covering of new compost, my reason for directing timely attention to this matter will be obvious. These houses at first should be as carefully ventilated as though they contained a crop of fruit, but gradually the air may be increased, and eventually, when the wood is ripe, the top and front lights may be left wide open by night as well as day.

Midseason vineries containing Hamburghs, Madresfield Court, Muscats, Foster's Seedling, Buckland Sweetwater, and kindred varieties now ripening must have a liberal chink of air on each ventilator throughout the night, and this from this time forward need not be shut off for the morning damping, as a sudden check upon the circulation with a rising thermometer is often followed by condensation of moisture which spoils the bloom. The Grapes, nevertheless, must have a close time for swelling, and this can always be secured by closing with waning sun heat, when the external temperature is equal to that of the house. Foster's Seedling and Madresfield Court being subject to cracking under great fluctuations, a little gentle fire heat until nights become much warmer will be absolutely necessary, but the top ventilators must be slightly opened as soon as the pipes become comfortably warm. Other preventives, or supposed preventives, of cracking are notching the shoots carrying the bunches, and allowing a profusion of laterals for carrying off superfluous sap; but these precautions, I am afraid, do not always carry them through unscathed. The most common cause of cracking, I believe, is due to a sudden withholding of water when the Grapes commence colouring, when the skins become set before the berries have finished swelling. A change to moist, muggy weather unfavourable to liberal ventilation, not so to a flush of sap, sets in and the mischief is a matter of a few hours duration. Warm, well-drained internal borders, in which the roots are entirely under control, I have always found best suited to these Grapes, and they keep thoroughly moist until the clusters are quite ripe, not so much by repeated watering as by heavy mulching from the time the berries are stoned and commencing the second swelling. Whilst battling with cracking it behoves us to keep a sharp outlook for spider, an insidious enemy which should always have our most careful attention. Sulphur painted over the pipes when hot is the well-known remedy or check; but to annihilate it the process must be repeated to an extent which not infrequently injures the foliage. Therefore, as spider, like all other pests, has a beginning, its first appearance should be the signal for attack with sponge and soap water. Sponging all the leaves upon a Vine may appear a formidable undertaking, but it must be borne in mind that its first advent is confined to a small area, also that a leaf well cleansed is rarely attacked a second time. Then, again, there are varieties of Grapes, unfortunately, not much grown now, which will not stand the fumes of sulphur in the mildest form. These are the Frontignans, including specially the white Duchess of Buccleuch and Dr. Hogg, a non-cracking substitute for the delicious Chasselas Musque, an old variety, unknown to nine-tenths of the gardeners in the kingdom. To this section, whose decade seems to have set in with that of the old brick flue, sponging is particularly applicable, as few people feel proud of rusty Grapes, no matter how fine they may be.

Gros Colman and Gros Maroc, the two sensational Grapes, not half as good, but realising double the price of best Hamburghs, should now be pushed along, in order to get them into passable condition early in the autumn. The first cannot be overfired, neither can it have too much time, including at least six weeks to get rid of its earthy taste after the leaves fall. The second, on the contrary, is a very quick Grape, commencing to colour with, if not a little before, the Hamburgh, but it is not a good one for keeping, neither is it improved, but quite the reverse, by hanging after it is thoroughly ripe; consequently the Muscat treatment, for which Gros Colman pays so well, commercially, is thrown away upon this Grape. Gros Maroc is a very handsome seaside or bathing-season Grape, and to have it in its best form, the Vines should be started with the second Hamburghs early in January.

Pot Vines.—The ex-fruiting Vines having been

turned out, if not thrown away, the structure they occupied should be well cleansed, painted, and made ready for the next set, which, by the way, will now be showing signs of ripening. If too thickly placed to admit of free exposure to sun and light, it is a good plan to draw the requisite number, choosing, as a matter of course, the best, and to place them at once where they are to fruit. Those left will then have a better chance, and so will the premier Vines for that matter, as I never could see the advantage of exposure to drenching rain and buffeting winds, when the canes of a summer's growth can be so much better ripened in a temperate, well-ventilated vinery. Here they can have full exposure in settled summer weather, the protection of the glass when the roots are likely to become saturated with cold rain and the ripening foliage is endangered by rough winds. When strong pot Vines do not show fruit, we hear the remark, the wood was badly ripened; why, then, should we court failure by exposing the roots and foliage before they have properly performed their functions?

Vines from eyes of the current year may now be raised out of the plunging material and ranged where they can have the full benefit of light and plenty of fresh air. If intended for cutting down to a single bud for planting out or potting on next season, thoroughly ripe canes of moderate strength should be the aim, and these can be best secured by taking out the points of the leaders when they have made 5 feet or 6 feet of growth from the eye, and the removal of all laterals and sub-laterals at the first joint beyond the previous pinching. Pots 6 inches to 8 inches in diameter are quite large enough for stock Vines, and these, if all has gone well, will now be full of roots, which, by the way, must be kept at home by the introduction of tiles or pieces of rough board and careful attention to watering.

PEACHES.

The fruit in the latest house and wall cases having undergone the final thinning, the borders must be well covered with fresh stable litter and regularly fed with diluted liquid. Where this is scarce or wanted for other subjects, 3 inches or 4 inches of good spit manure may be spread over the surface of the borders inside and out, and copiously washed in with the hose, care being taken that the solid balls as well as the looser soil beneath them are thoroughly moistened. When trees have been worked round a few times these balls become less pervious to water than other parts of the recently disturbed border, and, notwithstanding the fact that the water supply may be abundant, it not unfrequently happens that the experienced even are deceived by trusting the hose in inexperienced hands when nothing short of forming basins over the balls and filling them repeatedly will ensure its passing downwards. Good watering and copious syringing twice a day are the main factors in the growth of fine Peaches, but their period of ripening must be regulated by the opening and closing of the doors and ventilators. If ripening is to precede the crop upon open walls it may be necessary to shut up when the house is syringed late in the afternoon, but otherwise—and it is by no means difficult to keep house fruit until after the glut upon walls is over—every light and ventilator may be left wide open by night and day, the early stages being the proper period for retarding. I have seen late houses treated differently, but what has been the consequence? Finding progress too rapid, shading has been resorted to, giving no end of trouble at a later stage when full exposure to sun and light was most essential to colour and flavour. The weather through June was showery by day and cold through the night, conditions at all times favourable to the spread of aphis and mildew. The first is easily destroyed by tobacco smoke when the trees are dry, and although the second does not come on so early it is well to be on the watch, as the good old Royal George is very subject to it. It soon spreads from the leaves to the fruit, which it speedily disfigures, but makes little headway where dry sulphur is freely used and the second syringing is relaxed on cold evenings.

Succession houses in which the fruit is taking the last swelling may now be neatly tied down for the last time, great care being taken that the shoots upon every part of the tree have ample room for the full development of their foliage. If all the Peaches have not been elevated, a final effort should at once be made, and at the same time the points of shoots in advance of the fruit, which will be cut out when the crop is gathered, may be well shortened back, first, to increase the size; and second, to give more room to those rising from the base and now forming flower-buds for another year. Syringing with pure soft water may be continued until the fruit has attained full size, and then the stems, extremities, and walls may be regularly washed once a day throughout the season of ripening. The roots, too, must be regularly supplied with tepid water, but not to a saturating extent, as too much water at this stage is quite as injurious as too little. Therefore, once the borders are thoroughly moist extra light covering may be used to prevent a repetition when the Peaches are ripening. Fire heat should now be reduced to a minimum, but there are times when warming the pipes even in July is absolutely necessary. Warmth, light and plenty of fresh air are the elements upon which we depend for colour and flavour; if external conditions are propitious, so much the better for the fruit and the trees; if adverse, then the best substitute is gentle fire heat.

Early houses.—If any late or mid-season varieties are grown in this compartment, the treatment recommended for successions will apply until the last Peach is gathered. The house must then be thoroughly and repeatedly washed with the hose or engine to ensure health and cleanliness. Washing the trees, to a certain extent, will help the roots, but independently of this the latter must be looked to and thoroughly moistened, as this stage really forms the starting point for winning the next crop of fruit. It too often happens that the lights are thrown wide open, so to remain, and beyond an occasional syringing the two receive no further attention until the leaves fall, but this is not the way to secure hard red shoots studded with plump silver-coated buds, which will stand any test save that of too much heat, drought and coddling through the winter. Liberal ventilation of course is necessary, but shutting up for a time after the crop is off is a great help to the buds, and the removal of all shoots no longer required is another, as summer pruning lets in light, and air, and sun-heat, the elements to which we are indebted for wood that will not cast its buds when the house is closed for forcing. All lifting, root-pruning, and replanting should now be decided upon, but beyond getting ready materials for compost, these operations must be deferred until the wood is ripe. Then, if at all, the roof lights may be taken off for three or four weeks for painting and repairs, also to expose the foliage and borders to rain and dew. Their removal, however, is not absolutely necessary, as some of the best Peach forcers I am acquainted with have their trees under fixed roofs of 21-oz. glass.

FIGS.

If the early forced trees have been properly tended with water, well syringed and carefully ventilated, the second crop of fruit will now be resting, that is as far as outward appearances go, but internally the work of fertilisation will be going on, and when this is complete, they will swell up and ripen quickly. When this stage is reached we do not often open the valves, but give the roots plenty of tepid liquid at 80°, use plain water at the same temperature for syringing purposes, and run up to 90°, or a little more, after closing with sun-heat. Second crop Figs are apt to run smaller than the first, a defect which can always be corrected by liberal thinning and generous feeding. Moreover, the trees not unfrequently show traces of scale and red spider which spread rapidly if not grappled with at once. The first we disturb with a hard stumpy brush made of bristles before it reaches the leaves and fruit, and the second we break up by sharp syringing within and without, using a very weak solution of soft soap as often as may be found necessary.

Succession houses now in full bearing must have an abundance of air by day and a chink at night to let out superfluous moisture, with just sufficient fire heat to prevent the damp from settling upon and spotting the fruit. Some moisture being absolutely necessary to the swelling of the second crop, as well as the prevention of spider, we never relax the use of the syringe in all dry corners and about the stems and walls, and further the trees get an extra tepid bath as often as the ripe fruit is gathered in close. By this means, and keeping them clear of weak spray, the two crops can be accommodated without detriment to either, but, unlike stone fruits, Figs must not be gathered until they are well coloured and ripe enough for table. For packing for long journeys they must not be too ripe, neither must the skins be made too tender by an excess of atmospheric moisture and a limited supply of dry fresh air. For home use, on the contrary, they may hang upon the trees until dead ripe and there is danger of dropping, when, as a matter of course, they must be detached and placed upon inverted hair sieves in a dry, airy Grape room where they will keep for a few days. The trees in

Late houses and glass cases resting against walls may be syringed once a day when the weather is bright and fine, and then the fruit and foliage must be thoroughly dry before nightfall. During dark, dull or wet periods the syringe will not be needed at all, but air in plenty must be given, as nothing can be more detrimental than close confinement in a low temperature. If not already mulched, some light fresh stable litter should now be placed over the roots and water at a temperature of 70° to 80° may be given pretty freely to trees whose roots are confined to a limited area, or are kept in subjection by annual root-lifting, the surest and best mode of securing ripe wood and good crops every year. Cold house trees are not improved by, neither should they require, pinching in summer. One crop, and that a good one, should be the aim, and this to a certain extent can be lengthened out by training upon the long-rod system, *i.e.*, cutting out the oldest shoots as they reach the extremity and keeping a relay of young growths constantly progressing. W. C.

Fruit crops and the drought.—There can be no doubt but that the drought of last year has still left its effects on our fruit crops generally. Stone fruit trees, which in this locality bloomed and set abundantly, are now dropping their fruit wholesale, and where at one time a good crop was apparent, a mere sprinkling is all that is left. Strawberries have showed and are showing plenty of bloom, but only a few fruits on each plant are swelling; the rest are mere abortions. Many gardeners at the end of last season were under the impression that their trees were properly matured, and that a full crop, provided the blooming period was safely got over, was sure to follow. But appearances are very often deceiving, whereas experience never fails to teach its own lesson. Those with fruit trees under glass may gather a few hints from the past season, which has plainly showed that an insufficient supply of water during the growing season is a sure way to court failure.—D., *N. Wales.*

SHORT NOTES.—FRUIT.

Two early Strawberries that are likely to become much grown are King of the Earlies and La Grosse Sucrée. The fruits are of good colour and pleasantly flavoured.

Large Peaches.—Large, flavourless Peaches are the fashion now-a-days, and quality is sacrificed. Mr. Evans says that Royal George and Grosse Mignonne are still the best, though he speaks well of two American kinds, Alexander and Hale's Early.—H.

Strawberry La Grosse Sucree.—This Strawberry is recommended by some for forcing. It does well in the open garden at Lythe Hill, judging from the great bunches of fine fruits it was bearing.—H.

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Ferns.

W. H. GOWER.

PELLÆA BELLA.

The lovely species here figured belongs to the section from the Western Hemisphere, and was introduced some few years ago from California by the Messrs. Veitch, of Chelsea. None of the species of this set are of any use for effective decoration, but they are exceedingly beautiful grown as pot plants in choice collections, and also form exquisite little tufts if planted in the crevices of rockwork in the greenhouse. The chief requirements of these plants are a fair supply of water and thorough drainage. They, of course, require a little soil to grow in, but not much, and I am fully persuaded that the reason of so many of these delicately beautiful species being so frequently lost is because their roots are surrounded by a superabundance of soil, and that in a loose condition. A mixture of loam, sand, and a little peat is the best material for this species. The plants should be potted firmly, and if the drainage is ample they will not require to be disturbed for a long time. If planted in chinks of the rockwork care must be taken that they are thoroughly well drained.

P. BELLA, as will be seen from our illustration, is an elegant little plant, which when fully developed attains some 6 inches or 9 inches in length; the stem is black, and produces linear bipinnate fronds, which are often again divided at the base, the upper surface being dull green and the texture somewhat coriaceous. The figure was obtained from an example grown in the nurseries of the late Messrs. Rollisson and Sons, of Tooting.

P. BRACHYPTERA is a very similar plant, of the same erect habit, but stronger, often attaining a foot in height. The frond is divided in a similar manner to that of P. bella; the stem is dark chestnut-brown, and the surface of the frond is of a charming bluish green. It was also introduced from California by the Messrs. Veitch.

P. ANDROMEDÆFOLIA.—This is also a Californian plant, which I saw some time ago growing in a private garden near Birmingham. It is a perfect gem; the fronds when the plant is strong grow from 1 foot to 18 inches long, and nearly 6 inches in breadth; they are thrice or four times divided, the segments being small and bright green.

P. ORNITHOPUS somewhat resembles the above; it, however, is scarcely so strong in its growth, and the pinnæ are divided into three segments, the central one being the largest. It resembles the foot of a bird, hence its name; the frond is coriaceous in texture and of a glaucous hue. Native of California.

Drying Fern fronds.—Fern fronds may be dried so as to retain their colour by the process generally practised for preparing herbarium specimens of most plants; in fact, Ferns give very little trouble in this respect if well-ripened fronds are selected, as they dry more quickly than most plants, owing to the thin papery nature of their leaves. The following instructions will, if carefully attended to, lead to the desired result: First procure drying paper, which should be thick and unglazed and of a bibulous texture. Blotting paper would answer very well, or any other paper that will absorb moisture quickly. The most convenient size is 12 inches by 18 inches. Between every layer of fronds from four to six sheets of paper will be necessary, and if quantities are to be dried, a thin board should be placed between about every dozen layers of leaves, so as to equalise the pressure. The fronds should be placed face downwards on the lower paper, and the top layer should then be placed upon them. In this manner the pinnæ are kept flat and in their natural position. On the top of the pile a weight of about 50 lbs. should be placed. The top board should be about 1 inch thick, so as to bear this weight without bending. A bag filled with sand is as handy a weight as anything. The warmer the room in which the drying is done the quicker the specimens will dry. In twenty-four hours after putting in the fronds they should be transferred to dry paper, and again changed in about forty-eight hours. About three changes will be found enough for most Ferns. In changing the paper care must be taken not to injure the pinnæ, and should the fronds be very delicate the top paper should be removed, the dry placed over the frond, and then the papers turned upside down. By this means the fronds are transferred without being disturbed or injured. When perfectly dry the fronds should be gummed on to sheets of white paper, a mixture of gum-arabic and gum-tragacanth being the most suitable, and these may be procured from any chemist. The frond should be laid face downwards on a sheet of paper and the back gently gummed over with a soft brush. Then place it in position on the mounting paper and press it gently with a soft cloth rolled up so as to form a pad. Any loose or stiff pieces may be kept in position by gumming a narrow strip of paper



Pellæa bella. Engraved for THE GARDEN.

over them. If for botanical or comparing purposes the under side of the frond should be shown, or, better still, a small frond showing the arrangement of the spores might be dried along with the perfect frond and gummed on to the mounting paper face downwards. The arrangement of the spores is as important in the classification of Ferns as flowers are in that of flowering plants. Care should always be taken to label the specimens as they are gathered. —B.

SHORT NOTES.—FERNS.

Royal Fern (Osmunda regalis) does exceptionally well on the rockery at Kew. It sends its noble fronds up to a height of 5 feet or more, the result of a moist soil and a shady situation.

A useful basket Fern.—Asplenium flaccidum is a very useful Fern for baskets. It grows freely, and its graceful arching fronds render it very attractive. It is the best Fern for brackets I know. If anyone has a dark back wall in a fernery or conservatory where few other plants will grow, he cannot do better than put up a few brackets, secure some plants of this Fern in pots, and put them on the brackets. When grown on brackets, as soon as the soil gets full of roots the pots should stand in saucers. If saucers are not used, the plants will not thrive so well unless extra attention is paid to watering.—A.

Trees and Shrubs.

VARIEGATED-LEAVED IVIES.

There are bare walls in most gardens on which fruit trees or climbers fail to thrive, but it is not often the Ivy is thought of, though such a picture as a pillar clothed with its glossy foliage is not uncommon in those gardens that we are pleased to call old-fashioned. If we were asked to select one Ivy, we should prefer a green-leaved one, such as the vigorous, almost rampant, close-growing, and richly coloured Emerald Gem, an appropriate name, as it is as rich as the Grass of the "Emerald Isle." But there are lovers of the Ivy who require more than this, and therefore we may note a few variegated varieties that have special merit. There is a great drawback in giving any names of varieties, as the nomenclature of the Ivy is very much confused, and, therefore, it is necessary to be cautious in obtaining those kinds required. In the Chiswick Garden of the Royal Horticultural Society, the variegated Ivies merit attention just now, as they have been planted some time, and therefore grown to a size that shows what really brilliant-leaved climbers the Ivy in its several varieties makes. The golden-leaved kinds, or those to which yellow gives the colour, seem to have a much more robust habit than those margined or variegated with a silvery hue. Such an Ivy as that called angularis aurea makes a robust spreading growth, the yellow leaves, distributed amongst those of rich green, having a bright effect, not that diseased appearance that marks many a variegated climber. Palmata aurea is also desirable, and another of the palmate-leaved forms that is very rich in yellow colouring is nova aurea. Spectabilis is smaller in its leafage, but a strong grower, and quickly climbs a wall if favourably situated. Gold Clouded is a variety that has plenty of three-lobed leaves, broad, with some of golden yellow, or nearly so. These are a few of the best of the yellow-leaved Ivies, and in a fairly warm situation with a soil of good quality there is no need to fear a poor growth. It is when the Ivies are planted anywhere and anyhow that they refuse to climb, except at a very slow rate, and then they acquire the distinction of being hard to establish. I have had Ivies under my care that made such a growth as to surprise those who had never seen the plant treated as if it needed attention. The soil was good loam in the first place, and after planting they were helped with water during the dry weather; and except the very much variegated small-leaved varieties, that were constitutionally weak, none failed to make rapid progress. In less than three years some specimens trained near a porch had almost overtopped it—the result simply of making a good beginning. A brick wall is the most suitable for Ivies, as it retains more moisture, and this promotes free rooting at the stems. Those on a stucco wall were long in making growth, the specimens on a south brick wall, where they were in partial shade, soon outstripping them. The variegated varieties need the warmest situations and away from keen winds, reserving the more vigorous green-leaved kinds for less favourable situations.

The best of all, what we may term those with silvery variegation, is maderiensis variegata, a rapid-growing Ivy with well-shaped, medium-sized leaves, but one called Lee's New Silver is also exceptionally bright, the green against the

silvery white making a tasteful harmony. Arborescens variegata has as much creamy yellow in its foliage as green, but does not appear a very vigorous grower. Marginata purpurata is a fairly quick grower, green, broadly margined with white. Elegantissima grows with great regularity. Many of the variegated Ivies show a naked stem for half their length, with a bunch of foliage at the top; these should be carefully avoided. Marginata elegantissima has larger leaves than the last-mentioned, and makes a free growth. Broad-leaved Silver and the robust arborescens variegata are also worth including.

Ivy edgings which may be seen in some places have a luxuriant leafy appearance; but for this kind of work it is necessary only to select a strong grower, and, as a rule, avoid the variegated section. Maderiensis variegata makes, however, an excellent edging. A good use for the Ivy is to plant it against a tree stump, or on the more shady parts of a bold rootery, where it is difficult to establish hardy flowers. For such purposes as these those with small leaves are the best. It would, for instance, be folly to plant a variety with the vigorous foliage of Regneriana. C.

Melia Azedarach.—Though this attains the dimensions of a tree, it will flower in the shape of small specimens not more than a yard high if they have been struck from cuttings taken from the upper part of a plant. The ample bi-pinnate foliage in the case of a good healthy specimen forms a very pleasing feature, while the flowers, which are borne in upright branching panicles, somewhat resemble those of the Lilac, except that they are arranged in a far more open manner. The individual blossoms are little more than half an inch in diameter, and in the bud state are lilac, but become white when expanded, against which the columnar-like cluster of stamens, which is of a dark violet colour, stands out very conspicuously. While the flowers become lighter with age the stamens change to a deeper hue. Though said to be fairly hardy in the south of England, this Melia does much better in a warm greenhouse than under any other conditions.—T.

Amelanchier alnifolia.—Doubtless hundreds have seen and admired the bloom of our eastern Shadbush among the bursting foliage of the spring woods to one who has seen and tasted its fruit. For some unexplained reason the flowers of this species, at least in certain sections of the country, are rarely fertile, and in my boyhood the Juneberry, as the fruit of the Shadbush was called, was like a myth to me until a young tree well laden with ripe berries was brought home by a neighbour as a curiosity. The peculiar flavour of the fruit as then experienced lingers yet in memory. With the western representative of the genus, A. alnifolia, the case is different. It fruits abundantly, and in the region from the Rocky Mountains westward, where the supply of berries and fruits is limited to a few Raspberries, Buffaloberries, Haws, scarcely edible Currants, and the wild Cherry (of all which the last is really the only one deserving mention), the abundance and excellence of this fruit goes far in its season to make up the deficiency. In a note which I find in the Gray Herbarium, written many years ago by the missionary, Rev. Mr. Spalding, it is stated that hundreds of bushels of these berries were dried every year for food by the Indians of the Clear Water region in Idaho. This shrub grows to a height of 6 feet or 8 feet, with an erect somewhat tree-like habit and dark green foliage. The leaves are rather thick and vary much in form, but are generally rounded or broadly elliptical, mostly very obtuse, or truncate, or even retuse, and coarsely toothed usually only near the summit. The flowers are usually large and showy, in short racemes, and the dark purple fruit is 3 or 4 lines in diameter, with few seeds. It is found in the mountains throughout the West, at wide extremes of altitude, from British America to California, Utah and Colorado, and from the Pacific to the Rocky Mountains, Minnesota, and Lake Winnipeg.—*Garden and Forest.*

Ivy on tree stumps.—Many of the narrow-leaved Ivies look very graceful when allowed to trail over a huge rock or large root, and doubtless, there are many places where there are old trees that have been broken down by storms over which the broad-leaved Ivies might spread. Even if there were no stumps these Ivies might be planted against the stems of trees of no particular value, and thus be introduced to gardens where hitherto they have not yet been seen. Allusion is made more particularly to such kinds as dentata, Regneriana, and maderiensis. Dentata sometimes produces leaves 9 inches long and nearly as broad. The finest I ever saw of this kind was a screen of it in a London suburban garden. When in the pleasure grounds at Petworth I noticed an old tree stem upon one side of which was growing a plant of H. dentata, and on the other Ampelopsis hederacea.—A. H.

White-flowered Weigelas.—As far as I know, there are only two distinct Weigelas with white flowers, viz., W. hortensis nivea and W. candida. Concerning this last, Messrs. Ellwanger and Barry say:—

> It is a valuable variety. All white varieties heretofore known have been lacking some important characteristic. W. hortensis nivea, the best and only really white sort, is a poor grower and difficult to propagate. Other so-called white sorts have flesh-coloured flowers, so that the introduction of candida supplies a long-felt want. It is of vigorous habit, an erect grower, becoming in time a large-sized shrub; flowers pure white and produced in great profusion in June, and the plants continue to bloom through the summer, even until the autumn.

My experience of this Weigela agrees pretty much with the above, except that where there is room in the garden for more than one white-flowered form I think that both varieties may with advantage be planted, as in all particulars except the colour of the blossoms they are widely dissimilar from each other, for while candida is about the most erect-growing of all Weigelas, and the foliage as narrow as that of any of them, hortensis nivea, on the other hand, is of a loose, spreading habit, with large rugose leaves. It is when established equally as free-flowering as the other, but does not keep up a scattered succession of bloom after the main crop is over, as candida often does. W. hortensis nivea was introduced into this country from Japan, while W. candida is of Continental origin.—H. P.

SHORT NOTES.—TREES AND SHRUBS.

The Maiden-hair Tree (Salisburia adiantifolia).—A fine specimen of this handsome hardy tree, from 30 feet to 40 feet high, may be seen at Dangstein. A tree was never more appropriately named, for the leaves remind one of the pinnules of Adiantum trapeziforme.

Azara microphylla.—If this Azara never flowered it would be worthy of cultivation for its neat, yet graceful habit and glossy leaves. Trained to a wall, but not too formally, the side shoots grow out horizontally and branch. I recently saw a plant covering a large piece of wall 10 feet high.—A.

Hodgin's Holly.—Everyone interested in the Holly should plant Hodgin's broad-leaved kind. It is the broadest leaved variety I have seen and very vigorous. A handsome natural pyramid branched to the ground, 15 feet to 18 feet high, and making more than a foot of growth annually, stands in the pleasure grounds at Petworth.

Skimmia japonica.—Most of the berry-bearing shrubs brighten up the dark days of winter. The Skimmia is good at midsummer, and is always a nice Evergreen. In the pleasure grounds at Petworth, quite unexpectedly one finds a large bed filled with large plants of Lavender, Azalea amœna, Kalmias, and this Skimmia. The bushes of the Skimmia, 3 feet to 4 feet high, laden with berries, and the still taller Kalmias at the back made an admirable contrast.

Fabiana imbricata.—I am obliged to Mr. Webster for his note respecting this shrub (p. 595). In my remarks about it I should have said that the Fabiana is hardy in southern counties and coast districts. I look upon Rhianva as an exceptional spot, for though so far north, it has a climate like that of the Isle of Wight or Devonshire. When I was there a few years ago I was astonished to find so many so-called half-hardy shrubs flourishing without protection, and though I did not see the Fabiana 6 feet high, I quite believe that it would reach that size unprotected there. When I speak of the southern counties, I must also mention coast districts, as I well know that in some parts of Wigtonshire tender plants may be grown there unprotected as successfully as in Devonshire.—W. G.

GARDEN FLORA.

PLATE 656.

ZONAL PELARGONIUMS.

(WITH A COLOURED PLATE OF SWANLEY SINGLE WHITE.*)

Patience and a keen enthusiasm have brought the zonal Pelargonium to a perfection that it will be hard to eclipse. If a comparison is made between such an admirable variety as the one portrayed on the accompanying plate and the two progenitors of the race (P. inquinans and P. zonale), it will be seen that great things have been accomplished by the hybridist. The contrast is truly striking, though this gradual development has been the work of years. The two species from which the zonal Pelargonium originated, though having a special interest as the types of a brilliant race of flowers, have no special beauty. Both hail from the Cape of Good Hope, and both have the aspect of a wild flower, as the petals of each are narrow, and the growth somewhat coarse. From, therefore, small beginnings we have obtained plants that have not only a value for the flower garden proper, but also for the greenhouse, and it is during the winter season that these shine forth in the greatest splendour. The display of the zonal varieties was, indeed, a marked feature for several years in the Chiswick Gardens of the Royal Horticultural Society, and when a representative collection comes under the eye at once it is then that we discern the richness of the zonal Pelargonium in brilliant colouring. We have shades of many kinds, scarlets, glowing reds, soft pinks, bright carmine, and pure white, with intervening tints. We may make a special allusion to the white varieties, as the Swanley Single White of Messrs. Cannell and Sons, of Swanley, is the embodiment of what a zonal Pelargonium should be. It has a magnificent truss of flowers, the shape such as a florist would call as perfect as now obtained, and a clearness of white that has a special charm; there is also a robust habit and a strong leaf. These are great qualifications, and have made the flower so generally admired by both the amateur and gardener. In the grouping of these plants in the greenhouse or conservatory it is far too much the custom to make glaring effects, which simply mystify and produce no well-defined impression. A brilliant scarlet or carmine variety should be associated with softer tints, but when too much used its beauty is destroyed.

There is another still greater use that the zonal Pelargonium has been put to, that is for bedding out. It is certain indeed that without its aid the bedding-out craze that shut out of the garden almost every hardy flower would never have become fashionable. But the times have altered, and though we never wish to see the useful, free-blooming, and easily grown zonal disappear from the garden, we must rejoice that its over-abundant use has been checked. We want bright colours, like those the zonal Pelargonium give us, and therefore cannot find fault with a very moderate use of a flower that is, unhappily, not hardy.

There is among the zonal Pelargoniums a

* Drawn for The Garden in Messrs. Cannell's nursery at Swanley, Nov. 14, 1887, by H. G. Moon, and lithographed and printed by G. Severeyns.



NEW ZONAL PELARGONIUM, "SWANLEY WHITE."

number of varieties that have no special merit for beauty of flower, but of leaf. These are classed as tricolours, and would doubtless have a wider cultivation than is now given them if they were only of a stronger growth. But those who have had experience in their cultivation know the difficulty that sometimes occurs in not only striking the cuttings, but in keeping them over the winter if this should prove at all wet. There are places, however, where they do succeed well, and it is on soil of a dryish character that the brilliant colouring is brought out so strikingly. We can have them with the most sombre leafage or of two or three bright pleasing shades. They are, indeed, foliage plants of no mean order, those with a bronzy tint especially deserving this designation.

There are and have been several men to whom we can give credit for having assisted in the development of the zonal Pelargonium. Messrs. Cannell and Sons, of Swanley, are amongst the number, and the large trusses of flowers both finely coloured and with bold "pips" show what has been accomplished by means of judicious hybridising. It is unnecessary to give the names of the best varieties, as a reference to a catalogue will show what a wealth of kinds of all shades is now within the reach of the cultivator.

If there is one thing more than another that has popularised the zonal Pelargonium it is the easy culture of the plant. It was, far more than now, the amateur gardener's special study, and excellent specimens were produced by those who had little space or time. When the bedding season was at its height the cuttings were struck by the thousand in borders by the sides of fruit trees, or, in fact, in any place where there was a fairly good soil and a moderate amount of sun. In the growing of the flower for winter decoration there is also no difficulty whatever, the main requirements being attention to watering and providing a suitable compost with a moderate amount of heat and air. But this is only repeating what is so well known, as the culture of the zonal Pelargonium for a winter display has been several times described in The Garden. Those who wish to raise seedlings will also not only find the task comparatively easy, but interesting as well.

And lastly, the zonal Pelargoniums, especially when we can obtain such varieties as that represented in the plate, have taken an important place as flowers for cutting. The white and peach-coloured with the soft salmon and pink shades are always in requisition for personal as well as table adornment. We may add that the double-flowered kinds are the most lasting, and a well-bloomed specimen is also extremely handsome; but for greater freedom and elegance, we must look to the single-flowered kinds.

Books.

FLOWER GARDENING FOR AMATEURS.*

The amateur gardener's library has received an excellent addition in this well-printed and arranged book, that treats upon subjects in a way that those whose experience is limited will understand and ought to profit by. The amateur has been in the mind's eye of the writer throughout. Those who reside in towns are considered, and instructions given on forming and improving a flower garden, also disquisitions on propagating plants, and those that require a greenhouse. A useful feature is the calendar, a trusty guide for the amateur to consult month by month.

* "Flower Gardening for Amateurs." By Lewis Castle. Swan, Sonnenschein and Co., Paternoster Square.

Kitchen Garden.

KITCHEN GARDEN NOTES.

Broccoli.

Apparently there is no likelihood of there being a scarcity of plants this season, but, on the contrary, the seeds in many instances have germinated only too well, and crowded seed-beds are the result. Where the plants were timely thinned, and the thinnings pricked out if required, early planting is much less imperative than is the case where they have not yet been touched. In our case and that of many others, the plants are fit for finally putting out before the ground is ready for their reception, and that, too, in spite of raising them rather late in May. Unfortunately, Potatoes, Peas, Strawberries, and other crops that are usually followed by Broccoli are late in maturing, and the latter may perhaps fare badly this season. The sooner much of it is got out, however, the better the prospect of strong, sturdy plants resulting. It is impossible to find a more useful variety than Veitch's Autumn-protecting, and fully one-third of our breadths of Broccoli will be of this sort. Some were raised in heat and planted with the autumn Cauliflowers, which they will closely succeed; more were put out in succession to winter Spinach, and the ground now being cleared of the earliest Potatoes will also be planted with late-raised plants of the same variety. This stock of plants will, or ought to last well into February, when Snow's Winter White is usually available. The latter is much the hardier, but is not so generally to be relied upon, especially if raised before May and planted early, this resulting in the growth of many monstrosities. All the early and second early Peas are followed by Snow's Broccoli, and as the ground thus cropped can be cleared early and get into good condition for early summer crops, this plan of closely cropping warm borders answers well. Winter Mammoth, Spring White, Dilcock's Bride, and Adams' Early White are all suitable for planting for successional supplies, these being closely followed by Cooling's Matchless, Perfection, and Leamington. The last-named is particularly good, and ought to be largely planted. For the late and latest supplies we have found Lauder's Goshen, Cattell's Eclipse, Veitch's Model, Wilcox's Improved, Champion Late White, Ledsham's Latest of All, and Late Queen to be very serviceable, being available much in the order named. Of the above sorts we are planting only three extensively, viz., Lauder's Goshen, Model, and Latest of All.

Remarks on Planting Broccoli.

There are no perfectly hardy Broccoli, as, although some varieties are hardier than others, everything depends upon the way in which the plants are prepared to stand severe frosts. All are, or ought to be, aware that the stems are the most vital part of the plants, and if these are leggy and naked, even a moderately severe frost will either seriously cripple or destroy them. When much drawn and enfeebled plants are put out, a very bad start is made, and to make matters worse such are often planted either between Potatoes or thickly on loose, rich ground. Owing to the extra vigorous top growth of Potatoes this season, only the short-topped varieties can safely be planted between, and even the rows of these ought to be from 3 feet to 4 feet apart, or the haulm will smother the Broccoli plants. Not being able to lift the Ashleaf Potatoes so early as usual, our plan will be to fork out every other row, and as these are 2 feet apart, the Broccoli put out in succession will be 4 feet apart—a good distance for ensuring sturdy growth. The latest plantings may be made after the whole of the ground is cleared of early Potatoes, in which case it will be merely cleaned, levelled, and well trampled, the Broccoli being put out in rows 3 feet apart, a distance of 30 inches dividing the plants in the row. A very common practice in this district, and which will be followed here, is to plant a large breadth of Broccoli in succession to Vetches or Tares that have been grown for horse food. These have a tendency to materially loosen the ground, and if, after the second or third crop has been cut, the stubble and rubbish generally are dug in, nothing short of heavy tramplings will render the ground fit for Broccoli. We prefer to hoe over the surface, burning the rubbish, and not digging the ground. In any case, all Broccoli planted on good ground ought to be given plenty of room. Some of the most profitable fields of Broccoli ever grown were planted on the principle that it is better to feel certain of a moderate number of heads rather than by planting thickly to risk having none at all. When strong growth may reasonably be anticipated, 3 feet apart each way is not too much space to devote to them. The varieties ought not to be indiscriminately mixed, no regard being paid to their order of succession, but they should be so arranged as to admit of being gradually cleared off and the ground prepared for other crops, such as Peas, Celery, Beans, and root crops generally.

Planting on Solid Ground.

There is no disputing the fact that by far the hardiest Broccoli can be grown on solid rich ground, and there are some districts where it would be unwise to plant on other than undug ground. The very best site for the main crop and late Broccoli that can be found is the ground just cleared of old Strawberry plants, these, although gross feeders, invariably leaving plenty of food in the soil such as the Broccoli most delights in. All that is necessary in this instance is to cut over the Strawberries with a spade, hoe the ground, and clear off all rubbish. We prefer to plant between the old Strawberry rows, these usually being 30 inches apart. The holes for the plants may be made with a crowbar; but this is not needed on some soils, and in this case drills may be drawn with a heavy hoe, and the plants put out either with a trowel or dibber not less than 30 inches apart. Should the ground be very dry, the drills ought to be filled with water a few hours prior to planting, enough being given to well moisten them. The ground cleared of early Peas may also be treated in a similar manner, and if the drills are filled with liquid manure instead of clear water this will serve to give the plants a good start. Last season the bulk of our main crop and late Broccoli was planted on solid ground, and during the trying winter that followed the losses were trifling compared with what happened in the district generally.

Savoys.

The value of a good supply of Savoys throughout the winter cannot well be over-estimated, and, fortunately, with ordinarily good cultivation failures rarely occur. Savoys are especially valuable at mid-winter or when Broccoli are scarce, and are a good change at any time. Being more to be relied upon than Broccoli in a hard winter, it is advisable in many instances to plant more of them than hitherto, even should this necessitate reduction in the numbers of Broccoli put out. They merit a good open breadth of ground, and this they ought to receive, and not any out-of-the-way spot too often thought quite good enough for them. Extra large heads are not the best, nor are Savoys much in demand before December; consequently, it is not wise to plant early nor on very rich ground. Ours will follow a large breadth of Myatt's Ashleaf Potatoes, with no other preparation of the ground than cleaning, levelling, and trampling. Tom Thumb or other small and early varieties may be planted 12 inches apart each way, and Early Ulm, which forms a close succession and is a very good variety, can be put out 15 inches apart each way. The same distances may be given Dwarf Green Curled and Gilbert's Universal, while the late and coarser growing Drumhead ought to be in rows 2 feet apart, a distance of 18 inches dividing the plants.

Chou de Burghley.

Now that the peculiarities of this variety of Cabbage are understood it is rightly becoming more popular. Raised and planted early it attains a great size, and is available long before it is required. When the seed is sown in May and the plants put

out now they do not heart in till nearer midwinter, and as they stand well, good supplies of neat, well blanched heads can be had in February and March. We treat it in all respects similar to Savoys and put out the plants 15 inches apart each way. This, considering the habit of the plants, is rather thick planting, but we require neat heads and not large ones, which have to be cut to pieces before being cooked.

Borecoles.

There are no hardier winter green vegetables than these, and where there is a large servants' hall to keep supplied, plenty of Borecole or Kale is of good service. The plants should have a long period of growth in order to build up strong productive stems, and ought therefore to be put out at once on fairly rich ground. As they remain a long time on the ground, or as late as the end of June, the best sites ought not to be given up to them, and they may well be located in the coolest part of the ground, or where Broccoli are liable to be killed by frosts. Read's Hearting, Green Curled or any improved forms of Scotch Kale, as well as Cottager's Kale ought to be planted in rows 30 inches apart, and from 18 inches to 2 feet asunder in the rows. Since the change from very dry to very showery weather, slugs have become very troublesome, and unless the various members of the Brassica tribe just mentioned are well looked after when first put out, many of them will be eaten off. Plenty of soot and lime ought to be frequently dusted about them, and as many of the slugs as can be found, collected and destroyed early every morning. W. I. M.

THE LATEST PEAS.

The Pea is one of the most valuable of all summer vegetables. Peas can never be fit for use too soon, while a constant succession is always appreciated, and if the supply can be kept up until the end of the autumn the grower will find that they are as much valued then as they were at first. Very late Peas, however, are rarely plentiful. July is thought too late for sowing. This is not the case, and if all who have failed to have Peas right up to November would make two sowings in July, they would stand a remarkably good chance of securing a fine lot of late Peas. The first lot may be sown about July 12th and the next about the 25th. These would be vigorous and at their best at the very time it is most necessary that they should be in their prime. We have tried to keep the end of September bearing Peas on in fruit until November, but they invariably failed, and now we have only faith in Peas grown specially for late use. It is useless to depend on the earlier ones lasting out, and the crop is too valuable to trust it to chance. The latest Peas should be specially cultivated, and then there is little danger of failure. Much attention is given to placing early Peas in the most sheltered and sunny positions in the garden, and this rule ought to be applied to the latest Peas, as shelter is a great advantage to them in late autumn, and sun is also beneficial. The majority of south borders have been cleared of their first crop by July, and the vacancies afford a good opportunity for sowing late Peas. They ought to have rich soil, and the manure should be put well down to the subsoil, as the hot and dry weather that may be experienced in August and part of September may check the plants and produce mildew. This is a great enemy of late Peas, but by throwing out trenches for each row to the depth of 1 foot or so and placing the manure below this, they will be fairly safe from drought and the influence of excessive heat. Should the soil be very dry at the time of sowing it ought to be thoroughly watered and the seed covered with the dry soil. This will induce a luxuriant start, and the plants will soon become established. I have known early Peas recommended for the latest sowing. I do not approve of this, as the constitution of the early varieties is not robust enough to withstand the weather in late autumn. I have found Sutton's Latest of All, Laxton's Omega, and Ne Plus Ultra the best varieties for late sowing. Crowding of the rows should be avoided in the case of the latest Peas. As a rule, Ne Plus Ultra grows so tall that many of the upper pods never fill, and as an assistance to this the points may be taken out of each shoot as the flowers are opening.

Cambrian.

ORCHIDS.

W. H. GOWER.

THE SWAN ORCHIDS.

(CYCNOCHES.)

This has become an almost obsolete genus in Orchid collections, and notwithstanding the extreme variability of the flowers on the so-called species, which in the earlier days of Orchid culture gave rise to so much wonder and astonishment, no one appears to have persevered in their study, in order to work out if possible their peculiarities. In fact, these most interesting plants appear to have been discarded, as



Cycnoches Warscewiczi.

one seldom sees a Cycnoches growing, and no recent figures have been made of any of the species and varieties. I am utterly at a loss to understand how it is that in these days of extensive Orchid culture no one has made these very interesting plants their particular study. They are plants having somewhat the habit and appearance of Catasetum; indeed, they may be one of the forms of that eccentric genus, from which, however, they have been separated on account of the long and gracefully curved column which gave rise to the generic name of Swan's-neck. The stem-like pseudo-bulbs, which are thick and fleshy, seldom exceeding a foot in length, and frequently much less, bear several thin, strongly ribbed leaves, which are deciduous, falling away soon after the bulb is thoroughly ripened. The various kinds are natives of different parts of the South American continent, some being found in Brazil, others in Central America and New Grenada, &c., but from whatever place they have been introduced, I have remarked that they enjoy an abundant supply of moisture and strong heat when growing, but that after the leaves have fallen they may be kept cooler and quite dry, so long as the growths do not shrivel. When growth commences the plants require to be removed back into their summer quarters, when the treatment recommended above should be given, in order to enable them to develop strong and healthy growth. I have little new to add respecting Cycnoches. Many years have elapsed since I grew one, and it is only upon rare occasions that I see one, and it is to draw the attention of Orchid growers to this singular family that I have introduced them here. Some thirty years ago there were some nine or ten different flowered kinds in cultivation, and since then the number of new Orchids that have been discovered and sent home is marvellous; but how many additions have been made to the genus Cycnoches? Can it be that there are no new forms of this genus? or are they becoming transformed into something else? Orchid collectors should look to this. I fear, however, there are not so many Orchid collectors now-a-days as there were in the days of Warscewicz. Collectors deserved the name then, and found their own plants; how many of them do so now?

It is of no use to give elaborate descriptions of flowers now so little known, but the following are a few of the kinds which used to adorn our stoves, the greater portion of which I have grown, and in some years a plant would produce flowers of a very different description to those of the previous season:—

C. Loddigesi.—The flowers of this, produced in pendent racemes, are large and very fragrant. Each flower is over 4 inches across, thick and waxy in texture, greenish brown with purplish spots, lip white, more or less spotted. It sometimes produces small flowers with a broad lip, and quite scentless.

C. pentadactylon produces large flowers of a greenish yellow with brown streaks; it sometimes bears small greenish purple blooms.

C. ventricosum is another kind with large greenish flowers and an entire fleshy white lip; at other times it produces small purple or greenish flowers, the lip of which is divided into fleshy appendages.

C. chlorochilon, flowers large, of a uniform yellowish green; the lip is entire and fleshy, and bears a bright yellow blotch in the centre. It is supposed to be only a sport from the previously named kind.

C. Warscewiczi (see illustration) is a very curious form, producing flowers of two kinds on separate spikes at the same time; the flowers, borne on the long spikes, are small, from twelve or eighteen together, of a uniform greenish hue, saving the lip, which is broken up into fleshy lobes of a yellowish hue. The flowers produced on the short spikes, however, are large, the sepals and petals broad; lip entire, broadly cordate, and pale green, with a short club-shaped column.

C. aureum (the Golden Swan) is a handsome kind with a dense, many-flowered raceme of large yellow flowers, the sepals and petals dotted with red, and the lip divided into numerous fleshy lobes; column gracefully curved, dotted with purple; it has not produced flowers of any other shape under cultivation.

C. Egertonianum bears small greenish purple flowers in its normal condition, but it has also borne

flowers resembling those of pentadactylon, in which the lip is divided into fleshy lobes, and also like those of ventricosum, in which the lip is entire.

C. MACULATUM is another kind which has hitherto only been known to produce one kind of flower, and these are small, yellow, spotted with brown, the lip being divided into numerous lobes.

The above are about all the kinds I have seen in cultivation, but I much doubt if they can all be found in this country at the present time. It is exceedingly curious that differently shaped and differently coloured blooms should be produced on the same plant from time to time, and also that some of the flowers should be fragrant and others devoid of scent upon the same plant. I believe the variously shaped and coloured flowers have been produced upon some occasions on the same spike. The transformations of which these plants seem capable should lead one to devote some time to their cultivation in order to obtain some more detailed notes on these curious flowers.

Orchids at Lodsworth.—That the love of Orchids continues to spread we have ample evidence on all sides, but it was a surprise to find quite a collection in Messrs. Roger's nursery at Lodsworth, a little village in West Sussex. Of Cypripediums there are some forty kinds, although there are no large specimens. A very fine variety of C. barbatum superbum was in flower; also C. Dayanum. Of Odontoglossums, Cattleyas, and Dendrobes there was a good number, but the collection is as yet in its infancy, though doubtless before long will soon be worth visiting. Mr. Rogers says he finds that the Orchids are most useful for cutting in the winter, and, in his opinion, the trade will have to give them greater attention for this purpose.—A. H.

The Bird's-nest Orchid (Neottia Nidus Avis).—How curious it is that although nearly every hardy shrub (there are two exceptions) refuses to grow beneath the shade of the Beech, yet several of our native Orchids find there their most congenial—indeed, I might say their only—home. Not long ago I recorded in THE GARDEN the finding of that rare and beautiful Helleborine, Cephalanthera grandiflora, in a position shaded by far-spreading Beeches, and only yesterday I was agreeably surprised to find an old friend, the Bird's-nest Orchid, growing under somewhat similar conditions; indeed in the densest shade of the Beeches, and where they are, or were, never gladdened by a ray of direct sunlight. Yet there they grow among the decaying leaves, stout and strong and so healthy looking, that one cannot help wondering how such a robust growth is attained under such peculiar conditions. Curiously enough, the Neottia has no leaves, but just a few sheathing scales of almost the same colour as the flowers — an indescribable foxy brown — foxy is really too red, but it is the nearest colour I know of. The strange appearing and disappearing of the Bird's-nest Orchid has long been known; while the curious property it possesses of increasing beneath ground until of a flowering age, I fully explained in a somewhat lengthy paper to the Royal Horticultural Society. In appearance the Bird's-nest Orchid very much resembles the greater Broomrape (Orobanche major).—A. D. WEBSTER.

SHORT NOTES.—ORCHIDS.

Odontoglossum cordatum splendens, exhibited and certificated at the Botanic summer show, quite eclipses the type; it is a much handsomer and richer flower. Messrs. F. Sander and Co. had it.

Phalænopsis Kimballiana is a new acquisition to this charming genus. The flower is small, but beautifully barred in the sepals and petals with brown on a yellow ground. The lip is rosy-violet and narrow. Messrs. F. Sander and Co., of St. Albans, showed it recently.

Oncidium stelligerum Ernesti.—This is a superb form of the species; the sepals and petals are spreading, greenish yellow blotched with cinnamon-brown; lip large and flat, three-lobed, the side lobes pure white, the front lobe light crimson. A single bloom is very effective as a coat flower.

Odontoglossum crispum aurantiacum.—This is a name given to a very distinct form of crispum received from Mr. Tautz, of Studley House, Shepherd's Bush; the flowers are white and unspotted; the sepals and petals, however, have a tinge of rose colour running through them, whilst the disc and crest of the lip are stained with deep orange colour.

Ornithocephalus grandiflorus. — This, although it cannot be reckoned amongst large-flowered kinds, as its name might imply, is, nevertheless, very pretty, as a spike of bloom, received from Mr. Tautz, has enabled me to thoroughly examine the structure of this curious flower, which individually bears a striking resemblance to a hovering bird; the sepals and petals and the lip are pure snowy white, stained at the base with a blotch of emerald green, the crest of the lip being fleshy, and also green.—W. H. G.

Oncidium lamelligerum.—A very fine variety of this rare species is now flowering with Mr. Measures at Camberwell; the sepals are very large, the dorsal one large, rich olive-brown, bordered and tipped with bright yellow; the lower sepals similar in colour, but destitute of the coloured border; the lower half of the petals is rich chestnut, the upper part bright yellow; like all the kinds belonging to the macranthum section, the lip is small. Not only does this plant resemble macranthum in its growth and in the shape of the flower, but, like it also, it requires very cool treatment.

Spathoglottis angustorum.—This, a member of an eastern genus of terrestrial Orchids, nearly allied to Bletia, produces an erect spike of many blooms, which last a long time in perfection. The flowers very much resemble miniature Phalænopsis blooms; the sepals and petals are pure white; the very peculiar clawed lip is spoon-shaped in front and white, as also is the conspicuous curved column; the side lobes of the lip, however, are large, erect, and of a bright reddish-brown. I recently noted this plant flowering in the Cambridge Lodge collection at Camberwell, where its flowers are highly prized for button-holes.—W. H. G.

Cattleya Reineckiana.—A superb flower of this rare and beautiful Cattleya is now in bloom in Mr. Measures' collection at Camberwell. It is large, the sepals and petals are pure white, and the prettily frilled and crisp lip is also bordered with white; the disc is yellow, beautifully streaked with radiating lines of rich crimson-purple. The name has frequently been applied to inferior forms of C. Mossiæ, but the true variety is a choice gem. I believe it originated in the collection of the late Mr. Julius Sichel, near Manchester, some years ago; at any rate that was where I first saw it, and at that time it was not known to English Orchid growers. Subsequently, however, it was imported by the Messrs. Low, of Clapton.—W. H. G.

Vandas from Wilton House.—This genus is represented by several forms, notable being a very highly-coloured form of V. teres, the flower very round and handsome, the large trilobed lip being deep rosy magenta in front, the inside being orange-brown streaked with rosy magenta. The plant flowers regularly every year. With this were sent flowers of the true V. insignis, introduced some few years ago by the Messrs. Veitch, of Chelsea, from the island of Timor, and figured in THE GARDEN, March 1, 1884 (p. 168). It is not so free in habit of growth as the form of V. tricolor, which did duty for it so many years in our gardens, but its flowers are very handsome and distinct. The ground colour of the sepals and petals is tawny yellow, thickly spotted on the inside with deep chocolate-brown; the petals and the dorsal sepal reflexed, not twisted, the lateral sepals the largest standing forward; lip large; middle lobe trowel-shaped, with a waved and incurved margin, purplish rose, the small, erect side lobes and column being white. The blooms are delicately fragrant. Another example of this genus included was a very excellent and distinctly-spotted form of V. tricolor planilabris, noted last week.—W. H. G.

The Butterfly Orchid (Habenaria bifolia) is now grandly in flower in our woodlands, and a pretty sight it is to see a dozen big specimens growing within a few inches of each other. It is worth while to visit this pretty Orchid after a shower of rain, for not till then is the delicious musky aroma given off. I question much if any Orchid, native or exotic, possesses so sweet a perfume as Habenaria bifolia. Judging from the name, one is naturally led to expect some similarity in shape between the flowers of this plant and the butterfly, and in this we are not disappointed, for the likeness is striking even to the most casual observer. The Butterfly Habenaria is a sweet plant, but difficult to cultivate; and I will be glad if anyone will write to THE GARDEN and say if they have grown it successfully for even a few years.—A. D. WEBSTER.

STOVE AND GREENHOUSE.

TUBEROUS-ROOTED BEGONIAS.

THE development of the double-flowered Begonia during the past few years is astonishing. I presume it is not too much to say that there was seen at the recent exhibition at Regent's Park in the collections staged by Messrs. Laing and Co., Stanstead Park Nurseries, Forest Hill, and Messrs. H. Cannell and Sons, nurserymen, Swanley, the latest outcome of the double-flowered Begonia. The visitor could not help being struck with the great size and symmetry of the blossoms and the difference in shape they presented. Some have close, compact, double corollas—in their general appearance looking very like a Ranunculus; others take the character of Hollyhocks, while others are cupped like a Rose, and some have broad, smooth petals, imbricated in form like those of a Camellia. Then there are to be noted their varied colours, from pure white and blush, through shades of pink and yellow, to the richest crimson, their compactness of growth and remarkable freedom of bloom. It seems as if it would be impossible to excel in point of size, symmetry, and colour; but then this was thought of the double forms of a few years ago, and there appears to be no limit to the extraordinary development of which the double-flowered Begonia is capable. The development of the white varieties, both single and double-flowered, is one of the features of Begonia culture in these days. In both the Forest Hill and Swanley collections there are to be seen very fine varieties, and especially among the double-flowered forms.

The comparatively short time which elapses from the time of sowing the seed until the plants come into bloom is another of the remarkable features about these plants. I recently saw at the Swanley nurseries a batch of very fine plants raised from seed sown in the middle of January, 1887. They bloomed the same season, and, showing marks of undoubted quality, were carefully labelled to grow on for further proof another year. In the autumn of 1887 the tubers were shaken from the soil and well preserved during the winter, and in early spring laid out upon a bed in a propagating house, much as one would seed Potatoes. As soon as the bulbs showed signs of growth they were placed in pots just large enough to take them. Some break into growth much earlier than others, which is an advantage, as it provides a succession of bloom. The next shift was into 4½-inch pots, then to 6-inch, and finally to 9-inch pots, in which, by the beginning of June, they had formed very fine specimens. The first tubers are potted in February, and the potting goes on until all are in the soil.

Tuberous-rooted Begonias are fast becoming popular exhibition plants, and at some flower shows they are remarkably well done, the specimens being large, finely grown and bloomed. It was at one time said that Begonias would not travel for any distance, because the shaking to which the plants would be subjected would inevitably cause the flowers to drop. But some years ago, when Messrs. Laing and Co. sent some plants all the way from London to Torquay in very fine condition, the supposition of danger in travelling was abandoned. They are now taken long distances, and with but very little harm. Even at small country shows Begonias are found, and they are generally among the best grown and bloomed specimens.

The single-flowered varieties may be adverted to in a few words for the purpose of pointing out how circular the flowers are becoming. The side petals —at one time small—have become large and rounded,

and now rival in size and roundness those at the top and bottom of the blossoms. In Messrs. Laing's, as well as Messrs. Cannell's collections at Regent's Park could be seen large flowers of great substance, and as nearly circular as it seemed possible to become. The advance of late years from the florist's point of view has indeed been both rapid and surprising. R. D.

DWARF FLOWERING MUSAS.

I do not here include the kinds which produce the edible fruits known by the names of Banana and Plantain, but confine my remarks to a few sorts which are dwarf in stature, and are grown for the beauty of their flowers; they usually attain a height of from 3 feet to 5 feet, although flowers are often produced when they are much smaller. The three kinds enumerated below are all deserving a place in a stove, although they are but seldom seen, saving in public gardens. Loam and rotten manure, in about equal parts, with a little peat and sand added, form the best compost for growing them in. They are perpetuated by the suckers which are produced by the old stems. These plants enjoy an abundance of water at all seasons, but more especially during the summer months.

M. coccinea is an old inhabitant of our gardens, having been introduced about the year 1792. It is figured in the 38th vol. of the *Botanical Magazine* as long ago as 1813 (t. 1559), and it still remains amongst the handsomest of the section. It grows to about 4 feet in height, the leaves being entire, somewhat oblong, and about a yard in length. The inflorescence is terminal, and consists of numerous spathes of bright scarlet, which are tipped with yellow, the flowers enclosed in the spathes being also yellow, the whole producing a very brilliant effect. The flowers are usually produced during spring and early summer, and last long in perfection. It comes from Cochin China.

M. ornata resembles M. coccinea in its habit, growing to about the same height, but the spathes, instead of being scarlet, are of a soft rosy pink tinged with lilac. Introduced from the Mauritius upwards of fifty years ago.

M. sanguinea.—This is a modern plant, having been found in forests in Upper Assam some twenty years ago. It is a more slender plant than either of those previously named, but grows to about the same height. Stems leafy upwards, and terminating with a sessile inflorescence, the spathes being large and deep red, the flowers yellow. It blooms during the winter and spring months.

All these are sufficiently large to produce a tropical effect in an ordinary stove, and should be grown by those who have no accommodation for the tall-growing forms of M. sapientum.

W. H. G.

Lilium Browni.—This Lily, which is mentioned on p. 572 as synonymous with L. japonicum, varies in so many respects from that kind, that I am induced to give the principal points of difference between them. In the first place, the true name of the Lily known as L. japonicum is, according to Mr. Baker, L. odorum, and even now it is comparatively rare, though it is said to have been introduced into this country as long ago as the early part of this century. In pointing out the distinguishing characteristics, I will commence with the bulb which in L. odorum is white or yellowish like that of L. longiflorum, while that of L. Browni is of a reddish tint. In shape, too, they are different, L. odorum being broad at the base with a raised centre, while the bulb of L. Browni is narrow at the base, and widens out considerably; moreover, the upper portion of the bulb is peculiarly flattened. The scales of L. Browni are also much broader than those of L. odorum. The young shoots of the two are readily distinguished just as they emerge from the ground, those of L. odorum being nearly green, while those of L. Browni are reddish brown. Indeed, in all stages of growth L. Browni is heavily tinged with that tint, while L. odorum is nearly green. Perhaps, however, the great distinguishing feature is the foliage, as in L. Browni the leaves are pointed and of a deep, shining green, whilst in L. odorum they are broader, thinner in texture, and dull green. The flower-bud of L. Browni is more pointed than that of the other, and as to the flower itself, that of L. odorum is shorter in the tube and much broader than that of L. Browni; generally speaking, too, it is less heavily tinged on the outside with chocolate, and after expansion does not become of so pure a white on the inside as that of L. Browni. The last two characteristics, the exterior and the interior of an expanded bloom, are not so trustworthy as the others, for they vary to a certain extent in different individuals, but all the other points of difference here indicated are well marked. Another consideration worthy of note is, that the bulbs of L. odorum are very delicate, being especially liable to decay after flowering, which is not the case with those of L. Browni; indeed, this last is much superior in general respects to the other, for the flower is the showier of the two, and the constitution of the plant is far more robust.—T.

The Jacobæa Lily (Amaryllis formosissima).—This Mexican bulb is of very easy culture, and few subjects attract more attention than well-flowered plants of it, as the blood-crimson flowers supply a depth of colour that is seldom found in any other plant. We grow them well by planting out in well-drained, sandy loam in cold frames and protecting from frost during winter. In this way the plants grow freely, and when dormant, they may be lifted and grouped in their flowering pots as desired, or they may be grown altogether in pots, giving them some fresh soil if needful before they start into growth in the spring; but whatever mode of culture is followed, they flower better if well exposed to the sunshine towards the end of the summer, in order to ripen the bulbs thoroughly.—T.

Cyperus distans.—This plant, as grown by Messrs. Low, is a decided acquisition to this very useful class, for, like the better-known C. alternifolius and C. laxus, it is of very easy culture and grows quickly. It has somewhat the appearance of C. laxus, but forms a stouter and more sturdy plant, the inflorescence also being far more compact; owing to its robust character it may be often employed where more delicate subjects would be permanently injured. All these species of Cyperus require copious supplies of water during the growing season—indeed, that is the principal thing necessary to their successful culture. I am unaware of the origin of C. distans, but it should certainly, when better known, be as much grown as the others, for it is very distinct. The lover of variegated plants has the choice of two members of this genus, for there are variegated forms of both C. laxus and C. alternifolius.—H. P.

Rhododendron retusum.—This is a very distinct species of Rhododendron, and one that, as far as the size of its blossoms is concerned, cannot be compared with most of the other cultivated kinds, yet for all this it is, when in full flower, very pretty and interesting from its distinct character. It forms a neat compact-growing bush with deep green Myrtle-like foliage, which in its young state is prettily tinged with red. The small tubular shaped blossoms are borne in clusters, and their colour, a kind of orange-red, renders them very conspicuous. From their shape and drooping character the flowers remind one of those of a Fuchsia; indeed, they bear a good deal of resemblance to those of F. triphylla, as they are both somewhat of the same colour. Though it is a native of Java, this Rhododendron will succeed in a lower temperature than R. javanicum, another from the same region, for while we keep R. retusum during the winter in a structure from which frost is just excluded, in the company of and under the same conditions as such hybrid varieties as Countess of Haddington, Princess Alice, fragrantissima, Countess of Sefton, multiflorum, and others of that class require, R. javanicum succeeds best when wintered in an intermediate temperature with the various tube-flowered hybrids of the Princess Royal section. From the intercrossing of these two Javanese Rhododendrons has been raised a very showy variety, viz., R. Daviesi, which is to a certain extent intermediate between its parents, the blossoms being larger than those of R. retusum, and not drooping to the same extent as the flowers of that kind do, for its other parent (R. javanicum) bears its flowers in upright clusters. The colour of the flowers of R. Daviesi is a rich glowing orange-red.—H. P.

HYDRANGEA PANICULATA GRANDIFLORA.

At the recent evening fête at Covent Garden Market some grand examples of this Hydrangea, which showed its adaptability for growing and flowering in pots, were seen. The large creamy white clusters of blossoms are very showy. To succeed with this Hydrangea plants should be obtained in winter when dormant, and potted in some good soil, consisting principally of open loam with an admixture of well-decayed manure. The branches should be pruned back hard to some good strong buds, otherwise the plants run up tall and the clusters of blossoms are small. After potting they may be placed in a cold frame, and brought on in a gentle heat as required. The principal considerations are—to see that the plant is never allowed to become dry after growth recommences, to give it a light position, and to pay special attention that mildew does not attack the plants. Should the atmosphere be too dry, red spider will sometimes attack the foliage; indeed, I saw a number of plants in the open ground which during the hot, dry weather experienced last summer lost the greater part of their leaves from becoming infested with these pests. As the pots get full of roots liberal doses of liquid manure will greatly assist the development of the heads of blossoms. Under glass the flowers are of a uniform creamy white tint, without any of that rosy hue with which they become suffused when in the open. As a hardy shrub for flowering during the late summer and early autumn months this Hydrangea is certainly one of the very best, for it yields a wealth of blossom at a time when there are but few other shrubs in bloom. This Hydrangea is far more effective when planted in a mass or clump than it is if dotted here and there, and in planting it a cool moist spot should if possible be chosen. When in the open ground judicious pruning is of great service towards the production of large heads of blossom, for the plants will flower much better if gone over before they start into growth in the spring, the old useless wood cut out, and the flowering branches pruned back to a good bud. Where it is desired to increase the stock of this Hydrangea the present is a good time to put in cuttings, which if formed of the young growing shoots strike root readily enough if put in an ordinary frame. The lights must be kept close and shaded till rooted, otherwise the cuttings will flag to such an extent that few will strike.

T.

SHORT NOTES.—STOVE AND GREENHOUSE.

A well-flowered Lilium auratum.—Mr. Jaques, Croydon, has sent us a photograph of a fine plant of Lilium auratum bearing 42 flowers.

Anthurium Laingi.—This is a new addition to the Anthuriums. It has bright green leaves and a white spathe, with the spadix of a rose colour. It was shown recently by Messrs. J. Laing and Sons, Forest Hill.

Begonia Digswelliana.—This is an old, but yet highly serviceable Begonia, dwarf in growth, and flowering profusely for a long time, the blossoms of a pale rose colour and freely produced. I think it was raised by Mr. William Earley when gardener at Digswell, Welwyn. It is a neat and compact grower.—R.

Begonia Carrieri villosa.—As a winter-flowering variety Mr. Cannell holds this in high estimation. I saw it at his nursery at Swanley in the spring, the plants well grown and of handsome outline, and profusely bloomed. It is so accommodating that Mr. Cannell says it will grow anywhere and under the roughest treatment.—D.

Æschynanthus.—Most of the Æschynanthuses are best adapted for hanging baskets, as in this way their elegant drooping habit is well seen. The plants may either be grown in the baskets, or, better still, they may be in pots which can be plunged in Moss in the baskets.—T. B.

Coleus.—The beautifully coloured leaves of many of the seedling varieties of Coleus that have appeared in recent times, combined with their easy propagation and rapid growth, adapt them for room decoration in a small state. The best way is to strike cuttings frequently during the year, so as to keep up a supply of plants ready

to take the place of those that get shabby and are then destroyed. Cuttings put in now will be ready for using before the weather gets too cold for the plants to preserve a fresh appearance for a sufficient time out of heat.—T. B.

WORK IN PLANT HOUSES.

Stove.—Clerodendrons.—The twining Clerodendrons, C. Balfouri and C. Thompsoni, that have flowered late should be cut close in after the blooming is over. When grown as roof-climbers or trained to pillars, the heads of the plants may be removed at about 6 feet or 8 feet from the bottom; unless this is done annually, they get encumbered with a quantity of wood that is not required. Pot plants that are grown in specimen form, and have been trained to a trellis during the time they were making their spring growth and producing flowers, require to be similarly dealt with. After cutting in, they should be moved to a house or pit where a genial heat is kept up, and where there is sufficient head-room to admit of the shoots extending their full length. The plants will do with cool stove treatment, or they will bear a high temperature such as Ixoras and Dipladenias require. In fact, the largest and finest specimens I have ever seen were grown with as much heat as most plants will bear. When the young shoots have made an inch or so of growth, turn the plants out of the pots and have at least half the old soil shaken away, at the same time removing any long, straggling roots. These Clerodendrons like rich material. About four parts good fresh loam to one of rotten manure and some sand suit them in every way. Pot moderately firm, and after being potted the plants should be placed where their shoots can be trained to strings. Strong, well-managed examples will yet make growth 16 feet or 18 feet long before the end of the season. The best plan is to fix the strings diagonally under the roof, as few houses are wide enough from eave to ridge to admit of the shoots being taken straight across, and they will not grow freely if the extremities are trained at all downward. Three or four shoots may be allowed to twine round each string. Syringe freely every afternoon during the time active growth is going on; this will help the growth and keep down red spider and thrips. Though these Clerodendrons are not much subject to insects, sometimes the parasites named affect them. Plants that bloomed earlier and were cut in some weeks since should be potted at once, as if the young growth gets too far advanced, the disturbance of the roots stops much of it from developing. In the case of plants that are turned out in beds, some of the surface soil should be removed and replaced with new, to which a liberal quantity of manure has been added.

Clerodendron splendens.—This species is a much slower grower than the above-mentioned kinds, and should not have its branches reduced after blooming, only as far as necessary to keep it within the space over which it has to be trained. But, whatever reduction in the tops is requisite, this should be carried out as soon as the flowering is over. When grown in pots the plants should be turned out, the drainage seen to, and as much of the old surface soil removed as can be got away without disturbing the roots too much. Fibrous peat, with a moderate quantity of sand, is suitable for this species; also pot firmly.

Shrubby Clerodendrons.—The shrubby kinds of Clerodendron, such as C. fallax and C. Kæmpferi, will bloom a second time about the end of August or beginning of September if the old flower-spikes are removed as soon as the plants have finished their first bloom. The eyes immediately below where the spikes spring from will make a short growth that will show flower before extending far; whereas if the branches after blooming are cut back as much as many things will bear the plants will not have time to produce a second growth that will flower before the season is far advanced. The growth made by C. fragrans partakes more of a herbaceous nature, so that if the shoots are cut down to the bottom as soon as the flowers have faded a second lot will come up that will bloom during the autumn. To assist this, in both this and the other shrubby sorts mentioned, the plants should be well supplied with manure water or have surface dressings of some concentrated fertiliser.

Stephanotis.—This, in common with other climbers and twiners that either flower from the previous season's growth or an extension of it, should have whatever pruning they require carried out as soon as they have done blooming. Where the shoots of Stephanotis that were made the preceding year were shortened to any extent in spring in the way that some plants require, the chances are that few, if any, flowers will be forthcoming. When the plants have plenty of root room, either by giving them large pots or when planted out, they consequently make much growth, and it is more necessary to cut them in freely than when they are less vigorous. The Stephanotis will do with its roots much more confined than most things. Even when grown in pots, provided the drainage is good, large specimens will keep on flowering and making growth annually without being repotted. It usually happens that they do better when the soil has got crowded with a mass of roots than they do the season after more room has been given them; but in the case of young specimens that have not yet attained the size they are required to, they should not be allowed to go too long without being repotted, as if this happens the top growth will be retarded. It will be better to repot any plants that require more room now than defer the work until spring.

Callicarpa purpurea.—This is one of the most effective of the berry-bearing plants that are adapted for pot culture. Young plants raised from cuttings or seed should be shifted on as soon as they require it, for as they are wanted to attain an effective size before autumn, there is no time to lose. The plant is naturally thin, and if left to itself, somewhat straggling in growth. To correct this without making the specimens formal it is necessary to stop the shoots once or twice; 8-inch or 9-inch pots will grow the plants to a size that will in most cases be large enough. Ordinary loam with some leaf-mould and a little rotten manure and sand is the most suitable soil. In an intermediate temperature the plants will make satisfactory progress; let them have plenty of light by standing them near the glass. Shade is needful in bright weather. Syringe overhead each afternoon, and when the soil gets full of roots see that enough water is given, as if let to get dry so as to cause them to flag, the foliage will suffer. Plants that were headed down in spring with the object of being grown on another year, and after they had started into growth were partially shaken out and in the usual way were put for a time into smaller pots, will now want shifting. Give them pots proportionate in size to their strength. Stopping may be necessary with cut-back plants of this description, especially in the case of any that are making shoots of unequal strength. By pinching out the points of the strongest only, the growth will be better balanced.

Greenhouse.—Brugmansias.—Plants raised from seed or cuttings last year must have larger pots as they require it. The different kinds are such strong and rapid growers that it often happens the shift they received in the spring is not sufficient to keep them growing freely to the end of the season. Old specimens that occupy pots and tubs proportionate in size to that of the plants will now require regular applications of manure water. It is much better to give stimulants of this kind in moderate strength and often than to apply them stronger and less frequently, as even with vigorous, free-growing things of this description that are gross feeders, it is better not to endanger the plants by over-strong stimulants. Though plants of this character are not likely to be permanently injured by an over-dose of manure, still, the present summer's flowers would be sure to suffer. These Brugmansias are amongst the finest of all plants for planting out in a cool conservatory where there is enough room to allow their branches to extend in a way that does not necessitate too much use of the knife. With sufficient room, when so turned out, they make considerable growth, by which the soil, however good and well prepared in the first instance, is soon impoverished. To prevent the plants suffering from this, surface-dressings of concentrated manure should be given several times during the summer, or manure water should be applied; the last is the safest if care is taken to see that whatever is used is not too strong. Brugmansias will bear applications of liquid manure once or twice a week from this time up to the end of their flowering. The syringe should now be used freely every afternoon, as without this red spider is sometimes troublesome. Cuttings struck in spring, or plants raised from seed—in the absence of cuttings stock can be so raised—must be moved into larger pots as the soil contained in those they now occupy gets moderately filled with roots. If allowed to remain too long, so that they get at all cramped, vigorous-growing things of this nature receive a check that interferes with their progress to the end of the season. Fresh loam, with some rotten manure and sand, is the material in which Brugmansias do best. When in full growth, whether in pots, tubs, or planted out, they require plenty of water; the roots should never be allowed to get too dry whilst growth is going on.

Camellias.—The aim of the grower of these favourite flowers should be not only to have a sufficient supply from the time the earliest plants begin to bloom until they are going over, but to have them in over as long a season as possible. By carefully regulating the growth this can be done with a limited number of plants better than with a larger stock that are left more to chance at this time of the year. It is now, when the buds have set and are more or less advanced in size, that judgment is required in removing some of the plants to cooler quarters, whilst others are kept in warmth until the buds are sufficiently advanced to enable them to open at whatever time they may be wanted. Needless to say, that the temperature the plants are kept at during the winter has something to do with the time of their flowering; consequently no definite instructions can be given that will enable them to be brought into bloom at a given time, either early or late. Nothing less than careful observation on the part of the grower, by noting the time it takes between the advancement of the buds to a certain stage and their coming into flower, will afford this knowledge. But it may be well to point out that attention in the way indicated will do much to avoid a glut of flowers at one time with a scarcity at others. The white kinds are always likely to be held in the highest estimation. Of these the old double white is much the best. By regulating the growth with a sufficient number of plants this sort will give flowers from early in autumn until late in spring. With enough stock of this variety and a plant or two of candidissima, the best of all the late sorts, flowers may be had until well on in May. Plants that are turned out in beds, and are in vigorous condition, are often inclined to keep on making growth instead of setting their buds. To prevent this water should be withheld, so as to let the soil get partially dry, in order to check a free growth. But where this course is followed later on, when the time for making growth is passed it is necessary to see that the bed is again well moistened through to the bottom. In the absence of this the plants are sure to get into a poor condition. T. B.

Pentstemon rotundifolius.—Mr. W. Thompson, of Ipswich, has been long identified with the introduction of new and rare American plants for our hardy gardens, and he has again been successful this year in adding the above new Pentstemon to his long list. It was collected by Mr. Pringle in the State of Chihuahua, Mexico, in the summer of 1886, too late for the new "Synoptical Flora of North America," and described with the other new plants by the late Dr. Gray in a small pamphlet published last year. It seems to be common on mountains near Chihuahua, hanging from the seams of cliffs, long-enduring, and apparently flowering for the greater part of the year. It is nearly allied to and somewhat resembles P. centranthifolius, and from its shrubby, profuse flowering habit is likely to take a first place as a border plant, if it should prove as hardy as it

looks. The leaves are thick, leathery, roundish, quite entire, and glaucous; the flowers, borne profusely in loose panicles, are medium-sized, brick-red, and creamy inside. It is in flower in the alpine house at Kew.—K.

PROPAGATING.

Daphnes.—Certainly one of the finest of all hardy Daphnes is the Garland Flower (D. Cneorum), and from its procumbent habit it is one of the easiest to increase, as, even if some of the creeping branches do not root where they come in contact with the soil, they may be easily layered. The part of the stem to be tongued should be that, if possible, which has been in immediate contact with the soil, as from this roots will be produced more readily than from any other portion. The stem being thus prepared, the cut portion must be covered with soil, and held in its place by a stout peg or two, while I have noticed in the case of many subjects that if a large stone is laid on the buried portion of the branch it will root more quickly than if unprotected, most probably owing to the fact that a more equal state of moisture is maintained. Not only is layering available for this Daphne, but also for any of the others whose habit admits of a branch or branches being pegged down. Seeds of some of the Daphnes are at times obtained, and when this happens they should be cleaned from any adherent pulp, and sown in fairly moist soil. The varieties of the Mezereon (D. Mezereum) cannot be depended upon to come true from seed, and they may be grafted on to seedlings of the ordinary form, or on to roots of the same. Provided the stocks are in small pots, grafting may be carried out at almost any time, but it is best done in the spring, and the young plants should be kept under glass until a union is complete. The evergreen greenhouse species, D. indica, is generally grafted either on the Spurge Laurel or on the Mezereon, but is sometimes struck from cuttings. While some cultivators advise grafted plants, others are just as strongly in favour of those raised from cuttings. Grafting may be carried out either on plants established in small pots, or on pieces dug up for the purpose, and potted after the operation is over. The first method is, however, to be preferred, all that is needed being to select good sound shoots in a partially ripened condition, and graft them either in the wedge or side manner, as near to the ground as possible, and after being tied securely in position they must be kept close until a union has taken place. They will only require shifting into larger pots when necessary, but in any case their progress is more rapid if kept in a structure somewhat warmer than an ordinary greenhouse during their earlier stages. Cuttings should be formed of the half-ripened shoots, cut off cleanly at a joint, and dibbled firmly into well-drained pots filled with a soil principally consisting of sandy peat. After this, they will soon root if kept in a close case in an intermediate temperature.

Hydrangea scandens.—This very peculiar member of the Hydrangea family, known also under the name of Schizophragma hydrangeoides, is remarkably easy to propagate, more so, indeed, than the rest of the class to which it belongs. H. scandens is a rambling plant that attaches itself to the wall after the manner of Ivy, being held in position by the roots that are pushed out in great profusion from all parts of the stem. Now, if these creeping stems are laid along the ground and held in position by a peg or two, strong masses of roots will be produced, and shoots start from nearly every joint, so that when sufficiently established one strong shoot can be cut up into several well-rooted plants.

Gaillardias.—I have quite a crop of some of the choicer Gaillardias obtained by cutting up the roots of a few established specimens; indeed, these very showy plants are readily propagated by means of root cuttings, all that is required being to cut up the roots into pieces about 1 inch long and dibble them into pans of sandy soil at such a depth that the upper part of the cutting is just below the surface of the soil. All that is necessary, then, is to stand them in an ordinary garden frame, when the young plants will not be long before they appear.

Pansies.—Owing to the copious rainfall of the last two or three weeks, many Pansies and other plants of a like character will be now pushing out young shoots from near the base of the plant. Most of these will make first-rate cuttings if they are dibbled into a well-worked and somewhat shaded border. In selecting cuttings the flowering shoots must be avoided, as they seldom root, and even if they do, still more seldom form satisfactory plants.

Tydæas.—These beautiful and quaintly marked gesneraceous plants that are required for winter blooming will now be in active growth, and where it is intended to increase the stock the tops of a part of them may be taken off as cuttings. By this means a succession will be maintained, for in the first place some of the plants should be allowed to remain untouched, and they, as a matter of course, will flower first; then after them come the plants that had their tops removed for cuttings; and lastly, the cuttings themselves, that after rooting were shifted on into flowering pots. The cuttings should, if possible, be put singly into small pots, as they may then be shifted on without injuring the roots in any way after they are well rooted. The small pots should have two or three crocks put in the bottom and be then filled with a mixture of loam, well-decayed leaf-mould or peat, and sand, with just a layer of clean sand on the top. The soil should not be pressed down too firmly, as the cuttings root more quickly if in moderately light compost. The cuttings must be taken off about 4 inches long and be inserted without delay. Then a thorough watering having been given, the pots should be placed in a close case either in an intermediate house or in the cool end of the stove, when they will soon root. Directly they are struck the young plants should be hardened off, as if kept close after this they will soon become drawn. In taking the cuttings care must be taken to leave a few good eyes on the old plants, in order that they may again start into growth with as little delay as possible.

Primula floribunda.—If a few flowers of this ever-blooming Primrose are fertilised by splitting the tube and inserting a camel's-hair brush to apply the pollen to the stigma, plenty of seed will be obtained, which can be either sown at once or kept till the spring. In districts where the winters are light it may be sown at once, but in smoky neighbourhoods it is far better to keep the seed until spring before sowing it, as the London fogs will kill even established plants during the winter. From the minute character of the seed it will not need any covering of soil when sown, but should be sprinkled thinly on the surface of the soil (which must have been previously thoroughly moistened) and a pane of glass laid over the pot or pan until germination takes place. When large enough to handle, the young plants should be pricked off and encouraged to make as rapid a growth as possible.

Mackaya bella.—This is best propagated by cuttings of the young growing shoots taken at any time during the summer months, and kept close and shaded until rooted. In order to flower it successfully, this Mackaya must be thoroughly rested during the winter, and when well watered in the spring and summer the young shoots, which are then produced in great profusion, form the best of cuttings. T.

Cutting down Rhododendrons.—Will some reader of The Garden kindly say whether this is a safe time to cut down Rhododendron ponticum? The flowers are just over, and the trees being far too high, I want to reduce them and then layer the lower branches.—J. M. W.

*** In answer to the above, it is really too late to cut down large bushes of Rhododendron ponticum, for the reason that the young growths which will proceed from the stumps do not become thoroughly developed and ripened before winter; hence are liable to be winter-killed. The best time to cut down Rhododendrons is from March till the end of May, which allows ample time for growth. Much, however, depends upon climate and weather, and in favoured localities where the winters are not severe it would be safe to cut the shrubs now. The layering of the lower branches should be done at once, the present being the best time.—G.

DESTROYERS.

CATERPILLARS ON APPLE TREES.

I send you a few shoots of my Apple trees which are infested with three sorts of caterpillars, samples of which I enclose in tin box. Will you please give me the names of them in The Garden, and tell me whether anything can be done to rid the trees of them? I have a large Apple orchard here, and the trees, which three weeks ago were looking perfectly healthy and full of blossom, are now covered with thousands of caterpillars, and every blossom and leaf throughout the orchard are eaten away like the samples sent. I am anxious to know whether anything can now be done to stop their reappearance another season. I should like to know whether the same thing has happened in any other parts of the country. Any information regarding these pests, as to when the eggs are deposited, &c., will be thankfully received from any reader.—W. Shepherd.

*** In reply to the above, the caterpillars sent are as follows: the dark and pale striped ones are the caterpillars of a medium-sized moth, one of the Noctuæ (Teniocampa cruda). I do not know of any English name. The dark long narrow one is one of the looper caterpillars, so named from the way in which it walks, having no legs except at either end of the body. It stretches itself out to its full length, then brings the end of its body close to its head, the middle of its body forming a loop; it then stretches itself again forward, and so proceeds. This moth will be a smallish one, belonging to the family Geometridæ. The small caterpillars are the progeny of a small moth, one of the Tortricidæ. You cannot do better than shake down all the caterpillars you can and drive poultry under the trees, or roll or trample the ground well, and then water well with liquid manure, which will help finish off any caterpillars which have escaped the previous treatment and be of benefit to the trees. At the beginning of winter pull off any leaves that do not fall and burn them, as they frequently contain chrysalides.—G. S. S.

Caterpillars on Copper Beech.—I have forwarded in a tin box a few pieces of Copper Beech with caterpillars, which just now are doing a good deal of harm to these trees, more especially the young ones planted this season. Can you kindly tell me what the pest is? I do not recollect anything of the kind having occurred here before. Why is the attack confined to the Copper Beech? The Sycamore, Maple, &c., near by are hardly touched. What remedy should be applied?—J. K.

*** In reply to the above, the insects on the Copper Beech are weevils (Phyllobius argentatus). These make the small holes in the leaves. The caterpillars belong to the family Geometridæ, and are commonly called loopers, from the way they hunch up (or form into a loop) their backs when they walk. The name Geometridæ, or earth-measurers, is given to this family of moths on account of the peculiar method of walking practised by the caterpillars, who seem as if they were measuring the ground. You cannot do better than shake as many of the insects off as you can, and then trample or roll the ground under the trees. Many caterpillars and other insects only feed on one kind of tree or plant.—G. S. S.

The caterpillar plague.—Without doubt the recent rains have at least thoroughly cleansed the fruit trees from leaf roller maggots and myriads of other pests, and it is hoped may have destroyed the breeders in their chrysalis form, and thus have rid us for some time hence from similar visitations. Already trees are making new growth rapidly, and

should we have a long, warm autumn there is yet time for the trees to recuperate and lay up some store of both leaf and fruit buds for another year. For all the standard trees, which have generally suffered much, there has been not a drop of rain too much, as their appearance later will testify. Whilst not much comfort is derivable therefrom by the grower of fruit whose crops for the present year have been decimated, yet it is a fact that what fruit is found elsewhere, and there is some in various directions, will be all the finer later on. Probably the samples generally will display unusual size, not only because the fruit is thin, but also because the roots have had such a thorough and unusual soaking in the month of June. The caterpillar raid of the past spring strongly illustrates the necessity which exists for having trees isolated from each other in orchards, so that the only means of access to them by the female or breeding fly in the autumn shall be by the stems. Then by coating the stems with rings 6 inches wide of some innocuous, but glutinous substance, the ascent of the insect may be effectually checked. Stockholm tar, which has infused into it a considerable proportion of coarse fat, seems to be about the best material for that purpose, as it does not soon dry. It is doubtful whether the caterpillar pest is, however, not always more abundant where the soil about the trees for various causes gets little cultivation.—A. D.

Wire-protected fruit gardens.—The advisability or otherwise of protecting fruit quarters with wire was warmly discussed in the pages of THE GARDEN not long ago. The experience of a practical man like Mr. Evans, of Lythe Hill, will throw some additional light upon the mattter. The general concensus of opinion after the recent discussion seemed to be that by using wire and excluding the little birds there would be a terrible increase of insect pests, and ultimate devastation. Seeing at Lythe Hill a large quarter of Gooseberries and Currants entirely wired in and the bushes bearing tremendous crops, the question of the prevalence of caterpillar was at once raised. Mr. Evans said that during the second year after wiring the bushes suffered very much from caterpillars. In the winter the whole top layer of soil was taken right away, fresh soil being brought and put in its place. Since then the Gooseberries have never had caterpillar, and a period of fourteen years having elapsed since the plague, one is justified in saying that in this case at least wire has proved beneficial. The wire used is three-quarter-inch mesh, and Mr. Evans contends that the moth which lays the eggs will not pass through it. Perhaps those who have recorded failure have used large meshed wire, through which the moth has free access, and hence failure was attributed to the exclusion of the birds, just as many farmers in Kent have this year attributed the plague of caterpillars to the wholesale destruction of the sparrow; whereas, the devastation has been just as severe in districts where the sparrow has been left alone.—A. H.

Potatoes.—It is now several years since Potatoes have come up so strongly and evenly, and, thanks to recent heavy rains prior to finally moulding them up, no amount of dry weather will prevent the realisation of heavy crops. This would appear to be the case on heavy land generally, and fully proves how necessary it is that such soils should be thoroughly well pulverised, and only worked in dry weather. Many late Potatoes are yet waiting to be moulded up, but we prefer to do this work early, and always before the ground has become very dry. As before stated, we do not now fear the drought, but we are less certain about the disease. Even this is less injurious to Potatoes when the haulm is strong and spreading, and a heavy moulding up of the rows is also a good preventive. It is those tubers near the surface that are most liable to be affected by disease, the spores being washed from the haulm down to them; hence the advisability of moulding up freely. If the ridge is made higher on one side than another, this serves to drive the haulm somewhat to the opposite side, and in this case there is a greater likelihood of the spores being washed by rains into the furrows rather than down to the roots. Last season we enjoyed comparative immunity from the disease, but quite the opposite may be the case this year, especially seeing that diseased tubers have already been found among those lifted from frames. —W. I. M.

NOTES OF THE WEEK.

Two good Nectarines.—Mr. Barker, Hindlip, sends us fruits of two of the best Nectarines, viz., Stanwick Elruge and Lord Napier. The colour and flavour were both excellent.

Yellow Indian Cress (Tropæolum polyphyllum) does well on a border at Broxbourne. It was flowering gaily a few days ago, and the plants were only from self-sown seeds.

The Fringe Tree (Chionanthus virginica).—Beautiful specimens of this from Mr. Anthony Waterer remind us how happily it is named—the Fringe Tree. It is well for a plant to have so good and true an English name.

Dragons (Arum Dracunculus).—Mr. Breese, The Gardens, Petworth, sends us the finest specimen we have ever seen of this plant. The spathe measured over 17 inches long, and was of a very rich dark brown colour. It is seldom seen so well coloured.

Hale's Early Peach has been sent to us by Mr. J. Rainson, Broughton Hall Gardens, Skipton-in-Craven. The fruits were gathered from a young tree which bore nearly seven dozen. They were richly coloured, of good size, and delicate flavour, but wanted a day or two more to ripen.

Two late Irises.—Mr. J. T. Poë, Riverston, sends Iris ochroleuca (gigantea) and I. lusitanica sordida (Thunderbolt), which grows 3 feet 6 inches in height. Mr. Poë writes: "All Irises have been very fine this year in my garden. These are too tall to get any box to carry them. To show vigour, not to show fresh blooms, I send them."

Royal Horticultural Society.—We learn that at the meeting on July 10 the special exhibits will be Roses, Lilies, and Strawberries. Special prizes are also offered to amateurs and gardeners by Messrs. Laing and Co., of Forest Hill, for six tuberous Begonias, single varieties, distinct, and three varieties, double. There is no charge for entry.

We learn that the Austrian Société Pomologique is arranging for a national exhibition of fruit, to be held at Vienna from the 29th of September to the 7th of October. Two sections of the exhibition will have an international character, namely, the section for fruit-drying apparatus, and that for machines and instruments used in cultivating and harvesting of fruit.

The late Azaleas.—Mr. A. Waterer brought us a bunch of the late flowering Azaleas, the result of crosses with the fine Californian species. There is a good variety of colour, good whites, pale yellows, pretty pinks, and whites with pink tips and buds. A most promising and noble race of hardy shrubs, which come in well after the other Azaleas have passed.

Ostrowskia magnifica.—The flowering of this new hardy plant has been awaited for some time. It is now in flower in the Coombe Wood Nursery, and will be exhibited next Tuesday at the Royal Horticultural Society for the first time. It is like a large Platycodon grandiflorum, is a yard high, has whorls of leaves, large bell-shaped flowers 3 inches across, colour white flushed with purple. It is quite hardy, and Messrs. Veitch grow it in the open air.

Annuals were once despised as garden flowers, but now are regarded in a different light. It is with good cultivation that the beauty of annual flowers is brought out, and that consists in a well prepared soil and timely thinning to prevent a weakly growth. The other day we saw wide edgings of such beautiful things as the white and common Virginian Stock, the lovely blue Nemophila insignis, Collinsia bicolor, now seldom seen, the golden yellow-flowered Bartonia aurea, white Candytuft, blue Convolvulus minor, and Nemophila discoidalis, purplish black, margined with white. There were many gay flowers growing hard by the annuals, but they did not outshine what were once regarded as weedy rubbish.

Chusan Palm (Chamærops Fortunei).—In the little back garden of Mr. Wolferston, a chemist at Midhurst, two fine male specimens of the Chusan Palm are now flowering. The largest of the two is quite 12 feet high. They were bought at Mr. Richard Cobden's sale to put in Mr. Wolferston's conservatory, but on getting too large they were planted out in their present position, which they have occupied for the past twelve years. They have never had any protection, the leaves at times being actually borne down by the weight of snow upon them.

Two beautiful Thymes are Thymus serpyllum albus and T. s. coccineus, both of which are now in full flower on the rockery in Messrs. Paul's nursery at Broxbourne. For rockeries these two creeping Thymes are of especial use, and it is noticeable what a fondness bees have for the tiny flowers.

Eremurus robustus is flowering at Broxbourne. This is a noble flower, and not difficult to grow. It is hardy, and well repays a mulching of manure in the spring. The beautiful E. Bungei is more fastidious. A coloured plate of this was given in THE GARDEN of March 13, 1886, and also one of E. robustus on January 30 of the same year.

Erigeron glabellus, or the smooth-leaved Fleabane, as some call it, is one of the gayest flowers of the week. We saw a border of it at Broxbourne, and could not help wishing that it might be seen more in middle-class gardens, as it is quite hardy, dwarf, neat, and with a profusion of pale purple flowers. A bed of it would make an uncommon feature.

Clematis erecta, known also as C. recta, is a distinct member of a charming family. It has quite an upright stem and dense corymbs of white, sweet-scented flowers that are individually rather larger than those of the common Traveller's Joy. We noticed one the other day on the rougher part of a large rockery, and were struck with its usefulness for such a purpose.

Gaillardias are slowly coming to the front, and their brilliancy of colouring certainly entitles them to a place in the garden. Those with the fluted florets are a break away, and the reddish hue seems also eliminated, as we have pure self yellow flowers that, as far as we have seen, we do not admire. They remind us somewhat of a poorly developed Sunflower. Those with both the red and yellow present are extremely handsome, as two such bold colours give a pleasing mixture.

Ornithogalum unifolium.—Long after all the other species of Ornithogalum have gone to rest, the above plant is only now in its greatest beauty. It is said to grow in the greatest abundance on the barren hills and wilds of Portugal, from whence it was received by Clusius, who gives a very good figure of it in his work. The flowers are almost as large as those of the common Star of Bethlehem, but in a raceme instead of an umbel. It proves quite hardy, and may be increased by offsets or by seed, which it ripens freely.—K.

Allium nobile.—A better name could not have been thought of for this Allium. It is a noble flower of its class, and its stateliness is seen on the rockery in Messrs. Paul's nursery at Broxbourne, where there is a specimen in full bloom. The spike is strong, like the vigorous leafage, and rises between 4 feet and 5 feet high, surmounted with a huge globular head of magenta-blue flowers. Two or three of these "Onions" on a large rockery would supply something out of the common early in July.

Zenobia pulverulenta.—I send you sprays of Zenobia pulverulenta and Blackberries Best of All and Wilson Junior, which will give you a slight idea of their earliness, free-bearing, and ornamental character. The Best of All variety, I find, is much earlier than Wilson Junior, and while the latter has mostly semi-double flowers, those of the former are single.—R. H. VERTEGANS.

*** The sprays of Blackberries confirm what Mr. Vertegans has written. The Zenobia has lovely flowers, of a beautiful bell shape, and as white as a Snowdrop. Clustered amongst the silvery foliage they are delightful. A coloured plate of it was given in THE GARDEN for Dec. 29, 1883.—ED.

The Mock Orange has flowered with its wonted freedom this year. It is a delightful shrub, its

branches wreathed with flowers that are very much like those of the Orange, and almost, if not quite, as deliciously scented; hence the English name. They have been gay at Kew, and a large bush of Philadelphus Gordonianus is full of flower in a shrubbery at Chiswick. We might also mention that in the same garden Raphiolepis ovata, Caprifolium gratum, and many other interesting wall plants are in full beauty just now.

A few good Pinks.—It is not often that named Pinks are grown to any extent in gardens, but the following we made a note of, in Messrs. Paul's nursery at Broxbourne, as having a special beauty: Miss Paterson is a variety with numerous flowers of a full rose-purple kind of colour. It is sweet scented, like Ascot in this respect, but this is of a pale pink, with the centre deep crimson. Device is more of the character of a Picotee; it is white margined with crimson; and in Lady Craven the flower is white with a good edge. The variety Tudor has a deep crimson edge. In this same nursery the old white Pink was like a mass of snow. This is freer than the lovely variety Mrs. Sinkins.

Turkey's Beard (Xerophyllum setifolium).—This plant will also be found in gardens under the name of X. asphodeloides and also Helonias asphodeloides, and for a natural or artificial bog it is one of the most beautiful plants we know. However damp it may be, this plant luxuriates, producing annually its medium-sized spike of pretty white flowers from a base of narrow, Grass-like foliage. So far it has only attained about 2 feet in height, although it will grow as much as 4 feet—a fact which makes the plant all the more valuable. The other species are tenax and Douglasi, none of which we have seen in cultivation. It seems nearly allied to Helonias bullata, a well-known plant of great beauty, and requiring somewhat similar treatment.—K.

Begonia Haageana.—There is now in one of the stoves at Kew a very beautiful Begonia in flower under this name. It is a tall-growing plant, quite 2 feet high, with stout erect stems and large leaves of a pale bronzy green veined with red. The flowers, which are of a pale pink, and have the exterior of the sepals densely covered with reddish hairs, are large and produced in densely packed clusters. The colour is most pleasing and its delicacy is enhanced by the peculiar hue of the foliage. Among many other species of Begonias this is most striking, and is certainly worthy of general culture. We do not remember having seen it before, and therefore we think it is new.

Irises at Dangstein.—Iris susiana does well at Dangstein on a warm sandy soil. It flowers with a profusion such as one rarely sees—in fact, the whole of the Irises are quite at home. Mr. Batchelor grows them in great quantity. At the time of my visit there was a great breadth of the Spanish Iris in full bloom, comprising many varieties in all the intervening shades of yellow and blue. While in many classes of flowers we have abundance of yellow, but cannot get a blue, there is in these Irises a wealth of both displayed in pure self forms, or in varieties having the falls of a delicate soft yellow, and the standards of a beautiful azure blue tint. Their perfect hardiness should be sufficient inducement for their increased cultivation. A large batch of the English Iris was just beginning to bloom and will make an admirable succession to the Spanish kinds.

Chrysanthemum hæmatomma.—This has been lately re-introduced from Madeira, and is a decided acquisition. Coming, of course, from such a climate as Madeira, it will not stand our winters, but it does well all through the summer in the open rockery, and is so easily increased from cuttings, that there is no difficulty in keeping it. Lowe, in his "Flora of Madeira," says that it is found on sea cliffs and rocks of the Bugio, only here and there quite up to the top of the island; and again, he says, a bush of this species, on its native black or grey and barren crags, one mass of lovely rose-pink flowers, and conspicuous from afar like a Camellia or Rose bush, is a truly splendid and surprising sight. The flowers, however, are very inconstant in intensity of colour, those on the plant in our possession being just tinged with rose, but sufficient to give it a character of its own. It has been in full flower for the last month, and promises to continue until the end of the summer. It is very useful for the cool conservatory or greenhouse.—K.

Schubertia grandiflora.—Mr. A. C. Bartholomew, Park House, Reading, forwards us blooms of this beautiful sweetly-scented plant with the following communication: "Can you name any ordinary greenhouse climber which can be compared with Schubertia grandiflora (if you take into account substance, purity, scent, length of flowering—June (middle) to the end of September or middle of October—and ease of culture)? Why does not everyone who has a greenhouse in which a temperature of from 50° to 55° at night in winter can be maintained get a plant of Schubertia grandiflora? I have just counted eleven trusses on a single stem, new growth, 6 feet to 7 feet long."

Pæonies are going over, and for the last few days the end of the flowering season has been hastened by the storms, which soon play havoc with the heavy flowers. There was, however, a fair show of them at Broxbourne (July 3), and on the strong soil in the nursery there such robust things as Pæonies thrive with vigour. A few good double varieties made note of were: Grandiflora nivea, large, white; Francois Orteat, showy crimson; Mme. Lemoine, a full, dense, delicate, pink-flowered Pæony; Louise Van Houtte, medium size, deep blood-crimson; Alfred de Musset, white; and Livingstone, rich pink. We have seen many gardens this season, but seldom one in which there has been a good variety of Pæonies. No June flower is so splendid and rich in colour.

Potentillas are flowers that have almost ceased to exist in gardens, though sometimes we may find a few straggling plants of a none too beautiful variety. There was for some years a bed of them in the Royal Horticultural Gardens at Chiswick, and a few days ago there were several flowering at Broxbourne. Potentillas belong to that class of plants everyone almost may succeed with if only a fairly good soil is provided and a little attention paid them during the summer months. A few good varieties are William Rollisson, orange-scarlet, semi-double; Velours Pourpre, double crimson; California, yellow, also double, and dwarf; ranunculiflora fl.-pl., double crimson; versicolor, bright orange; variabilis, scarlet; and Caucase, dull red, margined with a pale yellow.

Eomecon chionantha.—This is a new plant belonging to the Poppy family and only recently introduced from Hong Kong. It has proved quite hardy in the open air during the last winter, and now promises a grand display of its large ivory white flowers. The stems increase with great rapidity, running after the fashion of those of Mutisia decurrens, rarely coming up where the old stool was planted. It is, however, such a truly beautiful plant that we have not the least doubt of its becoming popular. It is deciduous in winter, and, therefore, easily protected if need be. The leaves are yellowish green, somewhat oval-shaped, with crumpled edges, making a pretty contrast with the large bunches of pure white Poppy-like flowers, the centres of which are filled with golden anthers. It will succeed in peaty or boggy soil.—K.

The Rose Acacia (Robinia hispida).—This very beautiful American tree has been during the week the chief attraction in the collection of Pea-flowered trees in the Kew arboretum. It has no rival among hardy trees, for no other bears such large flowers of so delicate a shade of rose-pink. Its elegant pinnate foliage, too, adds to its charms; in short, there cannot be found a lovelier tree than a well-grown and well-flowered Rose Acacia. Such a fine old tree should be so common in gardens that there should be no need to describe it, but the fact is, one seldom sees it in ordinary gardens. It does not often reach beyond the height of a large shrub, and is generally seen as a spreading bush about 6 feet high. It is usually grafted on stems from 1 foot to 5 feet and 6 feet high, and this is the cause of the large specimens being often badly damaged by high winds; indeed, the liability of injury by winds is one of the chief drawbacks to this beautiful tree. It may be planted successfully in almost all kinds of soil, but ought never to be allowed to become crowded in a shrubbery. There are several varieties of Robinia hispida, the chief being those named macrophylla, rosea, inermis (spineless), and spectabilis, but the type is beautiful enough for every garden.

Periploca græca.—This old-fashioned climber has just begun to bloom in the open air in sunny gardens against warm sheltered walls. Individually the flowers are not showy, but when seen in a mass they have a pretty effect. Each flower is star-shaped, nearly an inch across, the petals being of a rich vinous purple, and so hairy as to resemble velvet. It is a capital climber for a pillar, post, archway, or buttress, but is not so suitable for a flat wall, as the shoots gather themselves in a mass and require to be fastened up strongly. It is a native of the south of Europe, consequently is not among the hardiest of shrubs, and therefore it is best to give it some protection in winter in cold places.

The scarlet Trumpet Flower (Lonicera sempervirens) is now at its best stage of flowering against warm walls and a very bright and attractive climber it is. The vivid orange-scarlet flower clusters may be seen a long way off, and as they last some time in perfection it is a most satisfactory creeper to grow. The other day I saw the scarlet Trumpet Flower and the common white Jasmine (Jasminum officinale) growing intermingled in a charming way, the elegant foliage of the Jasmine adding much beauty to the Honeysuckle. In cold districts the latter is somewhat tender and requires protection in winter, but about London and in southern and coast counties it grows out of doors with a vigour only surpassed by that in a greenhouse.

Genista elata.—Various parts of the arboretum at Kew are now lit up with the flowers of this bright yellow Broom. Under the shade of large trees as well as in the open, this shrub is conspicuous by its glowing masses of yellow, especially as Laburnums and other yellow-flowering trees and shrubs are over. When full grown, it is a dense rounded bush, as high in some cases as 10 feet, while its habit of growth peculiarly adapts it for grouping effectively with other shrubs. The fact that it grows and flowers perfectly well under the shade and drip of other trees renders it of great value, as so few flowering shrubs thrive under such conditions. This Genista is not a common shrub. It is rarely seen in even the best nurseries, and still more seldom is it found in private gardens. It is certainly one of the many uncommon shrubs that deserve more attention from planters. Being a European plant, it is thoroughly hardy and succeeds in even poor sandy soils.

FLOWERS AT THE ITALIAN EXHIBITION.

Flowers will from time to time form an object of special interest at the Italian Exhibition, and on Monday last there was a very good display, taking all things into consideration, in the immense marquee. It seems that to show flowers at a place of this description, which all sorts of people frequent, is one of the best of all ways to bring before the public the wealth of beautiful plants that may be grown in the garden, but which are seldom seen. To the ordinary eye the large Pæony flowers of Messrs. Kelway and Sons, of Langport, Somerset; the tuberous Begonias of Messrs. Cannell, of Swanley; the Petunias of Messrs. Carter and Co., High Holborn; the Irises of Mr. Walker, of Whitton; or the hardy flowers of Messrs. Barr and Sons must have been a surprise. In the stand of the Messrs. Kelway there were a number of Amaryllis blooms. It is the practice to dibble in young bulbs into cold frames and leave them there until they flower, not even removing them in winter. This plan of culture deserves extending. We are saved a lot of trouble, and the flowering season is spread over a great length of time—from March, in fact, until July or August. The flowers so produced are not so large as those borne by those cultivated in the greenhouse, but they are neat and brightly coloured; the habit of the plants is also dwarf, a point of great importance.

Elgira, self scarlet; Glow, scarlet, with greenish white central bands; and Meletus, scarlet and white, are worth mentioning. The same firm had also excellent Pæonies; Venus, a double blush pink, was one of the best; the scent was delicious. Delphiniums, Pyrethrums, and Gaillardias were also a feature. Sirius, yellow, and Wm. Kelway, almost red, but with a yellow tip to the petals, were noteworthy amongst the Gaillardias.

The tuberous Begonias, comprising both double and single-flowered varieties, from Messrs. H. Cannell and Sons, were very fine; and the blooms of the Petunias sent by Messrs. Carter and Co. were of large size.

The English Irises of Mr. Walker showed how well he succeeds with this flower; the blooms were large, bold, and handsome, as good as we have seen this season. Bunches of Gladiolus The Bride were also displayed.

An interesting group of hardy flowers came from the Messrs. Barr and Sons, of Covent Garden. L. bulbiferum, L. monodelphum Szovitzianum (yellow, with dark spots), English Irises, Iceland Poppies, Iris juncea, and the yellow Cyclobothra pulchella were the most notable flowers.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

Aluminium in the ashes of plants.—Professor Church contributed a summary of his highly interesting and important researches upon the presence of aluminium in the ashes of plants. This substance, instead of being peculiar to the species of Lycopodium, as once supposed, is found in minute traces in the ashes of very many others, a circumstance not to be wondered at, considering the abundant distribution of the element in many soils. It occurs in all the species of Lycopodium examined, except those which are of epiphytic habit, and which, consequently, do not directly derive their food from the soil. It does not occur in the allied genus Selaginella. It occurs in the ashes of some Tree Ferns in large proportions, sometimes forming as much as 20 per cent. of the ash, as in Alsophila australis, Cyathea medullaris; while from others it is all but absent. In the British species of Ferns little or no aluminium has been found.

Weevil attacking Rhododendrons.—Mr. McLachlan exhibited specimens of a beetle destructive to Rhododendrons at Sunningdale, and which he identified as Strophisomus limbatus.

Beetle injurious to Tobacco.—Mr. McLachlan showed specimens sent from Trinidad of beetles injurious to Tobacco and Egg plants in that island, and which he found to be a species of Epitrix, allied to that which feeds on Atropa belladonna in this country.

The plague of caterpillars.—Mr. McLachlan called attention to the notion that cold winters are injurious to insects, a notion he stated to be erroneous, although, no doubt, severe alternations of cold, heat, drought, or moisture were prejudicial to insect life. During the present season it was noticed generally that great destruction of foliage occurred from caterpillars which destroyed the succulent portions of the leaf and tied the frame-work and fragments together by a web of fine threads comparable with spiders' webs. These caterpillars were different in different cases. In the Oak they were species of Tortrix; in the Apple the winter moth was destructive; while in other cases the larva of the ermine moth was exceedingly hurtful to leaves.

Heteroicous fungi.—Mr. Plowright contributed specimens illustrative of the following notes:—

Æcidium on Pea and on the Bean.—This was produced on both plants by infecting them with the same infecting material, viz., Uromyces fabæ. The Æcidium on the Pea differs in appearance from that on the Bean, the pseudoperidia in the former being few, and scattered over pale yellowish spots, while on the Bean they are crowded in thickened white spots.

Puccinia extensicola.—This produces a very handsome Æcidium on Aster tripolium. Mr. Plowright found the Puccinia last year at Wells-next-the-Sea, Norfolk, and produced the Æcidium this year on the leaf now exhibited.

Gymnosporangium confusum (Plowright).—This species has hitherto been confounded with G. fuscum. It occurs on Savins, but does not produce Æcidia on the Pear, as G. fuscum does, but on the Hawthorn, Quince, and Medlar, specimens of which were exhibited. Professor Sorauer, of Proskau, had sent leaves of Hawthorn on which he had produced the æcidiospores of G. confusum from teleutospores sent by Mr. Plowright about a month ago. The æcidiospores of G. clavariæforme were also sent for comparison. All the specimens sent were the products of cultivation. A special vote of thanks was proposed by Mr. Murray for this and other contributions of Mr. Plowright.

Opuntia shoots.—Mr. Morris exhibited joints of Opuntia monacanthus and O. Dilleni which bore seeds in their interior, shoots from their upper edge, and roots from their lower end. [Analogous cases were observed as long ago as 1832, and various references to similar phenomena are given in Masters' "Vegetable Teratology," German edition, 1886, p. 207.]

Various exhibits.—From the Royal Botanic Garden, Edinburgh, came catkins and cones of Pinus contorta and other species of Coniferæ. A malformed flower of Odontoglossum crispum from Mr. Douglas was referred to Mr. Ridley. Brassia caudata and Acanthophippium striatum were also shown.

THE GARDENERS' ORPHAN FUND.

The usual monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on the 29th ult., Mr. George Deal presiding, there being, as is usual, a good attendance of the members of the committee. The honorary secretary reported that the sum of £60 18s. had been paid in during the past week, and the balance at the bank was £597 9s. A letter was read from Mr. John Fraser, resigning the office of auditor, stating that he should be engaged at Chester for some days, which would prevent him from auditing the accounts for the forthcoming annual general meeting. Mr. Fraser's resignation was accepted, and Mr. C. H. Sharman was requested to act in his place. The honorary secretary reported that he had obtained returns of sums collected by the eighty local secretaries up to the end of June, the aggregate amount being £380 13s. 8d., which was regarded as an extremely satisfactory result. The highest sum returned by any one local secretary was that from Mr. G. W. Cummins, local secretary for the Carshalton district, which amounts to £33 4s. The aggregate expenses of the local secretaries are surprisingly small. The committee then proceeded to discuss certain details of the forthcoming annual general meeting, election, and dinner.

Election.—As there is much doubt on the part of gardeners who are subscribers to the above fund as to the number of candidates for which they can vote at the coming election on July 13, it may be well to state that each subscriber of five shillings has one vote for this sum, and he can vote for six out of the ten candidates. A subscriber of ten shillings has two votes, and so on according to the amount subscribed. As a matter of course, a subscriber can give his vote to one candidate only if he wishes to do so, but he cannot give one candidate six votes, as the cumulative principle does not operate as in the case of School Board elections. If he concentrates his support upon one candidate only, he gives that candidate one, two, or three votes, according to the amount subscribed, and passes over all the rest. But every subscriber of five shillings can give one vote each to any six candidates.

Evening fete at the Botanic Society.—The evening fête, annually held by the Royal Botanic Society, is rightly considered one of the gayest and most pleasurable gatherings of the season. The gardens on Wednesday night were as festive as usual, no rain occurring to mar the brilliant effect of thousands of fairy lamps and illuminations of coloured fires. More than 10,000 persons were present. There was also an exhibition of floral decorations for dining-tables, baskets of plants and flowers, bouquets and flowers arranged for personal ornament in the large tent. The Botanic Society have been especially unfortunate as regards weather this year, and we hope that the success of the fête will help to atone for the ill-luck attending the exhibitions. A full prize list is given in our advertising columns.

Croydon Horticultural Society.—This show was held on the 4th inst., and although successful as regards the high standard of the exhibits, especially in the classes for Roses, was much marred by the heavy rain which fell all the day. Amongst nurserymen, Messrs. B. R. Cant, Frank Cant, of Colchester, and Messrs. Piper, of Uckfield, were the most successful in the classes for Roses. Mr. Brown, gardener to Mr. Waterlow, Reigate; Mr. Cuthill, of Dorking; Mr. R. E. West, of Reigate; Mr. Slaughter, of Keyning, and Rev. A. Cheales won the principal prizes given to amateurs in the open classes for Roses. In the classes confined to Croydon and four miles round, Messrs. Wilkin, Dart, Rev. W. Wilks, Matthew Hodgson, and Charles Grahame were the principal winners. Mr. R. E. West, of Reigate, won the champion 25 guineas trophy for 36 distinct Roses; Mr. Slaughter being second, and awarded a special silver medal. Mr. Wilkin, of Sutton, won the champion cup in the Croydon district, Mr. Grahame being second. Mr. Slaughter got the silver medal for the best Rose in the show, and Mr. C. Grahame (for the third year in succession) won the medal for the best Rose grown in Croydon district, the Roses in both cases being A. K. Williams.

The Gardeners' Royal Benevolent Institution.—The forty-fifth anniversary festival of the Gardeners' Royal Benevolent Institution was held on Wednesday evening at the Albion, Aldersgate Street. In the absence of the Right Honourable Joseph Chamberlain, who was prevented by indisposition from attending, the chair was occupied by Sir Trevor Lawrence. The chairman in proposing the toast of the evening—"Prosperity to the Institution"—pointed out that the applicants were much more numerous than the pensions which could be granted. The total yearly expenditure was only £2250, and as the people of this country took such an enormous interest in their gardens, it was, he thought, a reflection upon them that they did not more largely support this admirable institution. At no period in the history of this country had so much money been spent on gardens as at present, and if the fact were brought to the notice of proprietors of gardens that the future of their employés was unprovided for, he thought they would come forward and help. Mr. John Lee and Mr. H. J. Veitch, whose names were coupled with the toast, responded, and Mr. Veitch mentioned that the institution would lose the sum of 50 guineas a year by the conversion scheme. Other toasts followed. In the course of the evening, Mr. Cutler, the secretary, stated that the subscriptions that night reached the sum of 1000 guineas; Mr. Chamberlain's list, including 50 guineas from himself, reached £435; £250 were subscribed in small sums. During the evening an excellent musical programme was performed under the direction of Miss Mary Belval.

BOOK RECEIVED.

"Handbook of South Australia." Second Edition. A handbook compiled by J. F. Conigrave for the Colonial and Indian Exhibition, 1886.

Names of plants.—*J. E. D.*—Spiræa filipendula fl.-pl. —*C. C.*—1, Bee Ophrys (O. apifera); 2, Butterfly Orchis (Habenaria chlorantha); 3, Orchis mascula.——*F. Dowding.*—Flowers quite shrivelled; kindly send others ——*Two Cattleya flowers in box, packed in wool.*—Cattleya Forbesi.——*Fearle.*—Calycanthus floridus.——*Robert Drummond.*—Arum Dracunculus.——*F. E. S.*—We do not name florists' flowers. ——*T. Lupin.*—1, Geranium armenum; 2, Hemerocallis flava; 3, Ornithogalum umbellatum; 4, Aquilegia vulgaris var.; 5, Gladiolus byzantinus.——*P. F.*—Your Tomatoes are suffering from the same disease as that which attacks the Potato.——*J. E. D.*—Jacob's Ladder (Polemonium cæruleum). —*A. Howland.*—1, Cynoglossum bohemicum; 2, Mentha sp. (send in flower); 3, Artemisia absinthium; 4, Anthemis arvensis.——*A. H.*—Thalictrum angustifolium, a true species.——*Shrubs in box—no letter nor name.*—1, Coccoloba platycladon; 2, Lonicera Ledebouri; 3, Anthocercis viscosa.

WOODS & FORESTS.

THE LARCH DISEASE.

In The Garden, June 23 (p. 596), there is an interesting article from *Nature* on the above subject by H. Marshall Ward. The writer seems to imply that this disease is caused or spread throughout the lowlands and valleys of Europe and Great Britain by the spores of a fungus, Peziza Willkommi (Hartig), which lodges in any wound caused by frost or accident to the stem or branch of a tree. It is a recognised principle in the economy of Nature that fungi are the attendants of decomposition, but not the cause. As soon as vitality ceases in a tree or branch decomposition gradually sets in, and thus forms a suitable pabulum for the spores to settle and establish themselves. When any of the vessels of the stem or branch are ruptured by frost ulceration sets in, the resin bursts out and runs down the stem, the inner bark loses its vitality around the lips of the wound, decomposition sets in, and we then find the fungi gradually make their appearance around the margin. The writer admits that the spores cannot penetrate the sound bark, but he says it has been proved by Hartig that the spores will infect the stem of the Larch if they are introduced into a wound, and the following is his definition of how these wounds may occur to further the spread of the disease :—

> Now it is a well-known fact in the hill forests of Switzerland, Germany, Austria, &c., that heavy falls of snow often load the branches until they bend down to the ground, and the bark in the upper angle where the branch joins the stem is ruptured. Similar cracks are also caused by the bending down of the branches under the weight of water condensed from mists, &c. If a spore alighted near such a place the rain would wash it into the crevice, and it would germinate in the moisture always apt to accumulate there. This certainly accounts very completely for the situation of the dead branch, which, of course, would at once suffer from the mycelium. Another way in which such wounds as would give access to the parasite might arise is from the blows of hailstones on the still young and tender cortex.

The Larch is a deciduous tree, and in the highlands of Scotland, which in many respects are similar to the localities specified, I have never seen the Larch loaded with snow; in fact, it is an impossibility, although at the same time I have occasionally seen the Scotch Fir and other evergreen trees suffer damage in this way. Again, the Larch is a very tough, flexible tree, and who ever saw or heard of a branch being bent down and ruptured by the agency of condensed mist? I have seen a branch ruptured by the agency of frost and moisture, but never torn off or rent at the stem in the way specified. As a general rule I have found the Larch suffer most from this disease when planted upon hard inorganic matter resting upon granite rock. In some of the mountainous districts of the highlands of Scotland where the tree is growing among the rocks at elevations of from 1000 feet and up to about 1400 feet above sea-level, the disease is often very bad. In some parts of the east of Scotland, where the air is dry and bracing and the frost in winter often keen and of long standing, the Larch suffers immense damage by the rupture of vessels in the stems and branches; but the vessels are not always ruptured at the base of a side branch, as seems to be implied by H. Marshall Ward; neither does ulceration in every case break out at such a place, but often on the plain surface. In some cases where the trees are planted upon the sandstone formation considerable quantities of young Larch trees have died off without any apparent cause whatever, the trees being affected neither by ulceration, rot, nor blister. In traversing the country from east to west the disease gradually gets less and less, and when we arrive at the Ayrshire coast, where the climate is more soft and genial and frosts less severe, the Larch thrives fairly well. When we cross over to Ireland the disease disappears altogether. As regards soil and climate, the following remarks are made :—

> Another point comes into consideration also. In warm, damp valleys the whole tree is apt to be more watery, and it is well known that the soft tissues, like the cortex, suffer more from frost when filled with watery sap than do harder, drier, and more matured ones. . . . . Given the above conditions for producing frost wounds, then, and the presence of spores of Peziza Willkommi, there is no difficulty in explaining the well-known phenomena of the Larch disease. . . . . When the Larch was brought down to the plains and valleys, however, and planted in all directions over large areas, the Peziza was also brought with it; but it will be clear from the foregoing discussion that the climatic conditions were now proportionally raised in favour of the fungus, and lowered to the disadvantage of the Larch. Plantations in damp valleys, or in the neighbourhood of the sea or of large lakes, were especially calculated to suffer from frost, and damp air favoured the propagation of the fungus, and the disease tended to become epidemic. . . . . It is evident that the Larch should not be planted at all in low-lying situations exposed to late frosts; and even in more favoured valleys experience points to the advantage of mixing it with other trees.

This last statement as regards mixing other trees with the Larch is perfectly correct, and has been recorded by me some thirty years ago. We are here told that the Larch should not be planted at all in low-lying situations and in the vicinity of large lakes. I have planted the Larch in the Loch Neagh district of Ireland, at an elevation of about 60 feet above sea-level. The lake is the largest in the British Isles and the district is very wet, yet I have never seen the least trace of the disease in the locality. At the same place I have planted the tree on peat bog, where the surface in some cases was less than 2 feet above the water-line, and although the timber on such a soil is of a softer texture than such as is produced on hard inorganic matter, yet I have never seen the least appearance of the disease.

Again, we are told that plantations in damp valleys and in the neighbourhood of the sea are especially calculated to favour the propagation of the fungus. I have examined the Larch growing on the Wicklow mountains in the vicinity of the sea, but failed to find the least trace of the disease; and, with regard to damp valleys, I have looked for the disease in Larch, growing in the Vale of Avoca, in the same county, and found the trees safe and sound, root and stem, branch and foliage; in short, I have never found the disease in any part of Ireland, although the climate is very damp, and the bog lands exposed to late spring frosts, all of which, according to the writer's definition, are favourable to the development of the disease. In compiling his article the writer shows considerable tact and ability, but as his propositions and theory cannot be reconciled with stubborn facts, gathered over a wide range of country, and under very different conditions as regards soil and climate, I am, therefore, reluctantly compelled, in all fairness, to dismiss them as defective and misleading. The Larch is sometimes used as a nurse for other trees, and when the plantations begin to get too crowded, these nurses are occasionally stem-pruned for a considerable time before they are cut down, in order to give space to the principal crop. When a live branch is cut off, resin, to a certain extent, oozes from the wound, thus preventing the spores of fungi from lodging and establishing themselves on the surface, and although many of the trees in the vicinity, and sometimes the trees operated upon themselves, were affected by ulceration, so that millions of spores must have been floating about in the air, yet I have never seen a single instance where these wounds were affected, and when allowed time, the bark gradually closed over the orifice, and presented a smooth, clean surface.

J. B. Webster.

THE FORESTS OF EUROPE.

The French Ministry of Agriculture has just issued some interesting statistics respecting the distribution of forests in Europe. The total area of Europe laid out in forest—exclusive of Turkey, Bulgaria, Bosnia, and Herzegovina, omitted in the official statement—is set down at 286,989 million hectares, or about 708,862 million acres; that is, about 18·7 per cent. of the total area of Europe is forest land. In proportion to its total area, Great Britain and Ireland has, of all countries in Europe, the least extent of forest, amounting to only 4 per cent. of its surface, and, in proportion to the number of its inhabitants, enjoys by far the least allotment of forest, amounting to only 0·036 hectare, or 0·089 acre, *i.e.*, considerably less than the tenth of an acre to each inhabitant. The country in Europe next lowest in the forest scale is Denmark, with 4·8 per cent. of forest land, or 0·09 hectare to each inhabitant; that is to say, in Denmark there is an average of between two and three times the extent of forest land to each inhabitant that there is in Great Britain and Ireland. The third of the countries of Europe in the ascending forest scale is Portugal, with 5 per cent. of forest land and 0·11 hectare to each inhabitant, *i.e.*, an average of three times the amount of forest land to each inhabitant of Portugal that is allowed to each inhabitant of the United Kingdom. Holland has 7 per cent. of forest land and 0·05 hectare to each inhabitant, or about one and a half times as much as to each inhabitant of the United Kingdom. The country in Europe possessing most forest is Russia in Europe, with 200,000 million hectares—*i.e.*, 37 per cent. of its whole area and 3·37 hectares to each inhabitant—that is, each inhabitant of Russia in Europe has an average of nearly 94 times the extent of forest land allotted to each inhabitant of the United Kingdom. In its percentage of forest land and the amount of forest to each inhabitant, Sweden, however, stands still higher. With 17,569 million hectares of forest, Sweden has 39 per cent. of its land in forest, and so 3·84 hectares of forest to each of its inhabitants. Norway, with 24 per cent. of its area in forest, allows each of its inhabitants an average of 4·32 hectares of forest, or 120 times as much as is allowed to each inhabitant of the United Kingdom. Hungary has 29 per cent. of its area in forest, or 0·58 hectare of forest to each inhabitant. France possesses 9,888 million hectares of forest, or 17·7 per cent. of its total area, and so allowing 0·25 hectare of forest to each of its inhabitants—nearly seven times as much as is allotted to each inhabitant of the United Kingdom.

Uses of the Ash.—In every part of the country the Ash is highly valued, and, in many districts, from the time it has attained the thickness of a man's finger it can be profitably disposed of. The habit of growth is not so spreading as that of the Oak, and the early age at which it can be profitably sold forms an argument in favour of close planting. It grows well on a sharp, gravelly soil or good loam, but I have found the most valuable timber on black, peaty soil in low-lying, wet situations, and for such soils it is by far the most profitable tree to plant. It should be planted not wider than 8 feet apart. In winter, when the branches are bare, it is liable to be driven furiously about with the wind, and it lashes trees of a more rigid disposition unmercifully, often doing serious injury to their tender shoots.—A.

One of the largest Pine trees ever grown in Sweden was felled the other day in Lapland. It measured over 120 feet in height, and was 12·5 feet in diameter 2 feet from the ground.

Devastation by caterpillars.—Near Rogate, in Sussex, is an Oak wood, every leaf of which has been stripped by caterpillars. Nor have the trees alone suffered, but also the underwood.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ALPINE PLANTS AT ZERMATT.

THE route to Zermatt is probably too well known to most of the readers of THE GARDEN to require any description, but a short account of some of the best alpine flowers in bloom there or in the vicinity at the end of June may be of interest. Gentiana verna and acaulis are very plentiful almost everywhere, and in the meadows G. nivalis and campestris are just in bloom; G. purpurea in the woods is in bud, and Androsace carnea and obtusifolia are very plentiful on the hills near the Findelen Glacier and Schwartzi, and on the rocks near the latter A. imbricata can be found, whilst A. glacialis is blooming on the Wetterhorn. Anemone Halleri is most abundant near the Findelen Glacier, and its large light purple flowers are very beautiful. A. sulphurea and vernalis are also plentiful, and A. baldensis is just coming into bloom. Aretia Vitaliana is abundant above the Rifel Alp Hotel. Eritrichium nanum is fairly abundant near the Hörnli, and Gentiana bavarica is somewhat difficult to find near the Staffel Alp.

Ranunculus pyrenæus, R. rutæfolius, and R. glacialis are all plentiful near the Schwartzi; in fact, rutæfolius is growing within a few yards of the door of the hotel. Glacialis is just in bud, and grows in very wet peaty soil. Viola calcarata is extremely beautiful growing in masses in many places. Besides these, the Edelweiss (not yet in bloom), Oxytropus Halleri, Astragalus monspessulanus, Drabas, Saxifrages, Primula viscosa, farinosa, and many other plants are in flower.

P. MADDISON.

A NOTE FROM NEW JERSEY.

I THINK the average taste in England is yet behind in judging Tomatoes when one of your correspondents advocates seeds and pulp. That class of fruit was formerly received from the West Indies in New York during the winter, but now it is as solid as those illustrated in trade catalogues.

It has been a strange season—a long, dull, cold winter, with far more than the average of rain and snow, and continuous rain and cold during May. June was very dry and unusually hot for the week ending Monday, the 25th. On the 23rd the temperature in this district ranged from 98° to 104° in the shade. To-day it is 56°, with a pouring rain from the east. There are no Apples, Pears, nor Cherries in this district, although there was the finest show of bloom on Apple and Cherry trees that I ever saw. Pine-apples are very fine and cheap, also Bananas—two for a penny from the hucksters' barrows. Strawberries have not been a generally good or even crop. I was judging at the New York Farmers' Club a few days ago, and the fruit was not up to the average. Growers of early Corn, Beans, and Melons had to sow several times, the seed rotting in the ground from continued cold and wet. Those having convenience to start a small quantity in pots and boxes had the advantage over the outside sowers. The outside Rose season only lasted about one week, but we will probably after this cold rain have a fair sprinkling of flowers during the summer; but at the present time there is not a handful of flowers from thousands of plants.

JAS. TAPLIN.

Maywood, N.J.

NOTES FROM SUFFOLK.

THE garden historian who records the spring of this present year will, I think, remark how freely every plant has bloomed. The Lilacs were a mass of blossom; the Laburnums were not only, as the French name them, "showers of gold," but veritable downpours, so thoroughly were stems, boughs, and foliage hidden by the drooping flowers. The Mountain Ash and yellow sweet-scented Barberry, the Syringa, Ceanothus, and every flowering shrub told the same story of ripened wood, illustrated by floral beauty. Now these earlier charms have passed away, the Acacias take up the same strain and are giant nosegays. I use the old-fashioned word advisedly, for the air is filled with their perfume not unlike that of the Orange blossom. There are scarcely lovelier trees than these Acacias covered with bloom, and varying in height from 20 feet to 60 feet; their delicious scent (or perhaps the store of honey or pollen the blossoms contain) attracts every kind of bee, while the flickering shadows of the light, graceful foliage which sunlight can traverse make a resting-place under the boughs most delightful. The Roses, too, in this district this year are fine and abundant. It is true that the earliest blooms here and there had green centres, but they have changed for the better, and never was the Rose better entitled to rank as "the queen of flowers." Fortune's Yellow lasted in bloom from the end of May well into June; climbing among the Wistaria, the two diverse colours contrasted well, and each enhanced the beauty of the other. The Banksian Roses, yellow and white, have faded, but a Maréchal Niel budded on the Yellow Banksian is making rampant growth, and has already afforded some gorgeous blooms. The Magnolia is literally covered with large buds, and the Pomegranate by its side is wreathed with scarlet blossom and bronzy foliage. But who could describe the loveliness of the pillar Roses in their varied tints? The sweet Honeysuckle, which has to be restrained in its wild and vigorous growth, threatening the yellow Scotch Briers, or the more brilliant Austrian Persian Yellow. The choice "show Roses" are holding forth fair promise to the exhibitors, and no doubt even local shows will this year vie with each other, even if not with the parent society. In the shrubbery borders the Portugal Laurels are covered with their graceful racemes of bloom, giving a light and feathery look to this otherwise sombre Evergreen. The very forest trees this season have blossomed beautifully.

To wander into the fruit garden now, when promise is ripening into fruition, is, at least, productive of a pleasant prospect. Bush fruit is plentiful, Strawberries fairly so, Green Gages but few, Pears many, Apples also, nor can I happily see any suspicious-looking holes in the young fruit where may lurk the dreadful maggot. The Cherry crop is good (the rain of to-day, July 2, much wanted to swell the fruit), both Bigarreau and the later sorts. Apricots very scarce; but wall fruits, Pears and Plums, are abundant. Mulberries, Medlars, Fig trees, American Blackberries and Siberian Crabs seem to have found the long cold winter and late spring the season most suitable to their requirements. The garden is full of birds; to them, perhaps, we owe, in spite of sinister rumours to the contrary, the crops of fruit. No gun is allowed to touch one tiny songster. The nightingales build in the Bay trees and Laurels; the little fly-catchers have their home in the Banksian Roses; the black-cap warblers have hidden their nest so well that it is not discoverable; redstart and white-throat, thrush and blackbird, swallow, and all the lesser members of the bird world frequent the trees and lawn, and seem to dispute the owner's right to them. By-and-by a few Cherries or Plums may be missed, but the snails, and caterpillars, and garden pests our little friends have slaughtered for us could never be counted.

SUFFOLKIAN.

FLOWER GARDEN.

HARDY PLANTS IN JULY.

THE AURICULA.—In July we look carefully over our collection of flowering plants, and all of them that were not repotted in May are now shaken out and repotted. The plants do not require such large pots at this time as they do if they were repotted in May. The month of June is one in which the woolly aphis (Trama auriculæ) makes great progress; it is very busy underground, working along the main roots wherever they are growing in any loose material. The aphides cannot follow the roots into a compact clayey mass, or indeed into any close soil. They also cluster freely round the necks of the plants, preventing them from pushing out roots. All such plants have to be quite shaken out of the soil, and the roots must be carefully washed from this troublesome insect pest in soft soapy water, while the plant may be dipped overhead at the same time to secure its freedom from green-fly. I let the plants lie on the potting bench for an hour or so after dipping them, when they are again plunged in clean rain water. This is an excellent opportunity to take off any offsets and to plant them carefully in small pots, using fine sandy soil, and placing the pots in hand-glasses in a shady place.

The seeds are now ripe and may be sown at once; they vegetate freely on the north side of a wall, where the direct rays of the sun cannot shine upon them, but where they do not need artificial shade.

Hot, dry weather is trying to the plants in pots in whatever position they are placed, but more so in the case of alpines and the hardier types of Primula Auricula planted out of doors. I could do nothing with them in a light sandy loam with a gravel subsoil, but in heavier loam, with a clay subsoil, they grow and increase freely, flowering well every year. They require, however, to be planted on raised soil to prevent their decay by too much moisture in winter.

Seedling plants raised from seeds sown at this time last year, and which vegetated at the time or in the early spring months, may now be planted out in the open ground. Whether they are alpines or the more delicate show varieties, they require scarcely any attention, and will grow into good flowering specimens by the end of the season, when they may be lifted and potted; or they may be planted out in nooks in the rock garden close together to form a mass of bloom in their season.

THE CARNATION AND PICOTEE.—Flowering time is fast approaching, and we may expect to have a good bloom, as since the genial rains the plants have grown vigorously. They are, of course, rather later than usual, and if they are growing in pots should be placed in a glasshouse to get them in full flower by July 24. The ordinary class of white ground Picotees flowers at the same time as the Carnations—flakes, bizarres, and selfs coming in together; but the yellow ground Picotees do not as a rule flower quite so early. It is singular that the pot plants should seldom fail to be attacked by small white or yellow thrips, which in hot dry

weather get into the flower-pods even before they open so much as to show the colour. When the plants are out in the open borders, and have a free rich root-run, I have seldom seen them attacked. The only way to save the flowers when they are thus attacked is to get the plants into a glasshouse and have them fumigated with tobacco smoke. The thrips are not more difficult to kill than green-fly, but if they are not destroyed they do much injury to the flowers. Wherever they are, the rich colours disappear from the Carnations, and if they are attacked in the bud state even the petals are destroyed. The seedlings are very strong this year, and are producing an immense quantity of flowers, from fifty to one hundred on each plant. Some even from the best crosses we may expect to produce single flowers and a large proportion of very badly-marked bizarres. There are always plenty of selfs amongst them; those from scarlet bizarres give the richest colours—maroon and rich purple. A large proportion of the selfs are rose-coloured, and a few are white. It is quite as difficult to get a good heavy red Picotee as it is to obtain a good scarlet bizarre Carnation. Scores of them have good red edges, but they are either spotted or barred on the white ground, or are formed of too many small petals. The seedlings are now ready to plant out, having been pricked out in boxes some time in May. We will place them in the Tulip beds as soon as the bulbs are lifted, and also on the Ranunculus bed. The ground is made rich for these bulbs and tubers, so that nothing more is required than to fork it over for the seedling Carnations. They are all quite ready to go out. Any scarce varieties may now be propagated by pipings. The smaller growths strike root more readily than the strong ones. They should be inserted firmly in pots in sandy soil, placing them in close hand-lights. They are not likely to root well if they are not kept quite close for a few weeks.

PERPETUAL FLOWERING CARNATIONS. — It is quite safe to say that successful results can be obtained only by the care with which the plants are cultivated now. They must be kept quite free from green fly, and as the roots fill the pots in which they are growing let them be potted on into larger pots. The last shift should be made in August, or at the latest early in September. A neat stick should be placed to each plant, and the collection should be stood in an open position out of doors on a hard bottom of sifted ashes to prevent the ingress of worms into the pots. Plants grown under glass now, even if they are merely protected with glass lights, are not so good as those quite exposed to all the rain and sunshine out of doors. The varieties with long-jointed straggling growths require frequent stopping in the early stages of their growth to get them into compact form.

We will lift the roots of double and single Anemones, Tulips, and Ranunculuses next week. The Ranunculuses may not be quite ready when the others are lifted, but they will soon follow. Our plan is to take a quantity of clean pots to the beds, and as each variety is taken up, the bulbs or tubers are placed in a pot and the label with them. They are carried to the fruit room, placed on shelves, and at the first opportunity are cleaned and made ready for planting out.

THE RANUNCULUSES are delicate subjects to deal with. If they are left in the ground a week or two after the leaves become yellow they begin to grow again, and are totally ruined for next year. I like to lift them as soon as the leaves are partly decayed. The tubers are quite ready when the flower-stems are nearly devoid of moisture—a fact that can be ascertained by bending the stems.

PINKS OF ALL KINDS may be propagated early in July. The pipings or cuttings may be planted as I have advised for Carnations, but they need not be planted in pots, as they are. I have been most successful with them, when a few barrowloads of stable manure have been placed in a frame, just enough to produce a very mild heat. About 3 inches of fine soil is placed over the manure, and the pipings are inserted into it, making them rather firm. They become loose in a few days, and have again to be pressed in with the fingers. It is easy to shade the glass from the sun, and air can be admitted or not as may be thought best. In the case of Pink pipings, I pull the lights entirely off from sunset until six in the morning, when they are again placed over them. I have propagated all kinds of Pinks without any glass at all by merely planting them in a shady border, but doing the work in dull, showery weather.

If the forcing Pinks propagated from cuttings in April have not yet been planted out, they ought now to be attended to, choosing an open place and planting them on rich, light soil. They should be from 9 inches to a foot apart. J. DOUGLAS.

Variations in Poppies.—Papaver Rhæas seems to show more tendency to variation when cultivated in gardens than do imported kinds. Thus a few years ago a few accidentally sown seedlings of the wild scarlet Poppy came up here. Of these a flower showing a tendency to doubleness was marked and the seed saved and sown. The doubleness was still evident in the progeny, and year by year, though slowly, it is increasing in density. This year from the same scarlet self strain has broken a paler kind and one with a white edge. These are quite natural breaks, and will doubtless lead to many others. Those who have seen the beautiful forms of Papaver Rhæas which the Rev. Mr. Wilkes has will have found in them abundant evidence of the exceeding freedom with which this form breaks, excelling all others perhaps in variety and rivalling the lovely nudicaule in beauty. As P. Rhæas is our chief indigenous Poppy, and rarely, if ever, shows variation in the wild state, it is all the more interesting to find that it has such a striking tendency to vary in gardens. I have grown Papaver umbrosum, one of the loveliest of the family, in bulk for several years, and have never yet found any variations. Mr. Ware has obtained some little variation in P. orientale, but the most desirable requirement in that grand Poppy, if it can be obtained, is to obtain double flowers, as, like all single Poppies, the flowers are too fugitive. Perhaps because simply annuals, the common garden forms, though so wondrously beautiful, are not so popular as are the hardier kinds, which will bear biennial culture, or as perennials may be left for a time to take care of themselves. A big mass of mixed varieties of Poppies, including umbrosum, Rhæas, nudicaule, pavonium, &c., would make a very effective combination for the summer months.—A. D.

Mariposa Lilies (Calochorti).—David Douglas, when travelling for the Horticultural Society in its palmy days, was, perhaps, the first to draw general attention to these, the loveliest of all early summer bulbs. He was the means of introducing some of the most beautiful species of the Calochortus, amongst which are C. macrocarpus, nitidus, elegans, and others, some of which we still have in our gardens, notwithstanding the unsuitableness of our climate. The Cyclobothra section, and especially C. albus and C. pulchellus, are striking exceptions, both of them being perfectly hardy in the open border, soon increasing to large strong clumps, and flowering with a profuseness unequalled almost by any other American bulbs. C. albus grows from 1 foot to 2 feet high; the flowers pure white, with a purplish base, somewhat resembling those of C. pulchellus, only that those of pulchellus are golden yellow, the stem rarely more than 1 foot in height. Both are natives of California, and are in flower now. They should certainly be planted wherever space can be afforded, as their flowers are most charming, and they require no protection whatever. With most of the others, C. venustus perhaps excepted, it is hardly safe to grow them during the season in the open, unless in districts with a high elevation. Many growers of these bulbs now-a-days lift them at the approach of winter, but this trouble may be dispensed with altogether and a fair amount of success obtained if they can be planted at the base of a south wall and simply left alone. In planting we are always careful to add plenty of artificial drainage, placing a layer underneath the bulbs, and for this we find broken slates and brick rubbish very useful. Our bulbs have been out two years, and they are certainly gaining strength, while in the ordinary way we have failed miserably, even after repeated trials with strong bulbs. C. macrocarpus is a lovely flower, rich purple, with a transverse brown streak above the tuft of hairs. It was found by Douglas on the dry barren gound near the great fall of the Columbia River in June, 1825. C. nitidus rivals the above in richness of colour; it was found on the Blue Mountains in the same year. C. cæruleus, elegans, and Maweanus also have pretty flowers, only surpassed by the exquisite lemon-yellow C. citrinus. C. luteus, venustus, splendens, flavus, and many other equally beautiful species are all well worth a trial, and if patience be exercised, a group of plants will be added to our collections unequalled for beauty and elegance.—K.

Hardy plants.—All kinds of hardy plants in gardens are making almost tropical-like growth under the constant rains and cool weather which have so long prevailed. Just as these things are thus thriving, tender and summer plants are becoming demoralised by developing leafage instead of flowers, and the promise of bloom is not a good one. The hardy plants had a bad time of it last year, and very many things which had stood through previous summers very well were absolutely dried up. Now they are recuperating in the cool temperature by making such luxuriant growth. Whether such leafy development will prove advantageous when the hard weather comes is uncertain. We may, however, get a warm, dry autumn, and if so, all plants will be strengthened before the growing season is over. Pansies generally have done remarkably well, but some of the strong growers which produce hollow or pithy wood show a tendency to damp off. The best average forms to stand all sorts of weather are invariably those which throw up an abundance of shoots from the base of the plants. The work of dividing and replanting all kinds of hardy stuff for market sale goes merrily on without hindrance, and undoubtedly the quantity of stuff on sale next autumn will be remarkable. In spite of the exceeding rainfall, slugs give much less trouble than usual. Possibly the drought of last year checked their breeding. The little black beetle, better known as the Turnip fly, but which has now disappeared, proved most harmful to seedling plants ere the rain came. After so much of cloudy and gloomy weather brilliant sunshine will prove very trying to all kinds of vegetation, but at least can hardly check growth materially, as we have rarely of late had the soil so moist in July as it is now.—A. D.

SHORT NOTES.—FLOWER.

The orange-scarlet-flowered Geum (G. miniatum) is still flowering, and the length of its season is one of its strong recommendations. We have here a most useful border plant.

Double-flowered Dropwort (Spiræa filipendula fl.-pl.).—This fine old border plant is flowering with the greatest freedom in Messrs. Paul's Broxbourne nursery. Its plumy panicles of creamy white flowers are exceedingly handsome.

Heracleum persicum.—The Cow Parsnips give us a type of leafage vigorous and imposing, and have a good effect when naturalised in rough, semi-wild places. A large group of the above named kind forms a conspicuous and pleasing feature in the pleasure grounds at Goodwood. The leaves are several feet long and there are some enormous flower-stems 6 feet high with centre umbels 1 foot across.

Ixia viridiflora is quite hardy at Dangstein, growing freely and flowering abundantly. The novel sea-green colour of this Ixia and the rich indigo marking around the inside base of the petals are pleasing and beautiful. For cutting, the flowers are very useful. If cut in the bud the flowers open, but seem to prefer the sun, opening in the daytime and closing at night. Flowers cut and put in water remained closed for several dull days, but when the sun shone forth they opened.—A. H.

Calochorti.—The extremely handsome form shown at the meeting of the Royal Horticultural Society on the 26th ult. as C. venustus, but which Mr. George Paul thinks to be C. luteus, is so beautiful, that it is no wonder it attracted so much attention. The pale yellow flowers are so handsomely marked and so large and striking, as to resemble those of a magnificent Orchid; unfortunately, but few can grow it.—R. D.

Sparaxis pulcherrima, a plant rarely met with, is now in flower at Dangstein. The foliage is very much like that of the Gladiolus, but longer and narrower. The flower-spike rises to a height of 4 feet and at first resembles a tall Grass in its graceful

arching form and long pointed buds. The rosy-pink flowers, deeper on the outside, and produced on little branches which are pendulous, are nearly as large as those of a Gladiolus, but more regular in shape.

Golden-leaved Creeping Jenny is bright on the rockery now, even though there are many plants in summer dress. It is as easy to grow as the common green-leaved type.

French Willow Herb (Epilobium angustifolium) is just now at its best, and as a plant for the back of a wide border or surmounting a bold rootery we can have few better hardy flowers than this old favourite. But the white variety should also not be forgotten. It is a charming, graceful, and white-flowered herbaceous plant, that may have a choicer place than that usually given to the type.

PYRETHRUMS.

It has been remarked that Pyrethrums will grow in any soil. I have seen them doing as well in a light sandy loam as in a heavy clay. At Langport, where they are largely and finely grown by Messrs. Kelway and Sons, the land generally lies low and the soil is somewhat heavy, but that they do well there and also produce fine blooms, there can be no doubt. This was abundantly proved at a late meeting of the Royal Horticultural Society, when Messrs. Kelway and Sons staged a large number of blooms in very fine character. That a light rather than a heavy soil suits the Pyrethrum best during a wet winter may be accepted as a fact, yet there is abundant evidence that plants on heavy land are brought through the winter in safety and bloom with great profusion. Of the value of the Pyrethrum for cutting purposes there can be no doubt. It is so free of bloom in the case of well-established plants, that a large and continuous supply can always be had. How large the supply is may be gleaned from the fact that Mr. Joseph Lakin, of Temple Cowley, Oxford, cut in one week from a bed of a variety named niveum plenum over 5000 flowers, and he finds they are much appreciated in the city of Oxford.

It is a curious fact that while our florists, home and foreign, have been busily engaged in evolving the double from the single form of the Pyrethrum, the single-flowered varieties are not only being appreciated, but considerable progress is being made in producing new and improved forms. Messrs. Kelway and Sons, and also Mr. T. S. Ware at Tottenham, had at the meeting above referred to single varieties of a fine character, and I think ample justice was not done by the floral committee to a pink flower shown by Mr. Ware, or a white shown by Messrs. Kelway and Sons. But things are looked at from many points of view by the members of the floral committee, all of whom, I am sure, strive to be just in their awards.

I went carefully through Messrs. Kelway and Sons' collection and set down what I thought to be the finest flowers under their several heads of colour. I commence with those having shades of crimson, and under this heading are several fine forms, such as Melton, ruby-crimson, fine form, and excellent in colour; Meteor, deep rosy crimson, very fine; Figaro, deep rose, flushed with purple, very good; Profusa, magenta-rose, very fine; Gloire d'Italie, bright ruby, very fine in colour, the petals narrow and handsomely laciniated; Captain Nares, brilliant ruby-rose, extra fine; Transcendent, lilac-rose, very fine and handsome; and Ajax, pale magenta, flushed with crimson. Of rose, pink, and lilac shades there were Herman Stenger, lilac-pink, very pretty; Dorante, bright deep pinkish rose, very fine; Magician, pink, with orange centre, very good; Minerva, pale pink; Rubrum plenum, pale rosy magenta, very pretty and good; and Gaiety, bright pinkish rose, very good. Under the head of blush are included some charming varieties, such as Mons. Munier, delicate blush; Peach, delicate peach colour, like an imbricated Chrysanthemum; Florentine, delicately tinted with blush, very pretty and fine; and La Vestale, delicate blush, very pretty indeed.

Additions are being made to the yellow or apricot-coloured varieties, and they are particularly valuable because they afford so much variety in a collection. The best are Vance, delicate flesh ground with orange centre, very pretty and distinct; Cleopatra, delicate blush with golden centre; Wega, blush with deep orange centre, a decided advance towards a good yellow variety, and though the flowers shown were somewhat poor, there is no doubt that they will be much more attractive when seen in better condition; Pericles, very delicate pink tinged with yellow; and Chamois, blush orange and bronze centre.

The double white varieties include some charming flowers. The best are Jeanne d'Arc, with slight golden centre; Mme. Boucharlat, pure, very fine; Aphrodite, pure and good; and Samvanburgh, also very good.

The leading single varieties were: Of crimson shades, Lorna Doone, rich crimson, very fine; Zelia, deep magneta-crimson; Stellabrun, deep bright crimson, very showy; Lord Randolph Churchill, bright crimson, extra fine; Leonard Kelway, bright magenta-crimson, large and showy; Merry Hampton, rich bright crimson; Arnold, deep magenta, large and fine; and Alexon, pale rosy magenta, very good. Of paler shades, Queechy, lilac-rose, very fine; Margarita, lilac-pink, very pretty; Beatrice Kelway, clear pinkish rose, extra fine; and Princess of Wales, pale pink, very pretty. The best white varieties, Princess Irene, very fine form and pure in colour, broad petals; Cabades, very delicate flesh, excellent form; Ochroleuca, pure white; and Abianus, also pure and good. R. D.

FLOWER GARDEN NOTES.

Perennial flowers.—The excessive rainfall of the last fortnight has not been an unmixed evil; in reality it has been of immense benefit to the flower garden. Of course, many flowers have been spoilt, as, for instance, Pinks and Pæonies, but the magnificent growth of many other plants that flower at a later season more than makes amends for the loss of these, for with anything like fine weather the display will be magnificent. Delphiniums are 9 feet high, while last year they were barely 5 feet. Actæa spicata, Spiræa Aruncus, Galegas, white and blue Japanese Anemones, Phloxes, Veronicas are growing strongly; in fact, almost every plant is vigorous. The extra amount of staking consequent on such an abnormal growth is not begrudged, as one feels already repaid by the splendour to follow, and which I take it will be of such a character as to convert those who have hitherto called perennials weeds, to a liking for them. In the front part of our border small plots of dwarf annuals, such as Mignonette, Candytuft, Saponaria, and Silene, were sown, and these now require to be thinned out. Summer-flowering Chrysanthemums must be pinched to induce a bushy growth, and the same in respect of annual Phloxes of the Drummondi section and Chinese Pinks.

Bedding plants.—Notwithstanding the grandeur and more lasting properties of hardy plants, these are not to be despised in their proper place, only I think it necessary to add that the best only should be used. The miserable bedraggled appearance that Pelargoniums after these rains now present makes me rejoice that we have but few of them, and if spared another year there shall be still fewer. Tuberous-rooted Begonias are just as brilliant, and withstand rain with impunity, and hardly second to these are Fuchsias, which range from 2 feet to 3 feet in height, and are already a pyramidal-shaped mass of flowers. Violas in variety are simply superb, and our ground is deep and rich, so that in the driest weather they have never yet failed us, and the only difference there is in them after all this rain is a greater luxuriance of growth and finer flowers. The varieties Hardwick Yellow, Bluebell, Countess of Kintore, and Mrs. Gray should be chosen by all who wish to have a gay garden at a comparatively small cost. For mixed beds the fancy varieties of Pansies from seeds are all that could be desired. We have quantities now in full flower raised from seed sown early in March. They are planted in mixture with Calceolaria amplexicaulis (kept pegged), Cuphea miniata, and white Violas, with Abutilons as standard plants, and the effect is charming, and will improve as the season advances. Heliotropes, annual Chrysanthemums, Verbenas, and Musk are good in all sorts of weather, and it is plants of that character only that should be used for bedding out. There would then be few complaints as to the transitory nature or lack of flowers in a bedded-out garden. Then, again, as to foliage plants, it is just as essential to have a good selection. Tree Ferns, Musas, &c., are all very well for those who are content with one month's effectiveness in the open air, and the other eleven made up of wind-torn and half-starved plants and the occupancy of valuable space in houses. Does it pay? is a question that had better not be pushed too closely. I prefer rather to use such fine-foliaged plants as do well without the expenditure of an undue amount of labour to procure them and that take up the least amount of house room. The first on my list are the Castor-oils (Ricinus), free-growing, stately, and as handsome as the choicest exotic-foliaged plants. The variety named Gibsoni is my favourite, as its rich coppery or deep bronzy leaves stand out conspicuously amongst the mass of greenery that of necessity is predominant in a foliage garden. Solanums come next, the varieties argenteum, robustum, and pyracanthum being the grandest. All grow freely and make a very telling bed either separately or in mixture. The labour of raising them is small. The seed should be sown in heat in February, and if the plants are pricked out and potted on as growth progresses, they will be ready to put out in the first week in June, and by the middle of July will be well grown. Hemp, Tobaccos, variegated Maize, giant Fennel, and the Blue Gum (Eucalyptus globulus) are all excellent large-growing foliaged subjects, and just as easy to raise as the commonest of plants, so that what are usually termed sub-tropical plants are within the reach of all having the most modest garden. As regards bedders with dwarf foliage, though grown in small quantities in most gardens, their value as aids to the effectiveness of flowering plants is not, I think, sufficiently appreciated. To me their value is such, that were I to try, I fear it would be impossible to arrange a formal set of flower beds without a free use of them. Their quiet neutral tints seem to me indispensable in bringing out the beauty of flowering plants. Of course it is possible to have too large a proportion of such neutral tints, but an excellent rule to follow to avoid such an extreme is to use them in judicious quantity. We always aim at quiet colouring, and yet a third of the whole we do not consider excessive to fill with dwarf foliage plants consisting of Echeverias, Sedums, Herniaria, variegated Thyme, Gnaphalium, Leucophyton, variegated Mesembryanthemum, and Veronica incana. Extremes of formality are avoided in all arrangements of this description by a free use of standard plants consisting of small shrubs, Dracænas, Grevilleas, Yuccas, Abutilons, Fuchsias, &c, according to what is considered the most suitable for any given arrangement.

Dahlias and Hollyhocks.—The rains have suited these also. The habit of growth of some single varieties of Dahlias, notably the gracilis type, is so dense and drooping, that it is easy to peg the plants down and thus cover a great space in a very short time. Some small circular beds here are being filled in this way. The centre plants are being trained as Dahlias generally are, and by this means the beds will shortly present a pyramidal shaped mass of flowers; others are being securely tied to their supports, but, unfortunately, not before wind and rain have played sad havoc with many of the brittle side growths. Those that have as yet lost no shoots from such a cause would do well to profit by our loss and tie up at once. Single Dahlias are a perfect plague in respect of free seeding, which process, if permitted, soon ends in the final collapse of the plants, and the surest way of preventing this is to set apart a day in each week for divesting the plants of the seed-pods. Robust growth and a continuous flowering condition of plants are not attainable other than by the application of liberal top-dressings of good manure, and the sooner these are given the better. Hollyhocks we have started to grow again this season. At present there is no indica-

tion of the disease, and we mean to try and prevent its appearance by keeping the plants in full growth, and to this end surface mulchings of good manure are now being applied. The plants we confine to three stems each, all others being cut off as soon as their presence is perceived. It should be added that manure from the cow shed is what the plants relish most, and it is also the most suitable for Dahlias.

GENERAL WORK.—To keep bedding plants free of seed vessels. To stake tall plants and stir the surface soil of the beds as soon as the weather becomes favourable. Mulch all small beds with Cocoa fibre. If this be done before the ground becomes dry the moisture will be retained for a much longer period in the beds. Indeed, it is probable that artificial watering will not be required at all this summer. To put in cuttings of Pinks, Antirrhinums, double Wallflowers, Pentstemons, and to sow Brompton Stocks, Wallflowers, Canterbury Bells, and Foxgloves. W. WILDSMITH.

Orange Lilies and Larkspurs.—What charming effects can be made in the garden at this season with these flowers alone. The contrast of colour as well as form is perfect. The tall purple spires of the Delphinium group beautifully with the spreading flat heads of the rich orange-yellow Lily. Here, then, are two common and inexpensive plants capable of producing striking and pleasing effects for a few weeks at this season. Those who contemplate planting groups of hardy flowers this autumn should not forget to plant in proximity several plump bulbs of the orange Lily and strong clumps of the best sorts of Delphinium. Plant in good deep, well-trenched soil, manure well the Larkspurs, but not the Lilies, and in the second season there would be an array of bloom as attractive as one could wish for. Let me add another word of praise for the orange Lily. It is in the estimation of many, and I share it, that it it the finest coloured Lily in cultivation, and bes suited for English gardens. But because it is common and cheap it is thought lightly of.

Myosotis dissitiflora.—This somewhat tender perennial, if its uncertain habit will admit of its being so termed, has done remarkably well this year. I have rarely seen it bloom better, especially on seedling plants. These, however, because of the drought of last summer, were few; the literal withering up of the flower-stems under its influence, ere seed could be produced, made the seed crop of last season one of the lightest, whilst dependence had chiefly to be placed on the propagated plants. No wonder seed has been dear; indeed, the wholesale cost seems to have been remarkable, and the retail price must have been exceptionally so. The propagated plants are so unreliable, that whilst they will often look admirable through the winter, they may either refuse to flower altogether, or do so indifferently. A piece of seedling plants gave four times more bloom than did a larger breadth of propagated plants. That is, however, a very common experience. In addition to getting a much better stock of seed than usual, the rains have helped to germinate apparently every dropped seed, for it is utterly impossible to harvest all ere some have been shed. We have now the prospect of securing in this way some thousands of seedling plants; whilst during not a few past seasons it has been difficult to get as many scores. Myosotis dissitiflora seed germinates badly during hot, dry weather, and what fell naturally gave but few plants. We may look for a generally fine display of this lovely Forget-me-not next spring. The white kind seeds as well relatively as the blue does, but it is scarce yet. It seems to do rather better as propagated plants than the blue variety does, which is an odd circumstance. Still, it is far better when raised from seed.—A. D.

The Iceland Poppies.—These beautiful Poppies are becoming more and more popular, and it is not to be wondered at, for they are very free and charming in colour. The three varieties, orange, white, and yellow, appear to give a pleasing variety, but I think it is possible seedlings will presently show variation in colour. An instance of this was seen at the last meeting of the Royal Horticultural Society, when a whitish sulphur-coloured variety was submitted to the floral committee, but it was an undecided colour, and the presence of a shade of green in the sulphur appeared to stain the sulphur and white, giving it a confused appearance. If we could impart to the Iceland Poppies some of the pretty shades of pink, rose and scarlet that the Rev. Mr. Wilks is getting into his improved French Poppies, the variation would be very acceptable.—R. D.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SUMMER TREATMENT.

No matter for what object Chrysanthemums are cultivated, if the highest points of excellence are to be achieved, summer treatment of the plants must form an important item at that period of the year. Chrysanthemums are frequently neglected in deferring the transfer of the plants to their flowering pots so long that the roots are so thoroughly matted together that they do not take kindly to the new soil when potting does again take place. During this time and also while the roots were running round the outside of the ball of soil in quest of fresh ground, that free growth so essential to ultimate success is so crippled and stunted that much time must necessarily elapse before growth again commences. I lately saw a fine collection of plants which showed evident signs of slight neglect at either that stage or earlier. In conversation with the person in charge, Grape thinning had needed too much attention just at a time when the Chrysanthemums required potting, so that the latter do not present quite so robust an appearance now as they otherwise might have done.

I name this instance to show that the actual necessary carrying out of details of culture cannot be put off with impunity. Another source of failure is the postponing of the removal of lateral growths until they are of such a length as to have robbed the plants of much strength, which ought to have been concentrated into the main stems. This useless development of extra growths for a time and then cutting them all off at once cannot be but injurious to the plants. Timely attention to the removal of all unnecessary growths is the right method to pursue. Watering the plants is another source of evil; giving them either too little or too much is a mistake. One more mistake is sometimes made, viz, that of allowing insects to obtain too strong a foothold before their eradication is brought about. Much harm may have then been done to the plants before this is found out. Timely attention to all details of culture is absolutely essential if the highest success is to be gained.

We will presume that all the plants are in their flowering pots and now standing in their summer quarters, being all securely fastened to stakes as supports. Twice a week the shoots should be gone over, tying those required to the supports, as those plants intended for large blooms make such rapid growth at this stage that neglect quickly causes disappointment in the loss of tops of new growth. It is at the time the plants have just made a new start into growth after the formation of the first break that they are more liable to snap off; the shoots being then so succulent, and being bent somewhat to get them into position, a broken shoot is almost sure to result if timely attention is not given to ease any ties in securing the growths. As growth progresses, shoots will sometimes appear a few inches above the soil and in many other places owing to the dormant state of the buds when a complete check was given to the plant in growth. When the first flower-bud formed, nearly all joints at one time or another push out growths, and these must be removed as fast as they are seen. Pinching them out is the best plan. Of course, the removal of suckers must be carried out as fast as they are formed, as also must all weeds be removed which grow on the surface of the soil. Any dead or bruised leaves should be constantly removed, if only for the sake of tidiness.

Watering the plants properly is important—in fact, success or failure depends upon how this is carried out. It is wise, when possible, to allow one person always to take charge of the watering of the plants. He becomes accustomed to their wants, as some varieties need more than others. The plants should never have water applied to them until they require it, particularly when the soil is of a heavy character. Tapping the sides of the pots with the knuckles is the surest means of judging whether water is necessary or otherwise. During hot days in summer, water to the roots will be required, in some instances three times. Where rain water can be had it should be used in preference to any other; but where it comes direct from wells or water companies' pipes in a cold state, as is often the case near towns, means should be taken to expose it to the sun and air some time previous to its being used. If used in a cold state a severe check may be given to the plants, as during hot weather the soil in the pots is many degrees warmer than the water from the sources named. This mode of application gives a chill to the roots and accelerates the spread of mildew, which is hard to eradicate. Water which contains a large percentage of carbonate of lime in solution is hurtful to the plants and should be softened by some process before being used. Anticalcaire, more commonly called milk of lime, will precipitate the chalk to the bottom of the tank if mixed at the rate of 2 lbs. to 500 gallons of water. If thoroughly stirred and allowed to stand for twenty-four hours it renders the water soft. Common washing soda dissolved in a small quantity of hot water at the rate of a quarter of a pound of soda to 36 gallons of water also answers as a stimulant to the plants. Water that is very hard should always be softened by some means before using.

Syringing the plants promotes a healthy growth and checks insects. Syringing is best done in the afternoon, or evening, of a hot day. During the present season our plants have not been syringed at all, with the exception of a few times during the end of May, when they were first placed in their flowering pots, the weather at that time being both warm and dry. It is only in bright weather that syringing should be done. Where the plants are numerous and placed in rows the garden engine is the best instrument to use, and the water should be directed to the foliage, both underneath and on the surface with some force, by going between two rows of plants and returning in the opposite direction. The plants then receive a thorough washing, which is better than a light sprinkle with the hand syringe. In the evening after a hot day is the best time to perform this detail, and again early in the morning, if the weather is hot and dry and without any dews. In cold sunless weather, syringing the plants should not be practised, or mildew would be encouraged, and this ought to be averted. Insects should be eradicated upon the first signs of life. Search for Celery fly and earwigs. For mildew use brown sulphur sprinkled on the foliage in a dry state. Beware also of the jumper fly.

Chrysanthemums on walls.—I lately saw in Wilton House Gardens, near Salisbury, a fine lot o Chrysanthemum plants planted at the foot of th

walls of the glasshouses. Some of the walls were low, but by thinning the growths freely and training those left in a slanting direction the plants were made to look well, and by their deep green luxuriant foliage showed that their wants were thoroughly attended to. Mr. Challis, the gardener, evidently knows the value of Chrysanthemums for walls.—E. M.

Rooting Chrysanthemum cuttings.—A few weeks ago I put several dozens of cuttings or tops of a Japanese Chrysanthemum into a broad pan to strike root and, I trust, make small pot plants next winter. I observe that, whilst every cutting in the circle close to the side of the pan has not yet made root, every one within that circle has and is already growing freely. This fact clearly indicates that ordinary clay pottery is too drying and absorbent to induce cuttings to root readily during the summer, whilst we find such outside cuttings usually doing best during the winter. Wood boxes are evidently better for cuttings during the summer than pottery, and I wish now that I had put my cuttings into a box, as then doubtless all would have been rooted now instead of but one-half the number.—A. D.

NOTES OF THE WEEK.

The rock garden at Kew.—This is now charming and full of interest, though the time of the flowering of most of the true alpine plants is past.

Two beautiful Lilies, viz., L. monadelphum Szovitzianum and L. Hansoni, come from Mr. G. F. Wilson, of Weybridge. They are noted in our report of the Royal Horticultural Society.

A seedling Begonia comes from Messrs. Rodger, McClelland and Co., Hill Street, Newry. It has large well-shaped double flowers of an extremely bright scarlet colour.

The display of fruit made by Mr. T. Francis Rivers, of Sawbridgeworth, at the Crystal Palace on Saturday last was exceedingly fine. The pot trees carried an abundance of fruit of the finest quality, and are simply grown in an ordinary cool house.

The Gardeners' Orphan Fund.—The paragraph in your last week's issue in reference to the election of the Gardeners' Orphan Fund was communicated without the knowledge or authority of the committee, and is incorrect.—A. F. Barron, *Hon. Sec.*

Veronica salicifolia.—This is a distinct Veronica, which many people grow in a pot. Planted out in the open border at the Episcopal Palace, Chichester, it has grown into a large specimen 4 feet high and as far through, and in a few days will be a perfect sheet of bloom.

An old Aristolochia with a new name was shown from Kew at the meeting of the Horticultural Society on Tuesday. The well-known A. ornithocephala, perhaps the commonest of the genus, is now called A. braziliensis; therefore if this name appears in plant catalogues, cultivators will know what it stands for.

Quercus austriaca sempervirens.—If appearances in a young state are reliable, this will prove a distinct and useful Oak. A promising batch was noted at Sea View Nurseries, Havant. The leaves are large, deeply lobed and the tree is said to be evergreen. A truly evergreen Oak with a type of leafage similar to that of the common Oak would indeed be an acquisition.

We learn that the fourth annual convention of the Society of American Florists will take place in New York, beginning August 21 next, and continuing for three days. There is every reason to believe that the attendance of representative growers from all parts of the United States will exceed that at the Chicago and Philadelphia meetings, where over 600 were present.

The Sweet-scented Verbena (Aloysia citriodora).—In the Chichester district this popular and sweetly-scented plant proves hardy against a wall. At Salthill Park there is an old specimen, and although the young wood dies back in winter, the main shoots live and grow strongly the following season. A spray or two of this plant used with cut-flower arrangements imparts a delightful perfume.

The National Rose Society's catalogue.—A supplement to the National Rose Society's descriptive catalogue of exhibition and garden Roses has just been issued to members of the society, and contains the names of twenty-three additional varieties recommended for exhibition, with twenty-eight garden Roses. It is satisfactory to note that thirteen of these selected Roses are from English raisers, no less than six, and these the best in the list, coming from Mr. Bennett.

Albuca Nelsoni.—Not one of the Albucas can be recommended for general culture except this one, the finest of the genus, so far as is known, and a very handsome plant. It has a flower-spike a yard or more in height, bearing on its upper part numbers of pure white flowers 2 inches or more across and unfolding successively, so that the plant remains two or three weeks in bloom. It has a bulb like an Ornithogalum, and, like it, is of very simple culture in a greenhouse.

Thymus Serpyllum coccineus.—This new alpine, now in flower in the York Nurseries, is very charming. Its brilliance will attract even the most careless passer-by, while for habit and freedom of flowering it is all that can be wished. The blossoms are deep crimson-purple and last well. It can be strongly recommended to all who have a garden. For rockwork, dry banks, or borders it is very suitable, and will be much sought for, presenting when established one mass of bloom. This is one of the many plants for whose introduction we are indebted to Mr. Backhouse.—Jno. Telfer.

Tomato Hackwood Park Prolific.—This Tomato alone is grown at Barnham Nurseries by Messrs. Marshall. In the Brighton market Tomato Hackwood Park realises 1d. per lb. more than any other sort. This is said to be owing to its superior flavour. It is also handsome in appearance and a good cropper. At Barnham, after the forced Roses are turned out, the houses are planted with this Tomato, and there are now to be seen enormous crops of fine fruit.

Carnation Barnham Beauty.—This is a tree variety which was raised at the Barnham Nurseries. In colour it is a cerise-red and the petals are beautifully fimbriated. It is extensively grown for cutting by the Messrs. Marshall. A batch of 500 plants was noted that had been in flower since October last, and during that time over 5000 blooms had been cut. At the present time there are thousands of buds unexpanded. As a perpetual bloomer Barnham Beauty bids fair to rival Miss Joliffe.

Abelia floribunda.—This charming Mexican shrub, which I noted when in flower a short time since in the greenhouse at Kew, is now in bloom there against one of the walls. It does not, however, look very happy under the circumstances, and I really think it hopeless as an open-air shrub; the more the pity, seeing it is so beautiful and so different from others. Canon Ellacombe or Mr. Ewbank might grow it well in their favoured gardens, particularly in the Isle of Wight; but, like many other things that flourish, we cannot enjoy it outside around London.—G.

The North American Wistaria (W. frutescens) will not bear comparison with its Chinese relative, the common W. chinensis, but as it comes into bloom after the other is over, it is noticeable and interesting to those who like trees as much for their rarity as their showiness. The growth of the American Wistaria is a good deal like that of the Chinese kind, and the flowers are borne in the same way, but on shorter and denser spikes. They are deep purple, very fragrant, and instead of drooping they are almost erect. Though a native of the Southern States, Virginia, and elsewhere, it is quite hardy here, and thrives at Kew as a standard as well as against a wall. It has been in bloom during the past fortnight.

A new Passion Flower, a hybrid between the lovely P. kermesina and the hardy P. cærulea, is now in flower at Kew for the first time. It combines in a striking way the features of its parents in foliage as well as in the flowers, which are larger than those of P. kermesina, have longer and broader petals, while the fringe, which is short in P. kermesina and long in P. cærulea, is between the two in the progeny. In colour it differs most, and one can see that the blueness of P. cærulea has been infused with the clear carmine tint of P. kermesina. The hybrid has, therefore, lost in a degree the delightful tint of one of its parents, but has gained from the other a sturdier growth and freer flowering habit, and, what is most important of all, a less tender constitution. It is believed that it will prove quite suitable for greenhouse culture, and we need hardly say what a valuable addition it will be, seeing how few among the numbers of Passion Flowers there are in cultivation that are suitable for greenhouse culture. The plant may be seen in full flower in the tropical Water Lily house (near the Palm house), where it festoons the roof in a most beautiful way, the long, pendent shoots being covered with bloom. The name of this novelty will, we understand, be Passiflora kewensis—an appropriate one, we think, as it will serve as a record of its origin.

Hume's Coral Tree (Erythrina Humei) is the most brilliantly coloured among all the stove plants at present in flower at Kew. A specimen of it in the Palm house has scarlet flowers as vivid as a soldier's coat, and is an extremely striking plant. The foliage is like the better-known E. indica (of which the variegated E. Parcelli is a variety), and is, therefore, elegant. The flower-spikes rise well above the foliage, are erect, and bear numerous curiously shaped flowers, which last in perfection a long time. It is a wonder that such a brilliant plant should not receive attention from nurserymen, seeing that it is such a capital stove plant and flowers at a season when there is not a great amount of bloom. It is an old introduction, having been figured many years ago in the *Botanical Magazine* as E. Caffra. It is a native of South Africa, where it forms a tree 30 feet or 40 feet high.

Momordica involucrata is a climbing plant of the Gourd family that commends itself to our notice on account of its graceful growth and the uncommon colour of its exquisitely shaped flowers. The plant referred to festoons the roof of the tropical Water Lily house at Kew. It has long, string-like shoots, which fall from the main stem like an elegant curtain. The flowers are about the size of a crown-piece, cup-shaped, and of a pale nankeen colour, much like that of the buff Lily (Lilium testaceum). There are not many Cucurbitaceous plants suitable for general culture, but this is, we think, deserving of it. Its flowers may be succeeded by fruits as ornamental as the flowers. No doubt it is yet rare, but we hope to see it oftener.

A conference of fruit growers is in course of arrangement, and a committee, including several leading fruit growers, has been formed to make it a thoroughly practical and useful project. It will be held at the Crystal Palace on September 7 and 8 next, in conjunction with the fruit show. The object is to concentrate attention upon the importance of extending and improving the culture of fruit in this country, and to elucidate by the means of papers contributed by practical men, and by discussion, the most profitable methods of developing this industry. It is proposed that the questions to be discussed shall include the profitable culture of fruits for market and home supply, the packing, carriage, and sale of fruits; their economic importance and utilisation. The directors of the Crystal Palace Company will afford every facility for the proposed conference, and assist the promoters in rendering it of national utility.

Olearia insignis.—This is one of the most remarkable, as it also is among the handsomest New Zealand shrubs yet introduced. It is in flower for the first time in England (perhaps in Europe) at Kew in the Cape house. Its flowering has been awaited for some time, as it has been described as being a finely flowered plant. It is a difficult subject to describe, as we know of no plant with which to compare it. It seems to be a shrub or sub-shrub, has large ovate leaves, 6 inches long and proportionately broad, of very thick, almost leathery, texture, covered on both sides, but particularly the under, with a dense white tomentum or white mealy substance. The flowers are in form like those of some British Composite, a Carduus, for instance. The globular involucre is of silvery whiteness, on account of the meal, and the flowers are also silvery white, spreading out in a symmetrical outline for about a couple of inches, and they look as if they would last in beauty for weeks. We have not for a long time seen a plant so distinct and possessing such a peculiar quiet beauty, and

should it prove as hardy as its relative, Olearia Haasti, now a common hardy shrub, what a valuable addition it will be. If not hardy enough to stand in the open, it may succeed with wall protection.

Habranthus Andersoni is a plant about which one hears and reads a good deal, and which is generally eulogised in rare plant lists, but seen in bloom it is somewhat disappointing. In growth it is like a Zephyranthes—in fact, it strictly belongs to that genus. Its flowers are small, globose, and of a curious tinge, best described as copper-red. The stalks rise about half a foot high, and are also ruddy tinged. It comes from Monte Video, therefore only half hardy. It has been in flower for some time among the many beautiful and rare plants in the Cape house at Kew.

White Lilac in July will to most people appear to be out of season and not required, but Mr. Drost, of the Kew Nursery, Richmond, does not appear to think so. He helps to supply Covent Garden, and till now there has been a demand for it. He showed a specimen of it at the Richmond show last week. It was a large plant, carrying numerous clusters of pure white bloom and pale green, half-developed foliage. It had all the appearance of forced Lilac at Christmas, but it must be called retarded Lilac, not forced. We imagine there is more art required in thus retarding Lilac bloom till July than in forcing it for Christmas, but the mode of doing it is best known by Mr. Drost. If he finds it pays him, why should he not do it? but on the face of it it does seem absurd. We shall soon be having Lilac bloom the whole year round, seeing that the earliest comes into bloom in October and November.—W. G.

Hydrangea paniculata grandiflora.—This shrub is grown in great perfection as standard bushes in the Coombe Wood Nursery. We have never before seen it so finely flowered, the pyramidal trusses so large or so numerous. The standards have clean stems from 3 feet to 5 feet high and the heads vary from 3 feet to 4 feet across. Some of these were shown by Messrs. Veitch at the Richmond flower show last week, and intermixed with Japanese Acers, graceful Grasses, and other foliage, they made a most beautiful group, which was the centre of attraction. The value of this Hydrangea as a greenhouse shrub in pots is not known generally, but at this season what finer effect could be produced than a group of well-grown specimens such as those described. The value of the standards is chiefly that of giving relief to the outline of groups of dwarf bushes, which should be grown as well as standards.

The Japanese Storax (Styrax japonica) is an extremely pretty shrub in flower, and one cannot help noticing it among others because of its distinctness. The only plant that reminds one of it is the old Solanum jasminoides. It is a deciduous shrub, very twiggy, and has many leaves. The flowers are white and hang abundantly on slender stalks like tiny white bells, so that the effect of a large bush in bloom is very pleasing. In the Coombe Wood Nursery it is quite hardy, and Messrs. Veitch have exhibited it on several occasions lately at wide intervals, so that it must last in bloom a long time. It is an excellent companion plant for S. Obassia, which was shown from Coombe Wood a month ago. The American Storax (S. americana) is in flower at Kew just now, but it is not nearly so pretty as S. japonica; its flowers are white and somewhat like those of the other in form, but they are not so abundant, and this variety is not to be recommended for general culture.

Spiræa grandiflora.—This is without doubt a good thing, a shrub that should be taken in hand by some enterprising nurseryman and made known. It should be compared with S. sorbifolia and Lindleyana, for it comes in the same group, having long, pinnate leaves. It is dwarf in growth, reaching to about the same height as S. sorbifolia (not nearly so tall as Lindleyana). Its leaves too are green, not bronzy green, as in sorbifolia. The flower clusters are borne in the same way, that is, terminating the upright shoots. They are branched and the flowers are white, fully twice as large as those of sorbifolia. It flowers much earlier too, for while sorbifolia is only in small bud, and Lindleyana is not even showing for bloom, grandiflora is in full flower. It is an extremely graceful and showy shrub, as may be seen by the specimens at Kew (near the temperate house), where all three kinds are growing together. S. grandiflora also goes by the names of S. sorbifolia grandiflora, S. Pallasi, S. alpina, and S. davurica. It is a native of Siberia, therefore hardy beyond a doubt.

DESTROYERS.

THE PLAGUE OF GRUBS.

The ravages committed amongst all kinds of fruit trees this year by the caterpillars which have appeared in such numbers are causing inquiries to be made amongst fruit growers and gardeners as to the nature of the scourge. It is commonly known as blight, but not one person in a hundred, even amongst those whose calling brings them frequently into contact with this pest, are acquainted with the economy of the insects which cause such extensive damage, resulting in so great a loss to the fruit grower. This is to be regretted, because an intimate knowledge of the enemy and the mode of its attack is more than half the battle towards preventing or remedying the evil. Surely the loss sustained by fruit growers this year will induce them to study the habits of their enemies, or at least to take heed to the teachings of those who have studied them, and apply the remedies recommended for preventing a recurrence of the plague of this year. It is both an easy and interesting study, and cannot fail to be profitable, if only to dispel the absurd notion that these pests come in the air or suddenly spring into existence in a few days.

Occasionally we hear of a grower here and there who has departed from the leave-all-to-Nature plan, and has adopted measures to prevent his trees being devoured, and he has invariably reaped the reward of his labours, but the majority simply ridicule the idea that there is any effectual means of combating the enemy. It certainly seems useless to select the best kinds of fruit and plant them in quantity if we cannot preserve them from destruction.

The winter moth (Cheimatobia brumata) is by far the worst amongst the many insects which attack the Apple, Pear, Plum, and other fruits. Thousands of pounds damage have been done by the caterpillar of this little moth in some districts this year. The moth appears at the end of October, and may be found until the end of December. The males may be observed on mild evenings flitting about in the twilight, and later on if a light of any kind is carried in the garden they will be attracted to it. They are a little over an inch between the tips of the wings, which resemble very fine tissue paper. The fore wings are grey with brown markings, the hind wings paler. The female has no wings, at least they are useless for flight, being small and appearing as if deformed; her powers of locomotion are thus reduced to running, and she is very active. Herein, then, is the weak point which must be taken advantage of in adopting means of preventing its ravages. The female, to lay the eggs which are to produce the next year's crop of grubs, has to ascend the trees, as the chrysalis is in the ground when it gives birth to the perfect insect. To do this, being unable to fly, it must run up the stems, and the aim of the fruit grower must be to prevent its ascent. Various compositions are recommended for this purpose. Stockholm tar and cart grease mixed in equal proportions are used in Germany, where this moth is sometimes very abundant. This mixture is found effectual if renewed every few days, and is said not to injure the trees, but I should think some composition could be prepared which would not require renewing so often. Experiments of this kind would be worth trying. We have plenty of insecticides for killing vermin without injuring the most tender plant, and it ought not to be a very difficult matter to find a barrier of some kind, easy of application, that these wingless moths could not cross, and that should not be injurious to the trees. Between such a barrier and the soil the moths will congregate, and may then be destroyed. As each female lays 200 eggs, some idea may be formed of the amount of destruction which would take place in one night. When there is nothing to hinder them, they ascend the trees and lay their eggs on the buds and twigs. These eggs are hatched in the spring, and immediately the grubs commence their depredations. Some writers affirm that the tiny grubs exist in the buds, and that is what the birds are searching for when they destroy so many; but I am inclined to doubt this, because the eggs are not laid in the buds; their hard coating would prevent it; and the Gooseberry, which the birds are so partial to, is not attacked by this moth. I am of opinion it is the tiny morsel, the heart of the bud which is sought for. However, as soon as the buds commence to burst, the birds have a change, as the grubs just hatched provide them with food, and a few finches and tits no doubt destroy thousands in a short time. As soon as an opening is formed in the buds the tiny grubs bore into the soft unexpanded leaves and grow with the shoots. As the leaves expand the grub draws several together, forming a snug retreat, from whence it comes forth to feed, mostly during the night. The larva of the winter moth is pale green, and may be distinguished from that of the leaf rollers by having only four false legs or claspers; also by the way it forms its retreat. It does not roll the leaves, but draws several together, mostly at the ends of the shoots, where it rests in an almost circular position, the head touching the tail. Some surprise has been expressed that so few grubs are visible in comparison to the damage done, but if the trees are closely examined where badly affected two or three will be found on each shoot carefully concealed from view, and if anyone will take one of these grubs when quite small and feed it until it goes into the pupa state, he will be surprised at the quantity of leaves it will devour. When full grown—about the end of May—the grub drops to the ground, and making a case near the surface, changes into a chrysalis, remaining in this state until the middle of October, when it again changes to a moth.

The attacks of the leaf roller moths, which are also numerous this year, cannot be prevented in the same manner as those of the winter moth, and hand-picking must be resorted to. The species which is most abundant this year has grubs of a bluish green colour with black heads. They are very quick in their movements when disturbed. They may be destroyed by picking the leaves off in which they are hidden or squeezing them between the thumb and finger. When full grown they change to a chrysalis in the tubes where they have been feeding. Although of small size, when present in great numbers, as is the case this year, they commit great havoc. Another destructive little moth is the little ermine (Hyponomeuta padella), in some places known as the cobweb moth, from its habit when in the larva state of living in colonies under cover of a web, from which it comes forth at night to feed. Being so conspicuous, it is easily seen and destroyed.

A. Barker.

Hindlip.

Fruit Garden.

W. COLEMAN.

THE GOOSEBERRY.

How frequently in village lore, when the countryman wishes to express supreme contempt for some event past, present, or in the future, do we hear him say, "I don't care a Gooseberry," showing at once that the extreme plentifulness of this rich, sparkling, delicious fruit has reduced it to a level far below its real value. Indigenous to this country, it is met with in every cottage garden, in every soil, rich and poor, in high and low situations from the Land's End to John o' Groats; upon the ruins of many a time-worn castle, where the most exquisite flavour is secured at the expense of size; in private and market gardens, where hundreds of thousands of bushes barely meet the demand as soon as the fruit is large enough for gathering. Although thoroughly hardy in every point, save its early flowers, which, under garden culture, are liable to be cut off by spring frosts, the fruit is perhaps better from open market fields than from walled gardens



Gooseberry Roseberry. Engraved for The Garden.

in the south, and northern growers assure us that the best Gooseberries in the world are grown over the border. The fruit is fit for use in puddings, tarts, and for bottling as soon as large enough, and villagers vie with each other in making their first picking for Whitsunday. The cook in the royal kitchen, and every other kitchen, for that matter, from day to day says, "Give me Gooseberries," and well he may, for this is the first fresh wholesome seed fruit with which he can vary his jams and conserves of the preceding year. In course of time the fruit becomes extremely acid, at least so they say, but the advent of Currants and Raspberries puts it out for a time, or perhaps altogether, as a culinary fruit, and well it is for the connoisseur, as this respite leaves a plentiful supply for the dessert throughout the hottest part of the summer. This stage reached, all good gardeners devise sundry means for the protection and preservation of the fruit, well knowing that all classes, from the duke downward, thoroughly enjoy a good dish of Gooseberries, when Pines, Peaches, and Grapes are sent away from their tables comparatively untouched. The Gooseberry, then, being such a general favourite with the peer and the peasant, let us see what are the best soils and situations for producing flavour, the best modes of propagation, training, and culture, and then we will wind up with small selections for general and special purposes.

I said just now that the bush well accommodates itself to any situation, from the crumbling ruin to any soil, rich or poor, and so it will, but, having our choice, we eschew the very poor, and pin our faith on a good, sound, well-drained, calcareous loam capable of producing the best succulent vegetables. Upon a soil of this description the bushes attain their largest size, and, provided the surface is kept moist and cool by mulching, not only to feed, but to prolong the ripening process, the flavour of the finest fruit is but little, if at all, inferior to that produced by the bird-sown wilding growing in a heap of old lime rubble. Taking a mean temperature of 56° at the time of ripening as our working line, I would keep below it in point of fatness and moisture in the extreme north, and not much above it in the south, and then I question if the slowly ripened fruit in the north of Scotland would not be better flavoured than the forced berries met with south of London. Moisture in all gardens, north and south, must be plentiful, but not the chilling Lichen-producing vapour from cold, wet lands, in which the roots, if they do not perish, certainly cannot perform their proper functions. This moisture the mulch which I have just recommended will secure. In the north of England, where the weavers and mechanics grow such enormous fruits for exhibition, the aid of moisture is fully appreciated, as we find these enthusiasts producing slight shade without shutting out light, feeding copiously, and suckling the berries by placing saucers of water in close proximity to the snouts. But this is riding the hobby-horse to death—flavour, for which these big Lancashire sorts are not proverbial, being a matter of secondary consideration. Excellent late dessert Gooseberries can be grown on trees trained like Currants on north walls, and cordons trained up a light wire fence or trellis form a very pretty and profitable feature close to the margins of garden walks; but here they must be closely netted, as all comers feel that they may honestly rob the most conservative gardener of a ripe Gooseberry. The pyramid, again, trained and closely pinched, is a very pretty form, but the trees from which masses are supplied are grown as round-headed bushes on single stems either in long rows, or, better still, in squares or blocks for the convenience of netting from the bullfinch in the spring and the blackbird when the fruit is ripe. Propagation is easily effected by seeds, layers, suckers, and cuttings; but unless short of stock, or new varieties, of which already we have too many, are wanted, the last-named method is the best. Cuttings are put in at all times from October to March, but the best month, I think, is November, as the wood at that period is thoroughly ripe and void of superfluous sap; moreover, the heels have plenty of time to callus, and are ready to throw out their roots in the spring. Moderately strong pieces of the current year's wood should be taken from healthy trees, and if slipped off with a heel so much the better; 12 inches is a good average length, but shorter pieces will do provided they are let 6 inches into the ground, and the point bud is left to continue the growth for the formation of a straight stem. Having detached and labelled the cuttings, remove all the buds and thorns from the base upward, leaving three or four near the point to draw the sap and form the framework of the future tree; line them in rather light, rich garden soil with a spade to a depth of 6 inches, double this distance apart and 1½ feet from row to row. Tread firmly home, and the work is finished, at least for the present, but a clean stem free from suckers being not only the orthodox, but the best style, the following summer must be devoted to further disbudding, and perhaps pinching, to get the first set of branches well above the soil. When twelve months old they may be taken up and lined out to wider distances each way, and the autumn following a large percentage will be strong enough for

Planting.—Having stated that the Gooseberry will thrive in almost any soil and any temperate climate, I will take for granted the fact that the most suitable spot in any well-managed garden is thoroughly drained, deeply trenched, and rich enough for a start without the aid of rank manure; and, further, that it is not overhung by trees, especially in the north, or too much shaded by buildings. Having levelled and firmed the ground by treading, throw it into squares by drawing shallow drills each way, say 6 feet apart, more or less according to its quality; take out a hole at each angle, insert a short, stout stick in the centre and introduce the tree, keeping the roots well up to the surface to allow for settling. In sound, naturally rich soils the trees will grow without the aid of fresh compost, but in many old gardens full of humus it is a good plan to use a few spadefuls of fresh compost, than which there is nothing better than the trimmings from the roadside, with a little old lime rubble added. Bushes by the sides of walks should not be less than 9 feet apart, pyramids nearly as much, and cordons against north walls or trellises from a foot to 18 inches. Although the Gooseberry is so hardy, the young roots are quickly injured by drought; hence the importance of despatch in transferring the trees from the nursery to their permanent quarters; also, when out of the ground, of denuding the stems of every bud and sucker to prevent future trouble and mutilation. When planted, the weather being dry, a steady watering will wash the fine particles of soil into the roots, a single tie to the sticks will keep the bushes steady, and a frost-resisting mulch will put them right for the winter.

Pruning.—When bushes are well formed in

the nursery, their future manipulation is by no means difficult. The first important point, especially upon varieties of a pendent habit, however, is the formation of the first set of shoots at least a foot above the ground line, and when these have been started, the pinching of strong growths in summer and thinning out in winter will be all that is needed. When the trees get into full bearing, it is necessary to thin well, especially in the centres, first, to let in light and air, and, second, to favour the introduction of the hand when the time arrives for gathering. Pruners of the old school shorten back the tips every year, and spur in each branch to a single eye from base to point, but the finest fruit is obtained from well-ripened young wood of the preceding year; hence the advantage of cutting out a few of the aged branches to make room for the rising generation, so to speak, as there is no denying the fact that extension or semi-extension, even in the Gooseberry, tends to the prolongation of life, and the production of an abundance of luscious fruit. In the selection of trees for pyramids, a most ornamental way of growing them, those with clean, straight centre shoots should be preferred, as they take most readily to the way in which they are intended to go. Here, as in the bush, square, straight stout stakes will be needed, only they must be much taller, as there is no reason why specimens 6 feet to 9 feet in height may not be manufactured in a few seasons. The *modus operandi* is as follows: Train the leader to the stake, pinch it as often as it has made 9 inches from the last check, and avoid getting the side shoots too densely crowded; in fact, treat the Gooseberry as though it were an Apple on the Paradise, or a Pear on the Quince stock, by pinching the points out of the horizontal shoots as soon as they have grown to their proper length and by the entire removal of all intermediate superfluous growths back to a single bud. Treated in this way upon good soil well mulched, and copiously watered in dry weather, the prevention of waste of force will send the leaves rapidly upward, and trees almost, if not quite bird-proof will be formed in two or three years. Some growers inflict upon themselves a great deal of unnecessary trouble by training the shoots out to round hoops, small at the base, larger above, but gardeners who always have their hands full do not often find time for this sort of work, and if they do, I could wish it better employed, as there is no form more pleasing or useful than the natural bush and the clean-legged, well-formed pyramid.

VARIETIES.—A gardener does not experience much difficulty in writing a few columns upon the culture of Gooseberries, but when he arrives at a selection of varieties, out of the long lists now published he finds that he has left the most difficult part of his work until last. Having given select lists in former numbers of THE GARDEN, I might be excused from a repetition, but, lacking the time to look them up, I know from experience that the following, whether or not they have been named before, will not disappoint:—

White.—Bright Venus, Antagonist, Crystal, Lady Leicester, Whitesmith, Snowball, Freedom.

Yellow.—Broom Girl, Leader, Leveller, Catherina, Champagne, Yellowsmith, Early Sulphur.

Red.—Ironmonger, Keen's Seedling, Champagne, Warrington, Speedwell, Wilmot's Early, Crown Bob.

Green.—Matchless, Gascoigne, Early Hairy, Pitmaston Green Gage, Lofty, Green Walnut, Green London, Roseberry.

EXTRA LARGE GOOSEBERRIES.

White.—Antagonist, Careless, Freedom, King of Trumps, Hero of the Nile, Snowdrift.

Yellow.—Drill, Catherina, Criterion, Mount Pleasant, Leveller, Pilot.

Red.—Dan's Mistake, Beauty, London, Conquering Hero, Lion's Provider, Clayton.

Green.—Telegraph, Shiner, Thumper, Stockwell, Green London, General.

The best varieties for bottling are Rumbullion, green and yellow, Companion, Cheshire Lass, and Queen of Trumps; for converting into preserves, Ironmonger, old Rough Red, and Warrington. Small varieties make the best jam, the large ones being too pulpy. The variety (an illustration of which is here given) is not so well known as some, but it should be included in every collection, as it is one of the sweetest and most pleasantly flavoured Gooseberries we have tasted. It belongs to the green-skinned section. The fruit is of rather small size and borne abundantly.

STRAWBERRY PLANTS, OLD AND NEW.

IT is somewhat singular that east and west, which contrast rather sharply in their fruit experiences this year, should, nevertheless, have an identical record to present as to the superiority of young Strawberry plants to old. I therefore agree with all that "W. C." advances on this important matter (p. 597). But my experience carries the matter farther than that of "W. C.," for broadly I may say that, but for young plantations, our Strawberries would have been a failure. We generally keep our crops in bearing two or three seasons. This year what was looked upon as our chief supply were two-year-old plants. These lost their leaves, bloomed very sparsely, and so much of the bloom came blind, that they are not worth netting.

Fortunately, as soon as runners could be procured last season, we planted out several double rows rather closely, intending to form the plants into new plantations in rows 2½ feet apart and 1 foot 3 inches or 6 inches from plant to plant. This, however, was not done, but the young plants and their runners were left, through stress of drought and work, to form one wide bed. These furnish our supply of fruit this season.

And yet it is supplemented by some others yet more marvellous. Noticing how hard the old plants were hit in the spring, I obtained several hundred runners in April, planted them at once, watering them home. Without any further attention than the keeping of these plants clear of weeds, and rather heavily sub-cropping them with Lettuces, the majority of them are throwing off trusses of from four to six good fruits each. They have also pushed forth a good crop of abnormally early and robust runners, which will be pegged down, as "W. C." describes, as soon as the Lettuces are cleared off.

Another mixed lot of plants and runners that yielded a fine maiden crop last season is also yielding a fair, though not such a full crop this year. The point that I am anxious to emphasise is, that but for the bed of two-year-old plants, and the other of maidens but a few months old, we should have scarcely any Strawberries this season. It is only fair to add to the credit side of the account of the older Strawberries that have failed, that from a scarcity of water and of labour none of the plants were watered after the gathering of the hasty and light harvest of fruit last year. The plants were, however, tolerably well mulched with strawy litter, and though the foliage flagged considerably, none of it was scorched or burnt up by the long drought of the summer of 1887. It has long, however, been a maxim with many Strawberry forcers that for every wilted leaf, and for every time it wilts, a penalty is exacted in the form of a loss of weight or a lowering of quality in the fruit. Can it be that the general failure more or less of the out-of-door Strawberry crop of this year is but an object lesson on a gigantic scale to enforce the soundness of this maxim?

It may be, and it is certain that few plants suffer more or sooner from drought than Strawberries. But still, as the older plants have not only on the whole the most, but the deepest roots, one might suppose that the drought would be longer in exhausting their water supplies than that of young plants with their roots closer to the surface. Here, however, the moisture-conserving power of surface shade comes in to the aid of the younger plants. So potent is this power, that it has set not a few of our most experienced cultivators thinking whether after all, and especially on dry soils and seasons, the old bed system of Strawberry culture is not preferable to the single line plan that has mostly superseded it. The bed system, as brought up to modern ideas, combines the advantages of the utmost vigour of youth, a uniformly moist root-run, and a local atmosphere of vapour and shadow most congenial to the full and free development of the fruit to fullest size and highest quality.

Neither the general structure nor peculiar finish of the Strawberry fruit fit it for combating with or benefiting from fierce sunshine or a parched atmosphere. Hence the fruits are easily scorched or deteriorated through any excess of direct sunlight or of drought either in the earth or air. The unique experience of last year forcibly reminds us that the roots of Strawberries are probably as impatient of any excess of heat and drought as the fruit, and the denser shadow provided alike for root, fruit, and crowns on the bed or hybrid bed system last dry season probably accounts for their unique health and fertility this season. Assuredly there must be some potent reason for the general failure of Strawberries in rows this season, and if anyone has a more ready or reasonable one than that now set forth, it is hoped that he will forthwith declare it through the pages of THE GARDEN.

D. T. F.

Early Strawberry runners.—Where large quantities of Strawberry runners are required to pot up for forcing, an arrangement such as that adopted by Mr. Evans at Lythe Hill is very advantageous. To obviate the necessity of going to the fruiting quarters and perhaps damaging the fruit to obtain early runners, a Strawberry plantation is made and kept solely for this purpose, the blooms being picked off as they appear. The whole strength of the plant is then concentrated in producing early, healthy runners, and early propagated plants have plenty of time to make strong crowns which become well ripened, a matter of some importance for successful Strawberry forcing.

Strawberry James Veitch.—Without doubt this is the largest fruited Strawberry grown. I saw some splendid fruits of it the other day at Lingford that were both large and handsome and freely produced. Indeed, I never saw this sort in such a thriving condition before, for there are not many gardens in which it grows in a satisfactory manner. It was such a poor cropper with me, that I had to discard it several years ago, after giving it a long trial. What surprised me most was that this sort succeeded just as well in pots in an unheated house as it did in the open. The soil of the garden in question is a strong deep loam that is naturally well drained. But I noticed that the crop was much in need of dry weather, for many of the fruits were rotting away at the stem before they were ripe. Those who are in want of a large Strawberry should give this sort a trial.—J. C. C., *Taunton.*

SHORT NOTES.—FRUIT.

Pine growing at Goodwood.—We understand that the cultivation of the Pine-apple will be given up when the present batch has done fruiting.

Pine-apple Nectarine.—As a fruit always to be relied upon, unsurpassed in quality, and a good cropper, Mr. Evans, of Lythe Hill, pins his faith to this kind alone, and is perfectly contented with it.

Red Currants.—A correspondent sends us fruits of the Red Currant, to show the advantage of planting the tree against a chimney. The berries were large and excellently coloured, while on the other portion of the plant not so placed they were only about half developed.

Strawberry Docteur Morere is spoken highly of and largely grown at Goodwood. The fruit is of large size and of good appearance and flavour. The plants also bear freely. This variety also does well in the Royal Horticultural Society's garden at Chiswick.

Strawberries King of the Earlies and Noble.—Judging from these as grown in the gardens of the Royal Horticultural Society at Chiswick at the

present time, they are both decided acquisitions and valuable additions to our early varieties. They are some way in advance of other standard sorts. Mr. Barron speaks very highly of them. In these two varieties we appear to get most useful additions to our market Strawberries. Is anyone trying House's Victoria? This is said to be early, almost as early as King of the Earlies, and a capital bearer and forcer. It is claimed to be a cross between President and British Queen.—R. D.

HARDY FRUITS.

Although the nights down to the middle of June were intensely cold, the nice light rains we have had have brought about a marvellous change amongst fruit trees generally, and we are now able to form a pretty correct opinion as to the quantity and quality of the fruit we are likely to harvest. Orchards in all parts of the country, it is to be feared, will not only be extremely light, but many of the trees at the present time look scathed by maggot past recovery. This, however, is hardly likely to be the outcome, as we find a continuance of warm showery weather makes a great improvement in a few days, but in this part of the country the subsoil is still very dry, and unless heavy rain comes quickly we can hardly expect present patchy crops to swell up or the trees to form much blossom wood for another year. There are, of course, many exceptions to the scathed appearance of orchards, notably where they are well sheltered from the north and east, and, as usual, the trees in due course will begin to show more fruit than many people anticipate. In my own orchards the best crops are borne by Ashmead's Kernel, King of the Pippins, or Golden Winter Pearmain, Blenheim Orange, the never-failing Duck's-bill, Keswick Codlin, Hawthornden, New Quarrenden, Echlinville Seedling, Lord Suffield, King Pippin, Worcester Pearmain, Claygate Pearmain, Sturmer Pippin, Irish Peach, Stirling Castle, Loddington, and a few others. In the kitchen garden, where we compose the grub with lime, mulch, dig, and wash with the hose, some of the above varieties have set immense crops, and we are now busily engaged upon thinning. Many varieties of Pears apparently set heavy crops, but some of them have thinned themselves and others require relief. Our principal work amongst these has been hand-picking, washing with the hose, mulching with half rotten manure or stable litter, and watering where there is a suspicion of drought near the drainage. Strong-growing trees upon free stocks we have commenced breaking out down the centres, but I do not care to push this work, as I find it extremely difficult to induce early stopped shoots upon our cold heavy soil to form and ripen flower-buds by the end of the season. Upon lighter and warmer soils the result is altogether different, but then in specially favoured districts the Pear upon either stock will fruit profusely under almost any treatment, a fair proof that one hard and fast line cannot be drawn in every garden throughout the kingdom. Only the other day I saw a great number of most beautiful pyramids 10 feet or 12 feet in height upon strong soil and worked on free stocks, bearing good crops of fruit. Formerly they were pinched and repinched to three or four leaves upon each shoot, but bearing fruit was the exception, certainly not the rule. Now under root-pruning, liberal thinning of the too crowded branches, and allowing the others to go, the health and fertility of these fine trees are completely changed.

Peaches

upon open walls have been more or less attacked by green fly, the oldest and deepest rooted trees proving most obstinate, but at last—thanks to soapsuds—they are quite clean, carrying plenty of fruit and growing freely. When Peach trees are attacked by aphis, and cold, late springs are unfavourable to quick growth, it is the too common practice to foster the false idea of getting rid of the enemy by the removal of the infested shoots, but this process only aggravates the evil by checking the already too tardy flow of sap and exposing the tender fruit to cold winds. In such cases, insecticides being absolutely necessary to a clean bill of health, it is best to defer all disbudding until the trees are clean, and then carry it on by easy instalments. The ripening of the crop may be retarded for a week or two, but then the trees are saved, and extra attention to laying in a thin spread of shoots invariably ensures ripe wood. Other methods there are of hastening growth in late unkind seasons, such as washing well with warm water early on bright afternoons and drawing the litter off the roots on fine mornings to let in the sun and replacing it a few hours later. All these operations may appear irksome, but really they are not so, and when the wall man has his work at heart he will find time, as well as ways and means, for carrying his crops and trees to maturity.

Apricots.

When these are carrying full crops of fruit the borders should be well mulched and liberally watered, for of all the trees with which I am acquainted the quick perspiring Apricot is first to show any irregularity when stinted for root-moisture. The surface roots no doubt are most active, and very often finish up the crop under the ordinary rainfall, but the deeply seated roots have their office, and unless they are well supplied to and through the drainage, paralysis in the summer and bud-dropping in the early spring must be expected. All breast and spur shoots should now be well pruned in not only to get rid of every vestige of maggot, but also to increase the size of the fruit by this time finished stoning. Where strong shoots have started from the main branches, all vacancies may be filled by nailing in a few of the best, as these, when properly ripened, give the finest fruit, and not unfrequently come in useful for taking the places of old and unsightly branches. Thinning, as a matter of course, is finished, but any of the clusters proving too crowded, a few more fruits may yet be taken for use in the kitchen.

Cherries,

as though they were compensating for extra trouble with Peaches, are unusually clean and free, and the fruit, a very heavy crop, shows no sign of dropping. I do not often mulch trees on north walls, but this year have done so heavily to save the labour of thinning. Once upon a time I pegged or nailed in the young shoots, but having pinched all superfluous growths I now allow those left to grow out from the wall until the time arrives for the winter training. By adopting this plan the points get thoroughly cleansed by rain, are handy for dipping in the event of fly becoming troublesome, and, independently of a great saving of labour at a busy time, they mask the fruit from birds before and after the trees are netted. Sweet Cherries are equally prolific, but the points of some have required dipping. Black fly, however, seems unusually weak and inactive, and this lethargy I put down to the credit of soapsuds used whenever it can be applied without doing injury to the fruit or flowers. Soapsuds, diluted, does no harm to the green swelling Cherries, always provided the trees are well hosed with clear water the following morning, but winter is the time for laying on sharp and strong, as every old nail hole and faulty joint can then be glazed with a film of soap and soda. To the use of the same home-made insecticide and stimulant I attribute our freedom from caterpillar upon

Gooseberries and Currants.

Once these trees are attacked and left unheeded, every leaf is soon destroyed, and the fruit is rendered sour and worthless. The enemy, moreover, descends into the ground and walls and returns in stronger force the following season. Here, again, winter is the season for washing, but at any convenient time before the buds begin to swell the removal of the loose surface soil to the fire pile should precede a good dressing of quicklime, not from gas-works, to be washed in by the rain and suds and eventually covered over with a thin layer of compost. Some gardeners who scrub and scour all the year round in their fruit houses too often neglect these humble fruits, and yet I question if the loss of any crop can create a greater gap in the gardens occupied by the poor or wealthy. Currants, both Red and White, should now be carefully netted. But before the nets are put on it is a good plan to ensure a free circulation of warmth and air by shortening back the shoots and the removal of some of the centre growths from large old stool-formed bushes. Younger trees on single stems may require pinching and manipulating to keep them in form, but being full of vigour as well as the producers of the finest dessert fruit which it may be desirable to keep a long time, this end can best be secured by the retention of plenty of good foliage. Gooseberries with us are the heaviest crop we have had for years, nets for a few weeks having kept the trees secure from bullfinches. The stakes and wires remain breast high, but the nets are housed away for use when the fruit begins to ripen. But why house the nets? When breast high a man can get beneath them to gather the green fruit. Well, once the crop is set we like to let in small birds, and none are more welcome than the inoffensive hedge sparrow. The house sparrow with some is under the ban, but having to net my Peas, I let all the young fly, and in an adjoining orchard the parents have destroyed millions of grub amongst my best Blenheims.

Strawberries.

Whatever course is pursued for the protection of the fruit from slugs and snails, the work should now be finished, and the early beds at least closely netted. Many old beds this season will not pay for netting, but young plantations, as I have recently stated elsewhere, are excellent. British Queen, Doctor Hogg, President, and Paxton, although rather leafy, are loaded with fine fruit, and others which I might name are very little inferior. The fine rains we have had have put an end to the possibility of blindness from drought, the whole and sole cause of so many failures this season, but for all this I shall never again trust to the best of beds after the third year. Planting good autumn runners in May in deeply trenched ground is my future plan, and every runner pegged out right and left as well as the parents will fruit profusely the following year. I do not cut the wires unless the runners are too numerous, but bury them lightly with fresh soil in the autumn, and the weather being dry give plenty of water. Vicomtesse Héricart de Thury having misbehaved herself in some places, some will now be looking out for something equally early. Well, they may go heavily into La Grosse Sucrée, and a very early sort grown by Mr. Crump at Madresfield which he calls Early Prolific. The fruit is of full average size, a bright colour, and fairly good, but not equal to La Grosse in quality. It is infinitely superior to the long-waisted Pauline, but Mr. Crump has not got on well with it in the forcing house. I intend to destroy the last-named, but the other three will occupy a good breadth upon a warm south border. Sir Joseph Paxton already is showing signs of mildew, a relic, no doubt, of the past year, and also another proof that Strawberries should not be kept too long upon the ground. Although water is a powerful agent in keeping the beds free, it will not stop mildew when once established. Sulphur, however, is cheap enough, and being the best and least objectionable destroyer of the fungus, it may be freely dredged amongst the plants up to commencement of colouring, when, in the absence of rain, a thorough washing with clean water will cleanse the fruit perfectly. Layering may now be commenced and continued until an abundance of plants for forcing and turning out is secured. Whatever their future may be, it must be borne in mind that keeping them in very small pots until they are tightly root-bound does not improve the plants; hence the superiority of small cubes of stiff turf for open-air plants, and the fruiting pots at once for those intended for forcing.

Figs.

Where the shoots have been thinned out and regulated to taste, but little, if anything, more will be needful until the fruit begins to ripen. If close training is in favour, the shoots should be laid in thinly, and any that can be dispensed with when the crop is gathered may be closely stopped to throw size into the fruit, and at the same time to make more room for those from which the next year's crop is to be secured. These, by the way, must not be pinched, as second growths rarely ripen in the

open air. Promising fruit generally, I believe, is plentiful and fine, and the acceptable rains of the past month have put an end to all cavil as to the good or harm derived from artificial watering.

VINES.

The culture of outdoor Vines, thanks to cheap glass and neglect, has become almost a dead letter. This, however, should not be the complaint, as, independently of the fact that well-managed trees on warm walls and gables do ripen good fruit, there can exist but one opinion that the Vine is one of the most graceful climbers met with in this country. The cause of failure in the majority of cases originates in the practice of laying in too much wood in winter; whereas, were the rods well shortened to ripe buds and trained at least 2 feet apart, there would be ample room for laying in fruit-bearing shoots and giving the bunches the full benefit of light and sun-heat absorbed by the wall. It matters but little whether the dormant rods are trained horizontally or vertically; indeed, it frequently happens that doorways and windows in a dwelling-house render the two courses an absolute necessity; but once the foundation is laid, disbudding and pinching to the first joint beyond the bunch are quite as essential as stopping and tying out in a vinery. The summer shoots should not be less than 1 foot apart, trained upwards in preference to downwards, and none of them should be allowed to carry more than one cluster each, which, by the way, cannot be kept too close to the wall. The thinning or cleaning of the bunches again is an operation which very few put in force, and yet the removal of stoneless berries from good sorts, as well as the close pinching of all laterals, form very important factors with those who succeed. If cottagers, amateurs, and good hothouse gardeners upon looking round find that any one of these details has been neglected, they must waive their claim to credit for having tried their best, provided they fail.

THE ORCHARD.

The widespread failure in this department will not justify neglect, but quite the reverse; it will necessitate closer attention to daily details, and most especially to the destruction of insects. Where grub has been unusually troublesome, the ground beneath the trees might be well dressed with soot and quicklime, two stimulants which washed in by the rain will do no harm if they do no good in destroying this pest. Leaving the trees and their destroyers alone and trusting to Providence plainly does not pay, but whether this plan or greasing the stems early in the spring has any merit I am not sufficiently experienced to say. Where young trees, as is the case in some parts of this county, have been completely denuded of their foliage, or others more or less injured are carrying fruit, I would suggest a good mulch of rotten manure over the soot and lime, also liberal thinning, otherwise it is doubtful if the first will recover or the second carry a single Apple to perfect maturity. Speedy restoration to full leafage, as I have stated elsewhere, is a matter of life or death, and those who wish to succeed must give timely attention to the roots. The weather having been so favourable, grafts have started much better than they did last year, and look like making a most vigorous growth. The stems, too, are breaking plenty of their dormant buds, the best of all proofs that the roots have not been checked beyond recovery. Good two-year-old scions, and plenty of them, having been used, these will hold their own against all stem spray—at least, this is my experience. Those who think differently will check or rub them off as they appear. Vigorous young trees whose limbs are not too large for whip grafting will require the stem shoots pinched to force some of the superabundant sap into the small horizontal or pendent branches, whilst the ties or ligatures—by this method necessary—will be the better for slackening with a view to their ultimate removal. Many people draw the point of the knife down the ties and leave them to unfold as the clay separates, but I prefer taking off the clay and rebinding somewhat loosely to prevent the loss of grafts by wind before the newly-formed sap wood is properly hardened. Close disbudding in the propagating nursery proper, as a matter of course, is practised everywhere, but I am not quite satisfied that close pinching would not answer better, especially where maidens the length of fishing-rods are not considered the acme of perfection. W. C.

TREES AND SHRUBS.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Laburnum.—No description is required of such a well-known tree as the Laburnum, a tree absolutely indispensable everywhere where ornamental planting is attempted; therefore I need only direct attention to the best sorts. That there are good and bad varieties of Laburnum is known to all who pay the least attention to ornamental trees, and this arises chiefly from the fact that seedlings have been raised in nurseries and distributed therefrom without due care having been taken to select the best sorts, for, as with our other plants, a seed-bed of Laburnum yields good and bad forms. The worst kinds are those in which the habit of the tree is straggling and thin in growth and the flower racemes short and thin of bloom, while the best sorts are those of dense and compact habit, with long and dense



Laburnum vulgare quercifolium. Flowers and seed-pods.



The Scotch Laburnum (Laburnum alpinum). Flowers and seed-pods.



Laburnum vulgare. Flowers and seed-pods.

racemes of bloom of the richest shades of yellow. There are many named Laburnums, and of these the finest are undoubtedly the following. That named Watereri or Waterer's Laburnum is the finest as regards bloom, the spikes being very long (measuring a foot or more), and the colour the brightest yellow. It is also of excellent habit and very free-flowering. Parkesi has also very long racemes, and may be identified by the deeper yellow flowers; Carlieri and grandiflorum have good flowers, while those named quercifolium (Oak-leaved) (see illustration), bullatum (wrinkled leaved), and others are remarkable for peculiar leaves. There are also a golden-leaved form (aureum) and one with variegated leaves (variegatum), but these are not remarkable. The drooping variety (pendulum) is a graceful tree, the branches very decidedly of a weeping habit, while that named serotinum comes into bloom later than the ordinary kinds, and yet another called autumnale is said to flower habitually in autumn, but of this I have no actual knowledge. There are several other named sorts, as many as twenty being enumerated in catalogues, especially those of Continental nurserymen. A tree so common and so beautiful as Laburnum vulgare is obviously not always planted discreetly. Very many gardens are overdone with it, being dotted about everywhere, so that in flower time it is quite painful to see such a monotonous array of yellow blotches. As with other very showy flowered trees, considerable taste and judgment are required to plant the Laburnum effectively. Instead of dotting it about in a meaningless way, decided and distinct groups should be planted in widely separated spots, or, at least, where from any point one cannot see the tree repeated more than once. It is a very strong colour on the tree planter's palette, and it should always be toned down by less pronounced tints. A variety of effects may be made with the Laburnum, one pleasing mixture being with Copper Beeches, purple Hazel, ornamental Cherries, and Thorns. The Laburnum is so totally indifferent as to soil or climate, that no one need take these conditions into consideration before planting it. Some raise their own Laburnums, but, as I have pointed out, this practice is accountable for the many bad sorts one sees at flowering time, and as the best sorts are cheap in good nurseries there is no necessity for raising seedlings. It is best not to plant too large specimens of Laburnum, for few trees are so difficult to transplant successfully when large. Other species of Laburnum are L. alpinum (see illustration), the so-called Scotch Laburnum, a most valuable kind, inasmuch as it begins to flower usually when the others are past, and this is why it is to be recommended. It may be recognised by its broader and deeper green leaves, and by the very rich yellow of the racemes, which are longer than those of the ordinary sorts of L. vulgare. There are of L. alpinum several named varieties, among them being a drooping kind, pendulum, and fragrans, the latter said to be more strongly scented than the type. A strange and very curious Laburnum is L. Adami, which has been so long a puzzle to botanists, who even now cannot satisfactorily account for its peculiar character. It is supposed that it originated by grafting the purple-flowered Cytisus purpureus upon the common Laburnum, a graft hybrid being the result. The same tree, and even the same branch bear racemes of both yellow and purple flowers, and sometimes the colour is a dull purple, as one would get by mixing yellow with purple. Such a singular and beautiful tree will always be a favourite.

Lardizabala biternata.—A very handsome evergreen climber from Chili, hardy enough for wall culture in the south and coast districts. The foliage is a deep green, and the leaflets are of thick texture. Along the south coast this makes a dense and beautiful wall covering, reaching a height of 20 feet or more. The flowers, which are purple and inconspicuous, are seldom produced in the open air. It should be planted in light or well-drained rich soil.

Ledum (Labrador Tea).—The best of the few species of Ledum grown in gardens is L. latifolium (here illustrated), which represents the genus well. Its usual height is under 2 feet, but sometimes it reaches 3 feet. It is dense and compact in growth, has small dull green leaves which are rusty brown beneath. During the latter part of May it bears dense clusters of small white flowers, which being abundant are showy.



The Labrador Tea shrub (Ledum latifolium); natural size.

It is a very old garden plant, and brought from North America more than a century ago. The Canadian form of it (canadense) is found in some gardens, but does not differ materially from the type. A form called globosum is finer, as the flower clusters are larger and more globular. L. palustre is commoner in gardens than L. latifolium, but being smaller in every part is much inferior. It is dwarf and spreading, and its flowers are white. A native of both North America and Northern Europe. The Ledums thrive best in a peaty soil or sandy loam, and are usually included in a collection of the so-called American plants.

Leiophyllum buxifolium.—The pretty little Sand Myrtle of the sandy Pine barrens of New Jersey is a very dwarf, compact shrub with evergreen leaves resembling those of the Box. The flowers are small, white, and borne in dense clusters in early summer. It is generally planted on the margins of peat beds with other American peat-loving shrubs, but it is also a capital plant for the rock garden. It must always be planted in peaty soil or sandy loam. It is generally known in nurseries as Ledum buxifolium (the Box-leaved Ledum).

Lespedeza bicolor.—The correct name for the beautiful Chinese shrub usually called Desmodium penduliflorum in gardens, under which name it has been previously described.

Leycesteria formosa.—A beautiful and most valuable flowering shrub, a native of the Himalayas, though quite hardy throughout these islands. It is extremely ornamental when



Leycesteria formosa. Flowering shoot.

in flower, and is always graceful in growth. It reaches 6 feet high in places where it thrives best, and its tall, wand-like shoots gracefully recurve on all sides. The flowers are white, tinged with purple, and the conspicuous leafy bracts are of a rich vinous purple. The flowers are succeeded in autumn by purple berries, which are much relished by pheasants and other winged game, and, therefore, it is planted as a covert shrub. In mild districts it is an evergreen, but generally it loses its leaves in late autumn. It thrives well in any soil not excessively light or stiff, and does well under trees.

Liriodendron Tulipifera (Tulip Tree).—This (see page 42) is one of the noblest of all fine flowering trees, but, like the Horse Chestnut, it hardly comes within our present scope, though it is a tree more for the garden than the park. It is only when the tree has reached maturity that it bears its beautiful Tulip-like flowers of pale green and yellow. Young Tulip trees should always be planted, though future generations only can enjoy them at maturity, and seeing that they can be so easily obtained, they certainly should not be so uncommon in modern gardens as they are at the present day.

Lyonia.—This is a nearly allied genus to Andromeda; indeed the species belonging to it numbering about three are still, as they were formerly, called Andromedas. They are not important, but where there is a collection of peat-loving shrubs they would add interest to it. The chief kinds are L. ligustrina, frondosa, and rubiginosa. These are a good deal like

Andromedas, have evergreen foliage and bear small white blossoms more or less abundantly.

PRUNUS PENDULA.

THIS tree is one of the loveliest when in flower, and the most pleasing and graceful in habit of all the plants which have been transferred from the gardens of Japan to those of this country. It is the Prunus pendula of Maximowicz, a species first described by Von Siebold in his "Synopsis Plantarum Œconimicarum universi regni Japonici," a work which, unfortunately, I have been unable to find in this country. M. Franchet has kindly examined, however, the copy of this rare book in the Paris Museum, and informs me that Von Siebold in his description of the plant retained the Japanese name Itosakura, that is pendulous, for this species, so that Maximowicz, instead of adopting Von Siebold's specific name, translated it into Latin, changing his Cerasus Itosakura into Prunus pendula. Were the laws of botanical nomenclature rigidly adhered to, it should be known as Prunus Itosakura, a change which, under all the circumstances of the case, it is certainly not desirable to make, at least for garden purposes. Prunus pendula, as now seen in gardens, has probably been somewhat changed by long cultivation from the wild type; indeed, specimens of what is evidently the same plant collected in the forests in the central part of Nippon vary very considerably from it in the length and breadth of the calyx-tube and in the much smaller corolla. Here it is a small tree 12 feet to 15 feet high, with wide-spreading, flexible, pendulous branches, those on the lower part of the stem horizontal, with pendulous ends, the upper widely arching from the trunk. The bark resembles that of the common Cherry tree, although light brown in colour. The flowers, which precede the leaves, are produced in scaly, lateral buds in two to four-flowered fascicles. They are borne on long, slender, pubescent pedicels, which are destitute of bracts. The tubular calyx and incised calyx-lobes are densely pubescent and dark red in colour. The petals are half an inch long, ovate or obcordate, pale rose colour, and more than twice as long as the stamens. The ovary is slightly, and the style densely covered with long, nearly white hairs. The leaves are 3 inches or 3½ inches long, slightly hairy when young on the under side, twelve to fifteen, ribbed, ovate, and longly acuminate, sharply glandular-serrate, with two conspicuous glands near the base of the blade. The stipules are linear glandular, and, like the short petioles and young shoots, pubescent. The fruit is black, the size and shape of a Pea.

A second species of Prunus, very similar in general appearance to Prunus pendula, is confounded with it in gardens here. It has the same general habit and the same long, pendulous branches, but the bark is darker, and hardly to be distinguished from that of the common Cherry tree. The flowers are corymbose on short leafy branches, and the pedicels are conspicuously bracted at the base, and, as well as the shorter and paler calyx tube, are covered with a few scattered hairs. The petals are more narrowly ovate than those of the last species, entire and rarely truncate, much paler pink or nearly white in colour. The ovary is quite smooth, but the style is densely coated with hairs. The leaves which appear shortly after the opening of the flowers are broader, thinner and more deeply and irregularly cut on their margins and are only 6-8 ribbed. They are pubescent on the under side, as well as the petioles and young shoots, and have two conspicuous orange-coloured glands at the base of the blade. Their larger stipules are three-lobed and glandular. The corymbose inflorescence of this plant, the forked stipules and the texture and colour of the young leaves point to some form of Prunus Pseudo-Cerasus, but the style is conspicuously hairy, and I therefore very doubtfully refer it to Maximowicz's Prunus Miqueliana, authentic specimens of which, however, I have not been able to examine.

The two species are cultivated in nurseries under the name of Cerasus Sieboldi pendula flore roseo and flore carneo. Under the name of Cerasus Herinquiana M. Lavallée described and figured in his "Icones," t. xxv., a plant which seems identical with the second of these two Cherries.

These plants were sent to the Arnold Arboretum several years ago from one of the Dutch nurseries. Both species flower here every year and are exceedingly hardy, requiring no special care or cultivation. They can be increased by grafting upon the common Cherry. The grafts should be inserted close to the ground in order to secure the peculiar habit and full beauty of these trees. When grafted as standards, as is often the case in nurseries, they are then less graceful, and lose much of their peculiar habit of growth.—C. S. S., in *Garden and Forest.*

TREE AND SHRUB NOTES.

The Clammy Locust (Robinia viscosa).—Many old gardens contain fine specimens of this beautiful old North American tree, which at the present time is covered with a profusion of bloom. The tree is a good deal like its commoner relative, the False Acacia, or Locust Tree (R. Pseudacacia), both in growth and foliage, but the Clammy Locust may be easily distinguished when out of flower by the clammy glands which cover the bark of its young branches. It differs greatly in the flowers. In the common Locust the racemes are long, loose, and white, while in the Clammy Locust they are short, oblong, and the flowers rose-pink. It is, moreover, a smaller-growing tree. The variety of R. Pseudacacia known as Decaisneana most resembles it, as the flowers are pink and the racemes shorter than in the typical form. R. viscosa is really a beautiful tree in full bloom, and is now a great ornament to the lawns at Kew where there are some fine trees of it, but the largest tree I know about London is at Syon House. It flowers first after the common Locust, and is usually in bloom at the same time as the lovely R. hispida (about which I wrote recently), and often flowers a second time in autumn. What a fine lawn group these three Robinias make, for being of different heights they group themselves in a picturesque way. This tree is also called the Rose-flowering Locust, but this is misleading, and its synonymous botanical name is R. glutinosa. It is regarded by some as a variety of R. Pseudacacia (it was Loudon's opinion), but it is undoubtedly distinct.

The spotted Gum Cistus (C. ladaniferus maculatus).—This Cistus is, in my estimation, one of the most ornamental of a beautiful genus of shrubs, and has few, if any, rivals among all open-air shrubs. It is now in full splendour, and as I saw it one day this week at Kew, a large bush 4 ft. or 5 ft. high and as much through and covered with bloom, I thought I had rarely seen a plant so magnificent. Its flowers are quite 4 in. across, its petals like crumpled silk being pure white, each adorned at its base with a heavy blotch of the richest claret-crimson. The flowers last but a day, but are followed in quick succession by others, the bursting buds in early morning being of great beauty. So numerous are the buds that the shrub is in bloom for two or three weeks. What a fine object for a lawn, but how seldom do we see it. True, it is not absolutely hardy, except in the south on light soils, but it worthily deserves any little trouble and protection in winter. It is perhaps scarcely so hardy as the Laurel-leaved Cistus (C. laurifolius), which is as hardy as the common Laurel. Though this is an old introduction, Loudon makes no mention of it, and I fancy that in his day it went by the name of C. cyprius, as his description of that species agrees exactly with that of the one I have been writing about. If I had a garden in a warm locality with light soil I should certainly make much of the Gum Cistuses, and also their near relatives, the Rock Roses (Helianthemums), and even under less favourable conditions a great deal could be done with them by planting them on elevated well-drained rocky mounds and banks.

Carpenteria californica in flower.—This beautiful Californian shrub, which may still be called new, is in bloom against one of the walls (southern aspect) at Kew at the present time. The bush is about 4 feet high, has dense growth, large foliage indicating vigorous health, while every shoot is terminated by a cluster of flowers either expanded or in bud. As many as a dozen buds and blossoms may be counted on one stem, and it is therefore very free flowering. The great white flowers, quite 3 inches across, are saucer-shaped, and the tuft of pale yellow stamens acts as a foil to the snowy whiteness of the petals. It is a lovely wall shrub, and no one need hesitate to plant it against a sunny wall if not too much exposed. This shrub is, I might say, still under probation, as it may yet prove to be much hardier than is supposed at the present time.

The Yellow Wood (Virgilia lutea) has been one of the flowering trees of the week, and though not very showy is most interesting to tree lovers. The flowers similar to those of Laburnum are borne in drooping racemes, but instead of yellow are white. On the trees at Kew they are from 6 inches to 9 inches long, but in Gray's "Manual" they are described as being from 10 inches to 20 inches long on wild trees in Kentucky. The contrast of the deep green foliage, which is handsome throughout the summer, is most pleasing. The Yellow Wood is chiefly planted for ornament on account of the golden tint its foliage assumes in early autumn. It is one of the choicest of ornamental trees, of medium size, and should be far more common than it is.

Halimodendron argenteum.—This pretty shrub is now in flower, and is worthy of note because so distinct from the ordinary run of leguminous shrubs. It has elegant foliage, small, pinnate, and so silky as to appear silvery. The flowers are large, of a deep rose-pink, and contrast well with the foliage. Naturally it is a dwarf spreading shrub, but the practice is to graft it standard high on Laburnum. It may be seen in flower at Kew in the collection of shrubs of the Pea family, which for some weeks past has been enlivened with an unusual crop of bloom.

Escallonia Philippiana is not only one of the most distinct of the Escallonias, but certainly one of the prettiest and most valuable. It is now beginning to flower in gardens about London, and for the next fortnight the bushes will be masses of small white bloom. The flower clusters are borne at the tips of the shoots, and the blossoms, though small, are very abundant. It is perfectly hardy and makes a neat, dense bush about 4 feet or 5 feet high, and, being evergreen, is always ornamental. It is a shrub for every garden, and is the more valuable as it flowers after the first glow of shrub bloom is past. It was introduced about fifteen years ago from Valdivia by Messrs. Veitch, in whose nursery at Coombe Wood it is every year a great attraction at this season. W. GOLDRING.

SHORT NOTES.—TREES AND SHRUBS.

Raphiolepis ovata is a shrub with fine glossy green leaves that flowers abundantly out of doors in warm situations. I recently saw a nice specimen in full flower upon a creeper-clad wall at West Lavant House.—A.

A distinct Elm.—In the Vicarage garden at Singleton are four trees of a very distinct kind of Elm. Upon inquiring what it was, Mr. Goldring informed me it was the common Elm grafted upon the Witch Elm. The leaf was a little larger than usually seen on the common Elm, but the habit was dense and compact. Another peculiarity of this Elm is that it is partially evergreen, retaining its leaves until Christmas.—A. H.

Araucaria imbricata.—This formed cones here in 1884, and ripened a quantity of seeds the following year. This is not unusual, but it may interest readers of THE GARDEN to know that the tree bearing the male cones is about 90 yards from the tree bearing the fertile cones, and yet the pollen was carried by some other means than by the hand of man. Last year cones were formed, and the male tree being in flower, several cones are now swelling to a large size, being filled with fertile seeds.—W. O., *Fota Island, Cork.*

Viburnum Opulus.—The double form of this is much used in planting, but rarely the single, whose flat corymbs of flowers compare admirably with the double, and do not look so formal. Where not wild in the district it should certainly be grown. Some immense bushes, full of flower, are to be seen fringing

the woods in some parts of Sussex, especially when one is travelling by train between Tunbridge Wells and Three Bridges.

Rose Garden.

T. W. GIRDLESTONE.

FORTUNE'S YELLOW.

In almost all localities where it is grown the pretty climbing Rose Fortune's Yellow seems to have bloomed well this year, and consequently attracted a good deal of the attention that it so fully deserves. This successful flowering may probably be attributed to two causes, in the first place to the hot summer of 1887, which thoroughly ripened the wood, and in the second place to the comparative absence this year of severe late spring frosts. The absence of late frosts is no doubt the most important factor in the successful production of a crop of flowers on Fortune's Yellow, as the wood rarely fails to ripen sufficiently, since the plant makes its growth so early in the season; but this very precocity increases the risk of injury by frosts in April and May, when if the young growth is damaged, the plant not being perpetual the crop of flowers is decimated or destroyed.

Fortune's Yellow makes a fine climber either on a wall or trained on a pillar, and it should be planted, wherever possible, on various aspects, not only for the purpose of obtaining a succession of bloom, but also in order that in case of a wind frost, if one plant is caught the rest may escape.

A south wall is perhaps the best place for Fortune's Yellow, but either an east or south-eastern aspect is also good, whether the plant is on a wall or a pillar. Neither soil nor stocks seem greatly to influence the character of this Rose, which grows well on Brier, Manetti, or on its own roots. There is one point, however, which makes a comparatively light, dry soil preferable, namely, that on heavy land, if at all cold and wet, the wood does not get so well ripened and the plant is liable to considerable injury in winter. In case of growing the Rose as a pillar on cold land in an exposed situation, it has been found a good plan to remove in winter the plant from the pillar, and being careful not to break the branches, to lay them down at length on the ground where they can be more effectually protected with a thick wrapping of Bracken.

This Rose is a satisfactory one to grow, in not getting mildew or red rust and in being immensely vigorous, while the lavish profusion of its unique red-gold flowers places it high in the list of even the very best and most exquisite of climbing Roses.

It has been sometimes objected that Fortune's Yellow sheds its leaves so early in the season, but this may usually be avoided by watering the plants well and mulching when the flowers are just coming on, for where the plants are flourishing and healthy this disfigurement certainly does not take place to any extent.

It was at one time thought that, as with Gloire de Dijon and Maréchal Niel, Fortune's Yellow might succeed and be less liable to injury from spring frosts on a north aspect, but the flowers produced on plants so situated are so entirely out of character in their lack of colour that the experiment is not worth trying.

In the north of England this Rose is often employed in a manner that might be far more generally adopted, namely, by being planted in unheated houses for the supply of cut flowers in the early months of the year. The plant is admirably adapted for this purpose, being subject to none of the ills that so many climbing Roses indoors (Maréchal Niel, for instance) are heir to; the flowers are produced in immense numbers, and their beauty of form and colour make them invariably appreciated in the cut state.

At any rate, Fortune's Yellow should be extensively grown, and in the south of England wherever a place can be found for it on a southern or south-eastern aspect, either on wall or pillar, there may be had such a feast of beauty in early June as will be afforded by hardly any other Rose at the time of year.

Roses Marechal Niel and Lamarque at Singleton, Sussex.—It is not often one sees in the open such large bushes, or, as in this case, climbers, as are these two Roses on the Vicarage house at Singleton. They have been planted about eighteen years, the stem of Maréchal Niel girthing 10 inches, while that of Lamarque was still larger. They are growing together and cover a large piece of a wall. When I saw them early in July they were each carrying hundreds of flowers. The glorious effect and the sweet perfume pervading the air around them may be better imagined than described. The aspect is nearly due south, and the Roses have not had any special preparation made for them, there merely being the upper surface of soil resting upon solid chalk, which was slightly loosened. Can it be possible that these two Roses are revelling in the chalk, for the roots must have got beyond the little border of soil long ago?—A. H.

Rose notes from Cornwall.—In the number dated June 23 (p. 582) you speak highly of Princess Beatrice. I planted it in the open about the middle of March, and the first week in June it bloomed vigorously. Its thick handsome foliage, erect flower-stems, and the substance and beauty of the blooms will certainly give it a high place amongst outdoor Tea Roses. In looking through the description of this Rose in some of the lists, I find it stated that "the edges of the petals are slightly laced with bright rose." My experience is that this may be said of it before it opens, but not afterwards. How does this agree with what other growers of this lovely sort have found? Primrose Dame I consider a fine outdoor variety; it is very free-flowering, opens well, has a healthy habit, and its blooms of delicate primrose-yellow tint with an apricot centre are very pleasing. Gloire Lyonnaise has done better here than usual; the showery weather seems to suit it, for its blooms have been much above the average. Marie Van Houtte fails with me outdoors. I hardly ever get a satisfactory bloom, although varieties like Niphetos do well. Is this the general experience? Duke of Edinburgh.—How many finer perpetuals have we to beat this grand old sort? I find it hard to find them.—J. V., *Cornwall.*

Marechal Niel Rose.—Some inquiries have lately been made in The Garden respecting the age to which this Rose lives. I therefore send you the following information. I have seen to-day, at Lingford House, the residence of Colonel Allen, two fine plants of this Rose trained to the wall of the house, which has a south aspect, but still much exposed to the east wind. Indeed, I should consider the position a very exposed one, and one of the most unlikely places in which to find this Rose thriving. The plants are, I may remark, budded on the Brier stock, and have been planted fifteen years, and reach to a height of more than 20 feet, very little of the face of the wall being visible, as the growth is trained all over it. The plants, Mr. Gardener, who manages them, tells me, have never been pruned except to cut out any dead wood. Every shoot that is made, whether long or short, is tied in, and in many places the branches overlie each other five or six thick, and the condition of the plants as I saw them is the best evidence that the treatment suits them. Except in a Devonshire garden, I have never before seen this Rose flowering so freely in the open air. If I were asked to explain why these particular plants thrive so well while others fail in the immediate neighbourhood, I should say that there were two important reasons why they should do so, one of which is the non-pruning plan that is adopted, and the other because the roots have a large run under a bed of surface gravel; and there is no doubt but that the warmth imparted by the gravel surface to the roots benefits the plants. It is rather singular, but before the introduction of the Maréchal Niel, when the old Cloth of Gold was the favourite climbing Rose of that colour, that it never thrived so well as when its roots had a gravel walk over them.—J. C. C.

AMONG THE ROSES IN JULY.

Either our seasons, our sentiments, or our poetry will have to be re-cast or changed. There is now almost more of fiction than of fact in looking for a feast of Roses in June. A few precocious blooms may be gathered in the open, and a liberal sprinkling of Teas from sunny walls; but the rank and file and mass of our Perpetuals hardly emerge from budhood in June, and the majority of them have scarcely shown a streak of colour up to this, the 28th day of June.

The glowing records of a few successful shows may seem to prove the contrary, but such proof is very deceptive. Year by year more and yet larger masses of Roses are grown alike in pots and planted out under glass. These furnish a large percentage of the blooms for the early flower shows. Not a few south, west, and other sheltered walls are now wholly devoted to Tea and other choice Roses. Of course, Roses thus fostered, with extra shelter as well as warmth, bloom several weeks before their less fortunate sisters in the open. So many Roses are forced, and so many more might readily be pushed forward a week or two in the early summer by the mere protection of glass, that Rose shows might be held, and Rose classes fairly well filled almost every month in the year.

We have heard and seen almost to satiety of the charms of the last Rose of summer. But, as a rule, probably the first is yet more welcome, equally beautiful, and far more fresh. Hence, we have nothing but praise for the practice of running in Roses early in June or May either, for that matter, on warm walls or under glass. But their presence must not be accepted as proof that the real open-air Rose season has begun.

The mere fact, however, that Roses really and wholly in the open air are later than usual ought to multiply our fostering expedients to furnish the old Rose month with a fair complement of Roses. With such precocious bloomers as Maréchal Niel, Gloire de Dijon, Safrano, Austrian Briers, Scotch, and many other varieties of Roses, single and double, this ought to be an easy and simple matter, as the single and semi-double Roses have so much less to do in the preparation and presentation of their material. They, as a matter of course, open earlier than the run of double Roses. For example, Safrano, equally matched as regards situation and soil, will sometimes open before Maréchal Niel, a much earlier Rose, and so of other varieties, the number as well as size and probably also the substance of the petals having much to do with the time occupied in unfolding and the period of full and perfect expansion. By fostering the increased production of early blooming Roses, we might, doubtless, but for the treacherousness of our climate, have a fair show of Roses in May, and restore June to its place of honoured supremacy as the Rose month of the year. But with frosts of 10° or more up to the middle of June, and hailstones like marbles on the 26th, we must turn to July for our great, and it is to be hoped fairly brilliant, Rose harvest of 1888. Fortunately, the hailstorms seldom extended far nor lasted long. We were favoured with one that continued for about ten minutes, and that and the rain seriously tarnished every Rose bud fairly out of its calyx; but the deluge of water left neither maggot, rust, nor fly behind, while the roots had literal rivers running over or submerging them for fully half an hour. Just before the storm we were discussing whether time could be spared to give a good watering of sewage or manure and had

sprinkled some guano over the surface by way of adding additional potency to our liquid manure. The rain was so sudden and so heavy that we fear a considerable portion of the guano was swept off with the loose soil and manure on to the turf and gravel where it was not wanted. But, doubtless, most of it found its way to the roots, which, unless we are visited with a drought akin to the spell of last year, have their water wants supplied once for all for the season. Certainly the foliage, where not broken and bruised by the hail, and the buds that have opened since the deluge of rain on the 26th ult., alike prove that Roses after a dry winter and spring like the present, like the farmer's Mangolds, enjoy having a river turned over them.

Exhibitors are now at fever heat; they are mostly so eagerly in search of prize points safe and sure, and new blooms, as to have scant time to enjoy the fragrance and beauty of their Roses. Reducing the buds on each shoot to one also deprives their Roses of nine-tenths of their bud gracefulness and beauty. Even fully grown Roses, like blooming brides, look their loveliest when supported with buds of Roses or of girlhood in their early, half revealed, and far more than half concealed charms. Therefore, let all who grow Roses for pleasure cease to disbud their blooming shoots. The majority of mere Rose exhibitors and jurors alike attribute far too much importance to size as a point of merit at exhibitions. If mere size is to run in and win high honours either in nature or art, then the tape-line and foot-rule may reign over our Rose shows and picture galleries.

I cut a few exquisite buds to-day of Devoniensis, Marie Van Houtte, and other Teas, and also three monster Paul Neyron about 6 inches across. It would be an insult to the taste and common sense of the readers of THE GARDEN to ask which were the most charming Roses. And yet rosarians go on advocating and practising disbudding in pursuit of size, to the development of coarseness and at the sacrifice of thousands and tens of thousands of the loveliest buds daily.

This disbudding, that is, the removal from the flowering shoots of all but the fattest central bud, also seriously shortens the season of beauty as well as lowers its quality while it lasts.

On this as well as other grounds I would boldly counsel all who would enjoy their Roses to the utmost in their gardens, and who have not sold their pleasure as well as buried their taste in Rose showing, to disbud not at all unless there is a worm in it, and then the sooner the bud and worm both go, the better for the health, strength, and beauty of the Roses and the pleasure of their growers.

D. T. F.

SHORT NOTES.—ROSES.

Annie Laxton, though scarcely so bright, is a day or two earlier, and is very fresh and pretty, as well as very distinct.

Moss Rose Blanche Moreau.—This is the best of all the white-flowered Moss Roses. It is of strong habit, a free bloomer, and should be in every garden.

Narcisse.—This pretty pale yellow Noisette is a charming Rose for buds for bouquets, as it is very free-flowering and deliciously fragrant.

Devienne Lamy is not new, but is a very beautiful deep-shaded crimson Hybrid Perpetual, deserving of more extended cultivation. It is not only very fine at the present time, but also blooms freely in the autumn.

Heinrich Schultheis is another early Rose of the greatest value, the flowers being very large and of perfect form, as well as of delicious fragrance, while the plant is a thorough autumnal bloomer.

Cannes la Coquette.—This charming seedling from La France is blooming as usual among the earliest. The graceful flesh-tinted flowers are invaluable for all purposes, and the variety is ever-blooming.

Paul's single white Rose is a beautiful single flower, white, and delicately scented. It is just the thing for clothing a pillar, as it is a vigorous grower and blooms freely. The single crimson does not appear to have the same strong constitution.

Harrison's Yellow and Persian Yellow Roses.—If the display produced by these two Roses is but a transient one, it is simply gorgeous while it lasts. A long rustic fence, 8 feet or 9 feet high, at Singleton was covered with wreaths of yellow early in July.

Princess of Wales, sent out in the year 1882 by Mr. Bennett, seems certain this season to take a more conspicuous place than ever. All the flowers yet seen, either exhibited or in the garden, have been of exceptionally fine form and size, rather pale in colour, perhaps, but handsome enough to be mistaken for Jean Ducher.

Alphonse Soupert is again proving its value as a bright and effective Rose for massing, especially early in the season. It is one of the three or four Hybrid Perpetuals that is really already in beauty, the flowers being numerous, large and brilliant.

Mme. Joseph Desbois (Guillot, 1886).—An invaluable addition to the Captain Christy or Lady Mary Fitzwilliam family, which only requires a hot season to take a prominent position. The flowers are very large, perfectly formed, and almost pure white, with a bright flesh-coloured centre.

Princess Beatrice (Bennett, 1887) is a very exquisite Tea-scented Rose. It was exhibited in great beauty by its raiser during the spring, and now out of doors the plants are producing flowers as beautiful in their shades of rich coppery yellow as perfect in outline. The fear at one time expressed by exhibitors that the blooms would be rather small does not seem likely to be realised, and the plant is very free.

Rose Comte d'Epremesnil is blooming at Messrs. Paul and Sons' Broxbourne nursery. If there is one Rose that deserves to be grown for its fragrance alone, that one is Comte d'Epremesnil. It is as rich and delicate as any of the garden Roses, one or two flowers scenting a large room. There is a large bush of it on the rockery, and it can be seen at a glance that it is a form of R. rugosa by the rich and abundant leafage and the character of the flowers. These are double, large in size, freely produced, and of a full rose-purple shade. The white variety R. rugosa was in bloom hard by.

CLIMBING DEVONIENSIS.

I HAVE eagerly scanned Mr. Girdlestone's most suggestive article on the above, page 597. There are three points of great importance to be kept in view in discussing the most interesting question this able rosarian has so opportunely raised. These are, that the climbing variety is a sport, not a seedling; that the type is one of the most constant of all our Roses; and that the climber is one of the most variable alike in its constitution, quantity, quality, and time of blooming. Now, a Rose that sports once may sport again. This may read like a very common-place truism, and perhaps it is, but it is also more, as the fact of its sporting once proves the existence of variable germs in its constitution. Hence, the logical inference that a Rose that has sported once is more likely to sport again than one that has not. The history of our so-called white Perpetual Roses affords the strongest confirmation of these views.

Again, sports themselves mostly develop a stronger tendency to sport than seedlings, and this on the simple principle that like produces like, and in that like, in its widest sense, the capacity to sport must be included. In apparent opposition to these views we have the second fact, the constancy of the type. So far as I can gather, no one professes to have had a second sport from the type. But taking the constancy of the type abreast with the variability of the climber in the matters here specified, may they not be explained thus: The one sporting germ in Devoniensis at last burst through all the prescribed bounds of parental propriety, and run so fast and so far, that it exhausted the parent form by this one supreme effort of all its sporting power, and hence it has grown and bloomed in true form ever since. If this be so, and it would be a pretty problem for any one to prove to the contrary, then what more reasonable than that the sport thus starting into a separate existence, endowed with a prepotency of sporting capacity, should have been practising its various paces over a wide field of variability of growth and blooming ever since.

We all know what marvellous changes soils, sites, modes of culture, climates, and seasons effect among Roses, but I doubt whether the many variations happening to Climbing Devoniensis can be thus explained. Though I have no positive evidence to offer to the contrary, a long acquaintance with the type and its sport confirms my impression that there probably are not only two, but several forms of the Climbing Devoniensis; while I am equally certain that the type remains as it was in the beginning. In fact, my experience on this point may be summed up in a sentence thus: The type is one of the most constant, the climber one of the most inconstant of Roses. I have held this idea for many years, and submitted it to some of our most famous rosarians, some of whom have pooh-poohed it and others agreed with it in whole or in part; but as experience has been gained after several years, early impressions have well nigh grown into a solid belief that there may be, probably are, two or more varieties of Climbing Devoniensis. D. T. F.

Miniature Roses.—Roses of small growth are certainly rising in favour—at all events, they are more frequently met with now than a few years ago. I have just had an opportunity of seeing a very good selection, and although they are not of striking character they have at least a certain charm about them that few fail to appreciate. Their style of growth is pleasing, and they all flower so freely that they are more attractive than their appearance indicates in the winter months. In cultural matters these Roses, I think, require more care than is usually provided for them. They are generally planted in odd corners or near to some other strong-growing subjects, which often rob them of both sunshine and root moisture. But when planted in a well-prepared bed or border, as the collection is to which I have referred, the plants make plenty of growth and flower freely. The most free-blooming are Paquerette, Mignonette, and pumila alba. The two first-named are better known as Polyantha Roses, and are perpetual in character. Both kinds produce large panicles of flowers, the first-named being white and the other pale pink. Pumila alba is of rather stronger growth, but exceedingly pretty. Little Gem is a Moss Rose of great excellence, but up to the present time it has not found its way into many gardens, as it is comparatively new. The plant forms compact little bushes, and produces flowers in abundance, which are dark crimson in colour. Little Pet is a dwarf China Rose, the flowers of which are very pretty in the bud state, the colour being white. De Meaux is a very old Rose of stronger growth than any of the preceding, and when in bloom never fails to arrest attention, as the flowers are well formed and very double.—J. C. C.

GARDEN FLORA.

PLATE 657.

ROSE MADAME DE WATTEVILLE.*

OWING to an error in printing this Rose in the issue of March 10, we have had it done again, as so good a Rose should be shown in its true colours. The most beautiful of all the Roses of its type is Madame de Watteville (Guillot, 1883), one of the most distinct of Tea Roses, and attractive in the garden on account of its great freedom and erect habit of growth. It is a good autumnal bloomer, fragrant, a good grower, and hardy. Mme. de Watteville, when forced under glass, generally appears as a uniformly pale blush rose, the flowers, like most of the two-coloured Teas under such circumstances, not displaying any differentiation of tint, but out of doors, and especially early in the season, the white petals, just tinged with yellow at the base—sometimes evenly margined with clear rose, sometimes with the colour run, as it were, half way down the petals, or as if their upper part had been washed lightly over with soft rose colour—constitute flowers so distinct and attractive, as to enable Madame de Watteville

* Drawn for THE GARDEN at Gravetye, Sussex, by H. G. Moon, August 18, 1887, and lithographed and printed by Guillaume Severeyns.



ROSE MADAME DE WATTEVILLE

to take rank amongst the most desirable and beautiful of our Tea-scented Roses.

T. W. Girdlestone.

Stove and Greenhouse.

STOVE AQUATICS.

"H. C. B." asks what small or moderate-sized plants can be used to ornament a tank of water in a stove besides Nymphæas. This is an inquiry respecting a class of plants which has been too much neglected. "H. C. B." does not give any idea as to the size of his tank, but as he appears to have some Water Lilies, it is probably of some moderate proportions, and if so, there is quite a host of beautiful plants available for his purpose, a few of which I will here enumerate. The centre should have as a permanent resident a plant of Acrostichum aureum, a feather-leaved Fern of bold growth and large arching bright green fronds, round which should be planted rhizomes of the Sacred Lotus (Nelumbium speciosum); this produces erect stems, surmounted with orbicular leaves some 12 inches or 18 inches across. The flowers, which rise to about the same height as the leaves (some 4 feet), are very large and globular, of a soft rosy white, and deliciously fragrant. The Nelumbium will die away in autumn, and if attention be paid during the summer to prevent the Lotus from smothering the Fern, all will be well. The soil for these two plants should be stiff yellow loam and well-decomposed manure. Limnocharis Humboldti, figured in The Garden, May 21, 1887 (p. 468), is a handsome Nymphæa-like plant, with medium-sized leaves, which lie upon the water, and has large bright yellow flowers, which are produced in great abundance all through the summer months. This plant may be treated like the Water Lilies during summer, but it prefers shallow water in the winter. Pontederia crassipes, the thick-footed Pontederia, forms a handsome object when floating freely in the water, as in this position the footstalks of the leaves become shortened and much swollen, apparently to give the plant sufficient buoyancy to float. When the plant can, however, affix itself to the soil in the water, the footstalks become slender and the plant produces a spike of handsome blue flowers. To preserve it in winter the plants should be potted and partially submerged. The Water Lettuce (Pistia Stratiotes) is another floating plant of great beauty, forming rosettes of light green foliage, which produce a number of runners forming young plants, by which the plant may be increased rapidly during the summer months. To form large plants of this species the runners should be kept picked off. In winter some plants should be potted and treated in the same manner as those of the Pontederia, or the probability is they will gradually melt away if left in the water.

The green and variegated forms of Cyperus alternifolius also form beautiful ornaments, but the soil for these should be just above the surface of the water. In similar situations near the margin of the tank the Marsileas are interesting and pretty. This genus is a member of the Pepper-wort family. In general appearance their leaves somewhat resemble those of the Clovers, being quadrate, but destitute of the dark blotch; the stem is creeping, and the spores are borne in small capsules near the base. The largest and finest species that I am acquainted with is the Nardoo, a native of Australia, in the interior of which country it is said to cover large tracts of swampy land, and its dried spore cases are said to have been used for food by the members of the Burke and Wills expedition, and sorry food they must have been. The Nardoo (Marsilea macropus—see illustration) grows to a height of from 6 inches to a foot, the leaf or frond being four times divided; the segments being somewhat flabellate and cuneate at the base, 3 inches or more across, and deep green on the upper side, thickly clothed with short silky hairs. M. quadrifolia is a smaller growing plant, but similar in appearance; the leaves are smooth and bright green; the spore cases are also smooth and densely clustered near the base. It is a native of various places in the south of Europe, and will thrive well in greenhouse temperature. M. coromandelina has a very long creeping rhizome, producing tufts of leaves and spores at short intervals; the leaves are both shorter and smaller than in M. quadrifolia.

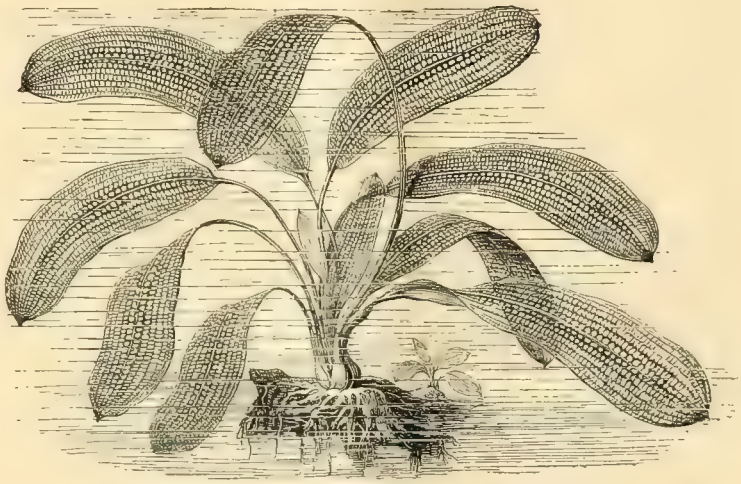
Eichornia tricolor is another beautiful erect-growing plant, which will thrive well in a pot plunged in the tank, or it may be mixed in a permanent group with equally happy results; the leaves are heart-shaped, strongly veined, rich deep green in colour, and are supported on long footstalks; the spike is many-flowered, the lower portion of the perianth being purple, whilst the upper part is blue, stained with a blotch of yellowish white. It is an abundant bloomer, and continues for several months to render the tank brilliant. The usual height of this plant is from a foot to 18 inches. Heteranthera limosa is another dwarf plant which is a perfect gem if treated properly and kept near the edge of the tank. Its leaves are ovate or obtusely lanceolate, borne upon rather long petioles, which, however, seldom exceed a foot in length, the blade being about 2 inches long, both sides being of a uniform bright light green; the flowers are tubular, with a spreading limb; the latter is bright violet, with a white eye, and about 1½ inches across. It is a profuse flowering plant throughout the whole summer months, and is a native of New Grenada.

The Lace-leaf or Lattice-leaf plant, Ouvirandra fenestralis (here illustrated), is another plant which should be grown in every collection of warm-house aquatics, however small. It does not rise above the surface; its singular dark green leaves, which are destitute of epidermis, and thus exhibit a veritable skeleton of a leaf, spread around some few inches beneath the surface, and constitute one of the greatest living wonders in the vegetable kingdom. Another very pretty aquatic is the floating Stag's-horn Fern (Ceratopteris thalictroides), although it is mostly considered an annual. The fertile and sterile fronds are quite distinct in appearance; the latter are prostrate, from 1 foot to 18 inches, or even more in length; they are twice divided and viviparous, the colour being bright light green. The young plants if pegged down in the autumn on to some moist loam, easily perpetuate the stock the following season, and make plants more rapidly than those obtained from spores, although it is as well to have two opportunities. The soil it delights in is yellow loam, slightly elevated above the surface of the water. I have refrained from mentioning the Nymphæas, being under the impression that "H. C. B." has already a stock of these most delightful plants, but the few other kinds of plants noted above will be found to render the tank gay and attractive, and these always, with heat at command, will thrive admirably.

W. H. G.



The Nardoo (Marsilea macropus).



The Lattice-leaf Plant (Ouvirandra fenestralis).

Tinnea æthiopica.—This plant is a member of the Labiate family, and is a native of the country about the Upper Nile. It was found by several

African travellers, notably Dr. (now Sir John) Kirk, Grant and Speke, and by Mlle. Tinné, to whom is due its introduction into cultivation. It is a twiggy, bushy plant, bearing small, entire, somewhat ovate, deep green leaves, and producing from the axils of the leaves deep maroon-purple flowers, not so conspicuous for beauty as for the delicious odour of Violets which they yield, and which should ensure it a place in every stove. It flowered first in this country about the year 1886, but I had not seen it for a long time until I recently noted it flowering in the garden of Sir Trevor Lawrence at Dorking, where so many rare plants are congregated.—G.

Cochliostema Jacobiana.— This handsome plant is a member of the Spider-wort family (Commelinaceæ), and, perhaps, one of the handsomest of the whole order. It was introduced from Ecuador some years ago, I believe, by M. Linden, of Brussels, but latterly allowed to almost drop out of cultivation. I recently, however, saw it flowering in Sir Trevor Lawrence's garden, and would urge upon growers of stove plants the necessity of adding it to their collection. It is a plant of a stately vasiform habit, having broad leaves, sheathing at the base and bright light green in colour. It bears a branching panicle of blue and violet flowers, which are accompanied by large bright mauve-coloured bracts. The soil for it should be loam, peat, and leaf-mould in about equal parts.—W. H. G.

Scutellaria Costaricana.— A member of the Labiate family. The genus, amongst which the present species takes first rank, contains numerous handsome border flowers, as well as kinds which are extremely ornamental in the stove. It is easily increased by cuttings, and grows rapidly into a flowering state. It bears cutting well, and its spikes of bloom are admirably adapted for indoor decoration. The flowers, borne in long terminal racemes, are tubular and upwards of 2 inches long, the outside being rich golden orange, the inside yellow. If the flowers are cut for glasses, they should be taken with long stems, as this enables the plant to break back and keep bushy. So treated, it will produce flowers nearly all the year round. It is another of the old-fashioned gems now in great beauty at Burford Lodge.—W. H. G.

Elæocarpus cyaneus.—This Elæocarpus has been flowering in great profusion for some time. It forms a free-growing greenhouse shrub, the flowers being bell-shaped and of a drooping character, suggesting somewhat in general appearance those of the old-fashioned Clethra arborea, which is but seldom met with in good condition. The most prominent feature of the inflorescence is, however, the beautiful fringe to the petals, and in this respect the plant stands out in a marked manner from all its associates. The blossoms are succeeded by berries of a bluish colour, which in a general way are borne so freely as to form quite a distinctive feature. This Elæocarpus is a native of a considerable district in Australia, and in this country requires the protection of a cool greenhouse. Though it attains at least the dimensions of a good-sized bush, it will flower well in a small state, more especially if the plants have been obtained by means of cuttings. Cuttings are in no way difficult to root if formed of the young growing shoots. The berries, too, if allowed to ripen, produce perfect seed, which will soon germinate if sown in the spring, while the young plants grow away freely, and quickly form effective specimens.—T.

Leptospermum scoparium.—In the sheltered districts of the south and west of England, the members of this Australian genus of Myrtle-like shrubs form handsome bushes in the open, but, in the less favoured parts they must be treated as greenhouse plants if it is desired to maintain them in health. There is a strong family likeness running through the whole of them, the species under notice (scoparium) forming a dense, much-branched bush with very slender wiry branchlets, clothed with small pointed leaves. The flowers are small and almost white, suggesting at a very little distance individual blooms of the Hawthorn, for instead of being borne in clusters, as those of the Thorn, the flowers of the Leptospermum are scattered for some distance along the slender branches. The Leptospermums are best suited for growing as large specimens, in which form they do well, either planted out or in tubs. They are of easy culture, thriving in any open soil, and may without difficulty be propagated either by means of cuttings or seeds.—T.

AMORPHOPHALLUS.

THESE curious plants, some species of which are grown for the beauty of their flowers, and others for the value of their wonderful foliage for subtropical effect, are closely allied to Arums, but differ from that genus in their spathes being spreading, not convolute, and in the structure of their anthers, ovaries and ovules; they are all introductions from tropical Asia.

A. BULBIFER.—The Turnip-like tuber of this plant was exhibited in the Indian and Colonial Exhibition amongst the food products of India as Amorphophallus campanulatus; at the close of the exhibition it was given by Dr. Watt to Colonel Beddome. The first year it only produced its large, single, compound leaf, which is twice dichotomous and pinnatifid, bearing small compressed round bulbs on the upper side of the divisions. This year it sent up its beautiful flower in June, the colour of the spathe being a lively pink inside, the spadix buff coloured, and the stalk or scape about 4 inches long, and beautifully mottled with olive; it grows freely in stove temperature and the foliage appears after the flower, the latter lasting for a considerable time. Blume has published an uncoloured drawing (Regel's *Gartenflora*, pl. 688), but no coloured plate appears to have been published. It is found in the vicinity of Calcutta.

A. CAMPANULATUS.— This species has very similar foliage to that of bulbiferus, but a much larger flower, which is, besides quite sessile, leathery and campanulate, with the border curled, in colour a curious mixture of green, purple, and brown. It is found wild in Southern India and in Bengal and is largely cultivated, the tuber being much esteemed as a food product like Potatoes in England, only a single tuber in rich soil will sometimes weigh eight or ten pounds.

A. RIVIERI.—This species, which is a native of Cochin China, is grown in hothouses for the beauty of its foliage, which is borne on tall marbled petioles, the inflorescence being several feet high, the scape dotted with pink, the spathe pinkish green, and the spadix red.

A. TITANUM.—This gigantic species, which is from Sumatra, can be seen in the large hothouse at Kew; its solitary leaf is many feet in height and from 40 feet to 50 feet in circumference. It has not yet flowered in this country, but its flower is said to be bell-shaped and 9 feet in circumference.

A. GRANDIS, a species from Java, and A. Lacouri, from Cochin China, have also been introduced to our stoves. A plant sometimes grown under the name of Amorphophallus nivosus comes from tropical America and belongs to the genus Dracontium. R. H. B.

Nepenthes not forming pitchers.—I have a plant of Nepenthes Rafflesiana under my care which, although in robust health and growing luxuriantly, does not form any pitchers. For the first year after I got it, it formed pitchers freely, but it has now ceased to do so, and, as a consequence, is comparatively valueless. Will any of your numerous correspondents kindly furnish a hint as to what should be done with it, so as to make it produce pitchers again? Would cutting it down and encouraging the young growths have any beneficial effect in that way?—A PUZZLED NOVICE.

*** In answer to the above, you should cut your plant of N. Rafflesiana down to within a few leaves of the base, and place it in a very moist and warm place until it breaks, and never let it go more than a season without cutting the shoots back a little in order to induce the growth of laterals, as it is upon these side shoots that the pitchers are formed. The long stems do sometimes make pitchers, but these become narrow at the bottom and are destitute of the fringed wings, which are such a conspicuous ornament in the pitchers produced on the lateral growths.—W. H. G.

Pancratium speciosum.—The nomenclature of the different species of Pancratium seems to be very confused. The whole of them are very beautiful and so deliciously fragrant, that a single plant when in bloom will be noticeable throughout a good sized structure. They are of very easy culture, the principal consideration being to see that the pots are thoroughly drained and the soil good, as they flower much better when the roots are allowed to remain undisturbed. A soil consisting of good fibrous loam, with a slight admixture of leaf mould, well decayed manure and sand, will suit them perfectly, and they are greatly benefited when the pots get full of roots by occasional doses of liquid manure. Most of the Pancratiums require stove temperature; indeed, a slight bottom heat is of great advantage during the growing season.—H. P.

The rose-coloured Water Lily.—Some growing roots of this species or variety were recently offered for sale by Messrs. Protheroe and Morris, which reminds me that this plant appears to be much neglected or misunderstood by lovers of aquatics in England. There are hundreds of gardens with suitable accommodation for aquatics and where the white Water Lily is highly prized, but yet in how few has the form with rose-coloured flowers yet made its appearance; indeed, a lover of these plants remarked to me a few days ago that his gardener had assured him that the coloured Water Lily would not live in the open air, and with a view to dispel this allusion I send you this note. The rose-coloured Water Lily (Nymphæa rosea) is perfectly hardy, and should be added to every collection of aquatic plants. A coloured illustration of this plant will be found in THE GARDEN of June 28, 1879 (p. 579).—W. H. G.

Cereus speciosissimus.—At the present time the various Cacti are not in favour with the general public; why, it is difficult to say, for it is impossible to find more gorgeous blossoms than are produced by many of them, notably such as Cereus speciosissimus and the different garden varieties of it. The plants are also easily cultivated, as may be occasionally seen by the healthy and well-flowered specimens met with sometimes in cottagers' windows. Where there is a greenhouse they require little attention, the principal consideration being to see that they do not get overwatered during the winter, nor for the matter of that at any other season, though of course an excess of moisture is far more dangerous when the weather is cold and dull than it is during the summer. Cuttings of any of the varieties strike root very easily, and the soil best suited for the established plants is a mixture of loam, brick rubble and sand. During the growing season occasional doses of liquid manure will be of service. Among the many kinds of plants that the late Mr. C. M. Hovey sought to improve by hybridisation was this Cactus, one variety obtained by him known as C. M. Hovey being brilliantly coloured.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Torenia Bailloni makes a beautiful basket plant, growing freely, and producing in great abundance its rich yellow flowers.

Heliotrope White Lady.—When grown under glass, the flowers of this variety are of the purest white. It does well with Mr. Penfold at Leigh Park, who plants it out and trains it along the back of the house. When the first bloom is over and the plants get straggling, he cuts them back. They then make a fresh start, and thus he obtains two crops of flowers in one season.

The Bladder-worts (Utricularias). — These plants are well grown in Sir Trevor Lawrence's garden, in company with the Orchids, and they appear to thrive best in open Teakwood baskets suspended from the roof. I recently noted fine plants of the new U. nelumbifolia, Humboldtiana, and the well-known montana and Endresi, the latter species being much finer than ever I had seen it, being literally covered with long spikes of its elegant soft blue flowers. It should find a place in every stove.—W. H. G.

Aristolochia elegans.—This, the most beautiful of all the cultivated Birthworts, is now flowering pro-

fusely at Burford Lodge, Dorking. The plant was recently introduced by Mr. William Bull, of Chelsea, and figured in The Garden, June 19, 1886 (p. 576). It is a small-growing stove climber, which flowers for a long time in great profusion, the individual blooms being very handsome, and entirely void of the bad odour so peculiar to many of its allies.—W. H. G.

WORK IN PLANT HOUSES.

Stove.—Amaryllis.—The condition these plants are in as regards their season's growth will much depend on the time at which they have flowered. Many growers start all their plants at once early in the winter, and consequently have them in bloom early in spring; whilst others use little heat, allowing the plants to come on slowly with the gradual increase of solar warmth, in which case a longer, as well as a later season of flowering is the result. Plants that bloomed early and have since been kept in a genial temperature will now have ceased growing, and only require their tops to get fully matured. If the plants have been stood where an abundance of light could reach them, and a fair amount of air has been given, the leaves will be stout, with plenty of substance in them. No more shade should be given than will keep the foliage from getting injured by the sun. On this the amount of bloom that may be looked for depends quite as much as on the size of the bulbs. The plants should be well syringed overhead two or three times a week to keep down red spider, which, under the drier condition the plants are from this time kept in, is almost sure to make its appearance. If allowed to go unchecked, it destroys the vitality of the leaves, and in the case of the deciduous varieties causes them to die off sooner than they otherwise would. When this occurs it has a weakening influence, the result of which is seen when the flowering season arrives. It is good practice to keep on syringing the evergreen kinds until the summer is far advanced, for though the parasite does not kill the foliage outright in the way that prematurely takes place with the deciduous sorts, still it much weakens the plants. Assist the growth of those that flowered late by closing the lights early whilst the sun is on the glass, syringing at the time the house is shut up.

Pancratiums.—Most of the Pancratiums are worth growing, but P. fragrans is deservedly the greatest favourite. There is no flower that I can call to mind that gives such a finish to a choice bouquet. With a sufficient number of plants this species may be had in bloom for a considerable part of the spring and summer. Plants that were pushed into growth early will now have matured their leaves, and should be kept somewhat drier at the roots, but this must not be carried so far as to cause the leaves to shrivel. Give plenty of light with more air than was necessary whilst the growth was active. Plants that are now in full growth should be kept near the glass in a light house or pit, shading so far as requisite to prevent the yet tender leaves being injured. Give plenty of water to the roots and syringe freely in the afternoon. Any plants that are still to flower may, if desired, be slightly retarded by keeping them in an intermediate temperature, which they will bear at this time of the year without injury. The retarding process, however, must not be carried so far as to interfere with the growth getting finished before the autumn is too far advanced.

Hymenocallis.—These bulbous plants are nearly allied to the Pancratiums, resembling them in general appearance and in the character of their flowers. The different species bloom at different seasons, and are more or less influenced by the treatment they receive. Many of the kinds are highly desirable, being amongst the freest of bulbs that require warm treatment. Similarly to most bulbs that are of a permanent nature, they do not like to have their roots disturbed, generally thriving and flowering best when the soil is well filled with roots, but it is not advisable to pinch them too much for room, and any that seem to require larger pots should have them when they are about to begin growing. Good fresh loam of a moderately holding nature with some sand answers well for them. Drain the pots well, taking means to prevent the soil getting washed down into the crocks, as the roots will not bear anything approaching to stagnant moisture. Plants that are now going out of flower must be encouraged to make growth. The Hymenocallis succeeds under like conditions of heat, light, shade, and moisture to those recommended for Pancratiums. There must be no stint of water, for though, in common with many other stove bulbs, they will bear moderately dry treatment after growth is fully hardened, still the maturing process cannot be effected by a parched state of the roots.

Crinums.—These bulbs do not receive the attention which they deserve, as although being larger growers and occupying more room than Pancratiums or Hymenocallis, they well repay for the space they take up and the little labour required to keep them in good condition. The white-flowered C. americanum is one of the best known, as well as one of the most useful kinds. One or two of its highly fragrant flowers will scent a room. The plants bloom early or late, according to the treatment they receive in the matter of heat. Kept during the winter and early spring in a cool stove they usually flower about the present month. As soon as the blooming is over give the plants moderate warmth, and encourage growth by a liberal supply of water to the roots with a genial moist atmosphere. The leaves of most of the species are naturally inclined to grow long. To correct this as far as possible, keep the heads of the plants as near the roof of the house or pit in which they are located as circumstances will permit. Use a thin shade during bright weather, dispensing with it when it can be done without, give air freely in the middle of the day, and syringe well, by which means red spider will be kept under.

Eucharis.—The new forms of Eucharis that have been introduced since E. amazonica came into cultivation have not turned out equal to what was expected of them. Few growers can induce them to flower nearly so freely as the old species when healthy and well managed. So accommodating is the Eucharis, that with a sufficient stock it may be had in bloom through the greater part of the year. Alternate growing and resting during shorter periods than most things require are the means by which the plants can be induced to bloom two or three times within the year. But, though it will submit to this kind of usage, it is better not to push the alternate exciting and resting process too far; it is well to be content with two crops of bloom rather than run the chance of losing the plants by what may be described as an exhausting course of treatment. Examples that have recently flowered and are wanted to come in again towards the end of the year should be encouraged to make stout growth. This is best secured by giving them moderate, rather than excessive heat, admitting a reasonable amount of air daily, and avoiding too moist a condition of the atmosphere. Care must be taken not to expose the plants to too much light; in this E. amazonica is an exception to most other things, for not only does it object to being exposed to the sun's rays, but it often refuses to grow when placed near the glass, even when carefully shaded. It frequently happens that the best grown examples are met with in dark old-fashioned houses. Spring may in many cases be looked upon as the best time to repot Eucharis, especially when large specimens are to be divided, but there is no hard and fast rule, as large examples that have got overcrowded with bulbs may be divided at any time during the summer as long as there is enough time for the plants to make growth and get established. Care should always be taken to avoid disturbing the plants whilst they are growing. When the leaves have attained their full size and maturity, and the plants have had a rest, is the right time to move any that are to be divided. My own practice always has been to wash the roots out by turning the specimens out of the pots and plunging the balls in a tub of water, working all the soil away from amongst the roots. In this way the fibres can be disentangled with much less breakage than is possible if the balls are separated in the ordinary manner. This method of carrying out the work will be found advantageous either when the specimens are only divided into masses consisting of several bulbs together or into single bulbs. In the case of examples that have only attained a moderate size and that are not to be broken up, but simply want more room, there need be no hesitation in shifting them at any time, as the only disturbance of the roots necessary in removing the old drainage will not be felt. When this Eucharis is required exceptionally large, all that is needful is to give pots or tubs proportionate to the size of the plants; but for general use medium-sized specimens such as can be kept in 10-inch or 12-inch pots will generally be found large enough.

Greenhouse.—Nerines.—Of the many useful plants that are left in comparative neglect may be named the Nerines. Some growers keep their plants all through the summer in a cold pit or house after they have done growing, but my own practice has always been to stand them out at the foot of a south wall where they were exposed to the full force of the sun, the pots being plunged to about half their depth in coal ashes. So treated the bulbs get well ripened. The plants may remain outside until the end of summer, when they will push up their flower-spikes and amply repay for the time and attention bestowed on them. The limited amount of room which even a large stock takes up is in their favour. T. B.

GATHERING CAPE FLOWERS.

A correspondent of a San Francisco paper sends from Paarl (Cape Colony) the following account of the manner in which Cape flowers are gathered:—

"The mountains known as the Drakenstein range, about fifty miles from Cape Town, is where the majority of Everlasting Flowers are procured. The Kaffirs and their families gather them and bring them to the country storekeepers, who buy them by the measureful, which contains about 100, and for which they pay the Kaffir one farthing. The storekeeper generally prepares himself for the flower season by making a rough drying-house, which is nothing more than a long shed about 8 feet high and 25 feet wide, from the ceiling of which he suspends rows of string about 1 foot apart, and which reach to the ground; he next ties the flowers into bundles of 100 each and then attaches two dozen or more of these bundles along the string from the ceiling to the floor. The warm wind passing through the shed dries these strings of flowers in a few days. Were they left to dry in the sun they would fall to pieces the moment they were roughly handled. When he has dried sufficient to fill a few cases he sends them to Cape Town, where they are sold by auction along with other consignments, and are bought by the merchants, who ship them to England and America.

"There are exported from the Cape Colony annually about 50,000 cases of Everlasting Flowers, valued at something like £250,000, fully one half of which are shipped to New York and Boston direct. This will give some idea of the enormous quantity that grow and the number of Kaffirs engaged in gathering them.

"The Kaffirs who gather these flowers are those half-civilised men who live about the outskirts of the country villages. So soon as the winter rains are over the Kaffir men begin polishing their old flint-lock guns that they have bought by twelve months' labour—this is the usual way that the Boer pays his Kaffir servant—and they and their families start off to the mountains to gather Everlasting Flowers. The women and children, however, have to do all the hard work.

"I once saw a party start off on a flower gathering expedition, and they made such a comical scene, that I am not likely soon to forget it. Their road lay along the most unfrequented paths, and the poor children, very scantily dressed, and more often wearing no clothing at all, get their bodies and feet badly bruised and torn by the thorns and sharp stones they must travel over. There is one Thorn bush in particular that is peculiar to South

Africa, and is such a source of annoyance to the traveller, that it is called the 'Wachenbechi Bosch' or 'Wait-a-bit Bush.' It is a low-lying bush with long slender limbs covered with fine thorns which blow about in the breeze and have a peculiar way of reaching one and holding one too, unless you wish to have your clothing torn from your back. In many instances the women risk their lives in obtaining a few choice flowers, and frequently I have seen them on the verge of a precipice where few white men would dare to tread. At such times the women join hands and so enable the daring one to reach over and obtain the coveted flowers."

PROPAGATING.

EPACRISES.—These are seldom propagated except in the large trade establishments where such plants are made a speciality of, but still there is no reason why they should not be readily propagated by means of cuttings, as there is no secret in the matter except care and attention. Epacrises are propagated during the summer months by cuttings formed of the young growing shoots taken off and inserted into pots of very sandy peat. The stoutest shoots must not be taken for the cuttings, as they are liable to decay, the best for the purpose being the sturdy, well-furnished side shoots. One thing to be borne in mind is, the weaker the shoot the easier it will strike, so that in order to propagate the very succulent-growing forms, such as E. onosmæflora or purpurascens, the growing shoots must be weakened by keeping the plant rather close for a time before the cuttings are taken, as the shoots produced under normal conditions yield but a very poor percentage of plants when the cuttings are potted off. The pots prepared for the reception of the cuttings must be thoroughly well drained—that is, filled to within an inch of the top with broken crocks. Those at the top must be very fine in order to prevent the soil finding its way amongst them. Sandy peat is the best compost for the cuttings, and this should be pressed down firmly and smoothly, the whole being finished by a layer of sand on the top. Being slightly watered through a fine rose, the pot is then ready for the reception of the cuttings. Shoots, as above indicated, having been selected for the purpose, they should be cut off cleanly at the base with a sharp knife, and the bottom leaves having been removed as far as is necessary for the purpose of insertion, each cutting is then dibbled firmly in position, care being taken that they are not overcrowded, and, at the same time, space should, as far as is possible, be economised. A length of 1½ inches to 2 inches is a very suitable one for the cuttings, and of this about one half should be cleared of leaves, as it will be inserted in the soil. After a pot is filled it must be thoroughly watered through a rose sufficiently fine to settle the sand in its place without disturbing the cuttings in any way. When drained a little the pots may be covered with bell-glasses, or placed in a close propagating frame, but the first named method is to be preferred. Wherever the cuttings are put they should get but very little fire-heat; indeed, they will strike in a cold frame, but, as a matter of course, shoots that are produced in a warm structure are benefited by a little more heat than those grown under quite cool treatment. The after management is an important item, for the cuttings must be shaded from the sun at all times, and still not be kept too close, otherwise the loss from damp will be often very considerable. When struck the cuttings should be inured to the air and temperature of an ordinary greenhouse without any further covering. In potting off, fine sandy peat should be used, and it will be often found in turning out the pot of cuttings that the delicate hair-like fibres of those that are the most advanced have clasped the small crocks at the top, and when the cutting is lifted up the crocks come too. In this case no attempt should be made to dislodge the crocks, but the cuttings should be potted in this way. Firm potting is essential, and care should also be taken not to pot them too deeply in the soil, as if this is done they are very liable to decay.

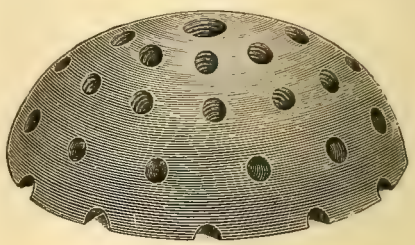
PINKS AND CARNATIONS.—The operation of layering is a very simple one, all that is necessary being to bring the young growing shoots in contact with the earth and secure them there with a peg or two until rooted. The selected shoot should have an incision made in the under side of the stem, cutting it about half way through, then, instead of withdrawing the knife, it must be drawn upwards for an inch or so, thus forming a kind of tongue. A hillock of soil is formed around the plants by some cultivators, but this is by no means necessary for layering; though with some plants it is an advantage, still in a general way it is better dispensed with, as most of the shoots can be brought in contact with the soil if allowed to remain level. When layering, it is often essential to trim off some of the old leaves, but no more should be removed than is absolutely necessary, and at the same time a little fine sandy soil around the mutilated portion of the branch will be of service. Care must be taken in pegging down the layers to see that the cut portion is well covered with soil, and also that they are not broken, as they readily snap, while after the operation, should the weather be dry, it will greatly assist the formation of roots if they are occasionally watered. Concerning the cuttings, it may be said that they should be formed of the young growing shoots, cut off clean with a sharp knife immediately below a joint. Then the two bottom leaves can be removed by stripping them off, which if carefully done will not injure the stem in any way. Whether the cuttings are put in pots, boxes, or pans, these should be properly drained and filled with fine sandy soil pressed down firmly. The cuttings must be dibbled therein, and after being watered placed in a frame with a gentle bottom heat, but this is by no means absolutely necessary. Anyhow, they must be shaded from the sun, and the lights taken off for a little while each morning to see how they are going on.

EUONYMUS.—The evergreen species of Euonymus are very largely grown, and consequently great numbers are propagated every year. The best time to put in cuttings is about the end of July and throughout August, as the wood is then in good condition for the purpose, and if protected by a frame they will root before winter. In the case of the creeping E. radicans and its variegated variety, any of the branches that run along the ground will be often found to have roots of their own, and of course all that is necessary is to separate them from the parent plant; while if a specimen is planted rather deeply, it is often possible to split it up after the manner of a herbaceous subject, or it may be readily struck from cuttings under the same conditions as the other evergreen kinds. E. japonicus and its many varieties root readily enough from cuttings, but they strike in a far more satisfactory manner if protected by a frame or handlight than if put in the open border. A length of 5 inches or 6 inches is a very suitable one for the cuttings, which, having had a few of their bottom leaves removed for the purpose of insertion, must be dibbled rather firmly into pots or pans of sandy soil. Where there are numbers of cuttings the work is simplified if a few inches of suitable soil are placed in the bottom of the frame, pressed firmly down, and the cuttings inserted. When the frame is filled with cuttings they should be watered and the lights put on, shutting them quite close. In this way it will be necessary to shade them from bright sunshine, but directly they are rooted plenty of air can be given. Besides this, I have seen the different evergreen Euonymus grafted on young seedling plants of the common Spindle Tree (E. europæus), with which they quickly effect a union, but as they strike so readily it is by no means necessary to graft them. The common Spindle Tree, as well as the broad-leaved species (E. latifolius), grow rapidly from seeds.

PRIMULA JAPONICA.—As the seed of this Primula ripens it should be sown at once, otherwise, if it is allowed to stand over for a time, the probability is that many, if not all, of the seeds will remain in the ground some time before germinating. T.

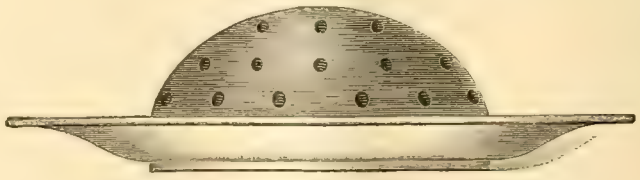
TUBULAR FLOWER-HOLDERS.

AT the recent exhibitions of the Royal Horticultural and Botanical Societies, various groups of cut flowers, arranged on a new principle, have attracted much attention. These groups are in the form of a cone or pyramid, and the peculiarity of them is that all is leaf and flower, the only evidence of a containing vessel being the edges of a flat plate, which appear here and there where not concealed by the border leaves of the group. It is



Dome for holding flowers.

clear that, except by the use of soft plastic clay, it would not be possible to produce these effects in any ordinary vessel. But as clay is not without its inconveniences, a special kind of vessel has been manufactured by Messrs. George Smith and Co., of Commercial Road, Pimlico, in the form of a solid dome or hemisphere, in which are sunk numerous tubular orifices, upright in the centre and gradually diverging outwards till they approach the horizontal. This vessel rests on a separate plate of glass, terracotta, &c., of wide diameter and nearly flat, but capable of holding sufficient water to refresh the border leaves of the group, which form a distinct feature in this kind of decoration. The plate is sometimes placed on a flat circle of dark Utrecht velvet. Flowers and leaves inserted in the tubes take the exact inclination desired, and the design can thus, as it were, be sketched out and studied as the work proceeds. This system gives the power of forming artistic groups, in which characteristic foliage takes a far greater part than is usually assigned to it in floral arrangements. In the case of wild flowers, for instance, Primroses, Bluebells, Digitalis, Campanulas, and others, according to season, are intermingled with Grasses, Ferns, Bramble, and other beautiful foliage which is to be found in every hedgerow. For an aquatic group, Water Lilies are appropriately mixed with Forget-me-not, Rushes, Arrowhead, and other leaves of water plants, while stove and greenhouse flowers are appropriately treated with foliage which thrives in a warm temperature.



Tubular flower-holder in basin.

The smaller domes are best adapted to table decoration, as the flowers do not rise to an in-

convenient height, but some of the tubular holders are made of large size for the display of massive subjects, such as Sunflowers, Pæonies, Hollyhocks, Hydrangeas, branches of flowering trees and shrubs, large Ferns, Rushes and Pampas Grass. These are not easily arranged in ordinary vases, but placed in the wide and deep tubes of such flower-stands, they form striking decorative objects in the halls of country houses, or on drawing-room tables, having all the better effect for the irregularity of outline, which gives a bold character to the grouping.

The main and commendable idea of the invention is to avoid overcrowding, and to give to each spray of leaf or flower its separate and distinct meaning.

Kitchen Garden.

SUMMER TREATMENT OF ASPARAGUS.

Although somewhat late in starting, the Asparagus crop this season has been exceptionally good; in fact, as far as the south-western counties of England are concerned, it is very doubtful if it has ever been better. Not only were the shoots very plentiful and of good size, but the quality also was better than usual. All this goes to prove that the Asparagus is by no means such a moisture-loving plant as many seem to imagine, quite the reverse being the case. At any rate, it is very certain there is much more time and expense expended on the preparation of the beds than is often necessary, with the idea that the roots must have a very deep root-run, as, in spite of the excessively dry season of 1887, our best Asparagus was recently cut from plants growing on ordinarily dug ground. Evidently they did not suffer much from drought in summer, and were actually benefited by the comparatively dry autumn and winter that followed.

Those who wish to maintain this marked improvement in the Asparagus crops ought not to neglect the plants during the summer, as not a little depends upon the treatment now given. Supposing, systematic cutting over, the beds ceased directly Peas were fairly abundant, numerous strong shoots would have quickly run up, more continuing to grow till the present time, and it may be for some time to come. The chances are that thickly planted beds will be much too well furnished with top growth, very little of this being able to become properly developed. Unless, however, the foliage is allowed plenty of room it cannot perform its natural functions properly, and weakly buds or crowns will be the consequence. If the shoots are freely thinned out, those reserved will do their work well, laying the foundation for a crop of fine shoots next spring. Even strong, widely planted clumps will frequently repay for timely thinning out, though it is one of the advantages of the system that there is less harm done when thinning is neglected. It is the smaller growths that should be removed, more especially those left early in the season and which are most liable to produce a plentiful crop of seed. If a few pints of seed are required for sowing next spring, by all means preserve a number of shoots to produce it; but it should always be borne in mind that the maturation of an abundance of seeds has a most weakening effect upon the plants, and ought therefore to be prevented as much as possible. We find the spray very serviceable as a substitute for Fern, being quite as pretty as the latter and much more durable, and this is cut almost daily. Seedlings also are very plentiful this season, and these, or at any rate the greater portion of them, ought also to be cleared off the beds as well as all weeds that may have grown.

In most districts the rainfall during June was very heavy, and considerably beyond the average; consequently, Asparagus on either very rich ground or very deeply dug beds will assuredly not suffer for want of moisture at the roots, come what will. Stiff or clayey land, however, is liable to crack badly in hot, dry weather following upon a heavy rainfall, and very thin or poor soils may also become dry after a few days of fierce sunshine. Either occurrence may be prevented by giving a light mulching of strawy or short manure, leaf soil, spent tan, short Grass from the mowing machine, or fine sandy soil. Our soil being of a cold nature and not particularly well drained usually stands more in need of warmth than moisture, and mulching is not much resorted to, frequent surface stirrings with the Dutch hoe better meeting the case. Young plantations ought particularly to be well attended to, mulchings being especially beneficial to these. Nor should slugs be allowed to skin the stems wholesale, this materially checking the plant's progress. Frequent surface hoeings, dustings with soot and lime, or a sprinkling of salt all serve to check the ravages of slugs, and if this is not sufficient, they ought to be trapped or caught and killed early every morning. Heavy rains and strong winds are also injurious to the young or comparatively young plantations, and the only way to prevent this is to roughly stake up all the strongest growth. Unless this is done many of the shoots will be broken down and the best part of one season's growth be lost.

W. I.



Tubular flower-holder, arranged.

Lettuces.—Summer Cos Lettuces are very plentiful, and, thanks to the heavy rains, very fresh and clean. But the cool weather which induces such good growth checks demand, as salads are less cared for when it is dull and cold. Earlier in the year the Cabbage Lettuces, chiefly Hardy Admiral and Lee's Hardy Green, which had stood the winter so well, bolted off to flower before heads were formed, and thus proved very generally useless. There is too much reason to fear that seed is often saved from early bolting stocks, and thus a bad character is perpetuated. I do not know whether the White Chavigny is hardy enough to stand the winter, but I shall give it a trial in a seed-bed in any case. It is such a reliable kind in the matter of hearting in, and keeping so without readily running off to flower, that if it would stand the winter, a better kind for market work could not be found. A neighbour to whom I gave some plants of White Chavigny put them out between his Potato rows of White Beauty of Hebron, and the other day he invited me to look at them; they were quite hidden by the Potato leafage, but when that was drawn aside, rows of the most delicately blanched and hearted Cabbage Lettuces were seen, quite rivalling in crispness and tenderness the productions of the French clochés. It is, perhaps, worthy of consideration whether, on the whole, we do not grow our summer Lettuces too much out in the broad glare of sunshine, which rather serves to harden the texture of the leaves of this popular salad. A little of the blanching which Endive gets would not be wasted on Cabbage Lettuces.—A. D.

Late-bearing Mushroom beds.—Almost every winter some of our Mushroom beds fail to bear at the proper time. We make up a dozen or more beds from September until February, and although the majority of them bear about five or six weeks after spawning, some of them do not. They are all in cool, unheated sheds or outhouses, and when a bed is late in bearing we have no means of applying more heat as a stimulant, but if a bed spawned in December or January shows no signs of bearing in February or March we never feel concerned about it, and certainly never think of doing away with it, as some might be inclined to do, as we have found out from many years' experience that these late beds rarely fail, and they generally fruit most freely as soon as the weather becomes mild. During April, May, and June we have been cutting many Mushrooms from beds made up in January last, and were it not for these we would not have had any Mushrooms in these months, as we have no materials to form beds after January. In showing these late-bearing beds to some who were interested in Mushroom growing, they have regretted removing some of their beds after allowing them eight or ten weeks to prove fruit-

ful. I would never destroy Mushroom beds until a period of four months has elapsed. I have noticed, too, that beds which sometimes only bear a partial crop at the stated time begin bearing anew when the mild weather comes, and we generally keep all beds of this character on as long as possible. There are others which bear profusely in due time, and these are not retained after they are exhausted. One of the finest crops of Mushrooms I ever saw in a farm outbuilding was shown to me the other day. The bed was formed in December last, cow manure being substituted for horse droppings. It did not bear well in the spring months, but in May and June the Mushrooms appeared in quantity, and the cultivator (an amateur) was more delighted with the crop than any other lot of Mushrooms he ever possessed. Non-bearing beds are apt to be neglected, and after being formed for a month or two they may become very dry on the surface. This is not in favour of the late crop, and the surface should be thoroughly watered and kept moderately moist until all the Mushrooms have been cut. Maggots are liable to infest Mushrooms at this season, but soot water applied to the surface will destroy them.—J. Muir.

CELERY FOR COOKING.

It has been stated more than once that Celery used as a vegetable has some value as a specific for rheumatics and complaints of a kindred character. Whether this be so or not it is certain that when cooked it forms a delicious dish, and that in every family a much larger quantity might be consumed with advantage if it could be obtained. Now Celery suitable for cooking may—in fact, must be—grown in a more wholesale fashion before it can be used as a vegetable to that extent which is desirable as a winter dish. The present system of planting in trenches secures excellent results so far as quality is concerned, but it is an expensive crop, and very few gardens produce enough to permit of its being served up often as a vegetable; but Celery good enough for cooking may be grown without any expensive trench system. Moisture there must be, as a marsh plant cannot be grown well without it. Manure must also be used freely, and it should be well decomposed—in fact, it will be better if worked up into a compost with the odds and ends of waste matters which are constantly accumulating about a house and garden. Several years ago I had a large heap of mud, which had been taken out of a pond and had been pulverised and sweetened by liming and turning over during the previous winter. This was formed into a large bed a foot or so in depth, and planted with red Celery 8 inches apart all over the surface. The plants grew luxuriantly without much attention being given. In autumn they were tied up with matting, and the spaces between the plants filled with dry Oak leaves, in which condition they remained till the plants were lifted for use, when they were beautifully white and crisp, and much freer from blemishes than if grown in the usual way.

Those who have grown Celery on what is termed the bed system know that a large amount of good Celery may be grown on a small space with less labour than is involved in the separate trench plan. A wide trench is made 3 feet or more in width, it is prepared in the ordinary way, and the rows of Celery are planted crosswise of the trench, being earthed when large enough by tying a bit of matting round each plant to keep the leaves together and prevent the soil from finding its way into the heart of the plant. But in a district where tree leaves may be had in autumn they form a better blanching material than soil. Even under the most careful management, when blanched with earth, damp will collect about the hearts of the plants, and decay may set in and do a lot of mischief. But Celery may be grown good enough for cooking without any trench at all. The land should be manured and cultivated in the ordinary way, and then as much compost as can be obtained should be wheeled on the surface, levelled down, and the plants set out in rows 1 foot apart across the piece, and 8 inches or 9 inches apart in the rows. The beds may be 8 feet or 10 feet wide. As some indication of the quantity of produce that may be obtained off a small piece of land by this method, I may say a bed of Celery 50 yards long and 10 feet wide will contain at the distances apart given above 2250 plants. As soon as the plants are fairly established, mulch over the surface with manure; this will keep in the moisture and assist the growth of the plants at the same time. Whenever it is necessary to water, let the work be thoroughly done, and then leave it till a further soaking is required. The water supply is a weak point in nearly every garden, and much labour is wasted in dragging water that might be more profitably employed. The water ought to be laid on in these days of cheap machinery and cheap iron; self interest ought to induce the most rabid stickler for old fashions to economise labour in the watering of the garden. With the water laid about the garden, and plugs at frequent intervals, one man will do as much as half-a-dozen in the ordinary way if it has to be dragged any distance. The plants should be raised without much forcing. If sown the first week in April in a frame with no heat but the natural warmth of the sun on the glass, the seed will germinate strongly, and the plants will be dwarf and vigorous. Prick out on a bed of rich soil 4 inches apart, and transplant when large enough during a dull time. If got out just after the turn of the days they will be in a condition to make rapid growth when the heavy dews and the longer cooler nights of autumn come round, and when the leaves fall remove the small useless leaves and sucker-like growths from the outside. Tie up each plant, drawing the leaves up carefully, and fill in the space between with leaves, pressing them down. Neither frost nor damp will penetrate to any injurious extent.

Celeriac, or the Turnip-rooted Celery, will some day come into repute when it becomes better known. The marvellous thing is, considering its excellence as a vegetable, that it has not made its way into every garden already, but English cooks have their prejudices, and a gardener who did not take these into consideration would always be in hot water.

E. H.

THE POTATO CROP OF WEST CORNWALL.

A critical time has now come in the history of the early Potato crop of 1888 in the vicinity of Penzance—as to the all-important question of price. It is critical, because on this depends the point whether all that part of the yield as yet undrawn or unmarketed is to recompense the market gardener and farmer for their heavy outlay on seed, manure, and labour (to say nothing of anxiety), and so enable them to meet cheerfully their sufficient rent and ever-increasing taxes, or whether this year's season is to be added to several that have entailed serious losses. A word as to the crop itself. First, as to surface appearance. It is generally admitted that there never was a more gratifying sight above ground. Thick stems and luxuriant leafage give greenery to many a field. Indeed, this above-soil verdure is generally voted to be too much "show." The eye is gratified at the expense of the underground esculent. What the sight enjoys now will have to be deducted from the pleasures of the palate. Most of the Potato ground has now something more than an emerald hue, for the pretty blossom dots the leafage, and in some cases that blossom is so general that the Potato ground, in most seasons of an unbroken green, is quite garden-like. What gratifies the on-looker, however, is not so pleasant for the market gardener. So much bloom denotes uneven, poorly-collected seed. The crop cannot be uniform in its yield. Whatever the result of the blooming haulm eventually—that is, if the crop stayed in the ground long enough—beneath it will not now be found the finest or the most tubers. If, however, we have too much of a bright floral aspect, we have no sign of that dreaded speck which denotes disease. It is most gratifying to state that nothing is seen of it this season. In just a few instances, and at the time of or immediately succeeding some wet weather, a leaf or two disclosed a speck, but the dry sunny weather which followed seemed to check and destroy disease. Each day now shows what a bountiful Potato crop there would be if it were left to thoroughly mature. But as soon as ever it was marketable the shovel was at work. The earlier prices of 24s. (for the Cornish bushel) quickly dropped to 21s., 20s, and 18s. Then came—in consequence of abundant supplies of good old Potatoes, the price of which was much lowered, and the influx of Jerseys and French new Potatoes—a sudden fall to 14s. and 12s. These were about the figures last week. Many small growers retailed at 1d. and 1½d. a lb. At 12s. a bushel, even, with this season's excellent yield, it is contended that the present rent and taxes cannot be borne. But Tuesday finds us with wholesale prices of 8s. to 10s. a bushel, and retailers are selling at 14 lbs. and 16 lbs. for a shilling.—*The Cornishman.*

KITCHEN GARDEN NOTES.

Sowing Cabbage Seed.

In most districts there is a fixed time for sowing Cabbage seed, from which it is not wise to deviate. Hereabouts, if the seed is sown much before July 15 the plants are liable to run to seed prematurely, while if it be delayed till near the end of the month the chances are that the plants will not attain a serviceable size before wintry weather checks all further progress. On warmer soils the end of July may be the best time to sow the seed, but my advice to all needing it is to ascertain from friends the date that long experience has taught to be most correct. It is also a fact that some varieties succeed better than others in different localities, and it is these that should be principally relied on. With me the well-known Wheeler's Imperial can always be depended upon, and as this is of neat habit, very hardy, and good in quality, it may well be more generally tried. Ellam's Dwarf Early Spring and Veitch's Matchless are both of compact growth, early and excellent in quality. Hill's Dwarf Incomparable is another close-growing variety and well worthy of a trial. If larger varieties are preferred, either Heartwell Marrow, Enfield Market, or Veitch's Earliest of All may be sown. The last named when sown in July attains a great size in the spring, and though of excellent quality is altogether different to what the catalogue description led me to expect. The seed in every case may either be sown thinly broadcast, and covered with fine soil, or in shallow drills. Birds must be guarded against by the aid of nets, and slugs can be checked by frequent dustings of soot and lime.

Turnips.

If the ground can be spared, a large breadth should now be sown with Turnips. If the sowing is delayed till the end of the month, or later, another scarcity of roots during the coming winter may be the result. Last season, the breadths sown about the middle of July proved exceptionally valuable, none of the later sowings being of any service. For early autumn use the best is Snowball, Veitch's Red Globe forming an excellent succession, being also fairly hardy, while for the latest supplies Chirk Castle Black Stone is unrivalled. The last-named forms but little top, has a medium sized black-skinned root, white flesh, and is the most delicately flavoured variety in cultivation. Turnips may be sown after almost any other crop, and succeed remarkably well in succession to Potatoes. Unfortunately, the latter will be cleared off the ground later than usual, and the Turnips must therefore follow Kale, Broccoli, Cauliflowers, or Peas. It is rarely necessary to dig in any manure for this crop, but a sprinkling of superphosphate sown with the seed favours quick growth. The ground should be thoroughly pulverised, and the drills for the strongest growers be drawn 15 inches apart, those for the Chirk Castle being 3 inches nearer together. Sow the seed rather thinly, cover with fine soil, and level over the ground. In dry seasons it is frequently necessary to water the drills prior to sowing the seed, but there may be plenty of moisture in the ground this year. Directly the seeds germinate, the seedlings must be well coated over with newly slaked lime and soot in mixture, this being renewed as often as the rains wash it off, or otherwise slugs and the flea are almost certain to clear the plants off wholesale. Lightly thin out the plants

at first, and when of good size, finally thin them to a distance of about 9 inches apart.

CARROTS.

Quite young roots are the best for use, and a continuous supply ought easily to be maintained nearly or quite all the year round. Any of the Horn varieties, notably Nantes Horn, Scarlet Model, Champion, and Early Gem are the most suitable for drawing in a young state, and a small sowing of either of these may well be made now or as soon as the earliest Kidney Beans are cleared off a warm border. A second sowing should be made a month later, and thereby a succession secured during both the autumn and winter months. The drills may be drawn 9 inches apart, watered if at all dry, the seed being then sown thinly and covered with fine soil. As a rule little or no early thinning out is needed, this being done as soon as the roots are large enough for use.

ONIONS.

Seldom have so few of the autumn-sown Tripolis run to seed prematurely, but all very much need more sunshine. We have found very few attacked by maggots, and hear few complaints from others. Directly any plants are seen in a half-dead state they should be drawn and burnt. With us mildew first shows itself among the Tripolis, and from these it spreads to the spring-sown breadths if these are near. There appears to be no effective remedy for mildew in Onions beyond the drastic one of pulling and using the roots of all affected with it. Even this is not to be commended if there is any danger of its spreading through the more valuable breadths of spring-sown plants, as mildew invariably checks all further strong growth and thereby greatly impairs the value of the crop. In some cold districts the seed of Tripoli and other Onions to stand the winter is sown as early as the middle of July, but, as a rule, the first week in August is quite soon enough, very strong plants not always being the hardiest or the best for transplanting.

OPEN-AIR TOMATOES.

These have grown strongly and a few of the earliest flowers set well, but dull wet weather is making them much later than we care to see them. All the plants should have their leading shoots kept closely secured to the walls, fences, or stakes, as the case may be, or otherwise they soon become crooked and difficult to train. All side shoots ought to be kept closely pinched out, as a quantity of superfluous growth quite smothers the flowers and also exhausts the energies of the plants. Most of ours are grown with a single stem, and the points of these are not taken out till four or five clusters of fruit are set. All the fruit may not ripen either on or off the plants, but we find the green fruit, both large and small, of nearly as much value as those ripened, and grow as many as possible accordingly. Should the season continue wet and dull, the Potato disease may spread to the Tomatoes, and the only way to prevent this is to cover plants against walls with spare lights from frames, so as to keep the foliage as dry as possible. Those planted in the open ground or clear of walls must take their chance, unless deep frames can be spared. These could either be blocked up over some of the plants with the aid of large inverted flower-pots, or the frames may be set on the ground and the plants taken down from the stout stakes now supporting them and trained afresh over a temporary trellis. The fungus first effects a lodgment on the damp foliage and fruit. W. I. M.

Winter greens.—The only labour incidental to the securing of an abundant supply of all kinds of winter greens later is found now in planting out. For two or three seasons the water-cart had to be brought into use, and labour in watering equal to some 20s. to 30s. in value per acre, and in some cases larger expenditure, was soon absorbed. One good result followed upon this: the green stuffs obtained a very good price during the succeeding seasons, and thus the first considerable cost of planting was recouped this year because of the constant rains. It seems but needful to throw plants down and they will make root and grow. Of course, once planted there is no further trouble, and as a result, not only are unusually large breadths of plants being put out, but the plants are already making strong growth. Some difficulty is experienced this year in the case of those put out between rows of Peas and Potatoes, as both these vegetables are making such excessive growth that many plants will soon be smothered. The best results are found in open land, or where the plants are put out between wide rows of Scarlet Runners. Both Brussels Sprouts and Autumn Giant Cauliflowers bid fair to be very strong and early. It will be no matter for surprise if the green crops of next autumn should prove to be so considerable as to create a glut, and prices in consequence anything but profitable. Early Peas so far have done well, but later ones are filling badly and podding slowly, whilst unusual haulm growth is being made. It is feared that much of the luxuriant growth will lead to the rotting of the stems close to the ground as breadths are becoming yellow already.—A. D.

ORCHIDS.

W. H. GOWER.

BLACK-HAIRED DENDROBIUMS.

THERE are now about a dozen kinds of Dendrobes in cultivation belonging to this the nigro-hirsute class, their title to this name being derived from the quantity of short black hairs clothing the upper part of their stem-like pseudobulbs. These plants were the bugbear of the early Orchid cultivators and complete mastery over them, and a thorough knowledge of their requirements has not yet even been gained, and I do not think anyone could point to a vigorous plant of any species in the section and say he had flowered it successively for say seven years. It was contended some thirty or forty years ago that these plants required great heat, and under this treatment they usually flower well upon the first growth made after arriving in this country. They may flower moderately well the second season, after which the plants become small by degrees until they vanish entirely, and again resort is had to newly imported plants. With the discovery of new forms of this section the theory was advanced that the black-haired varieties should be grown cold, and this system was adopted with more or less success, but I do not think the climatic conditions exist in this country for the continuous vigorous growth of some of the kinds belonging to this beautiful set of plants. Let us take the conditions under which D. formosum grows in its native country. It is said to grow plentifully in Moulmein, but at no elevation above the plains, and always within easy distance of the sea, whilst the variety giganteum is common in the Mangrove swamps surrounding the Andaman Islands in the Bay of Bengal, where the plants are drenched with the spray from the sea in bad weather. In these islands rain falls during eleven months out of the twelve, and consequently the Dendrobiums have no season of rest; but in Burmah, where they do have a resting season, they are exposed during the spring months to a temperature of upwards of 100°, the average temperature ranging from 80° to 85°. Everyone must admit that it is extremely difficult to produce under cultivation in this country such conditions, yet D. formosum and its variety giganteum enjoy strong heat and moisture and a liberal supply of air. The roots do not like to be overburdened with soil, this entailing extra attention in the water supply. The old form of D. formosum is not much grown now, the variety giganteum being much superior. The flowers measure about 5 inches across. The petals are very large, and broader than the sepals, and pure snow-white. The lip is also pure white, stained on the disc with a broad blotch of rich orange (in some varieties pale yellow). The flowers usually appear in the late summer and autumn months, and continue in perfection for several weeks.

D. INFUNDIBULUM AND D. JAMESIANUM are flowers which much resemble each other, and are said to be the same species. I, however, saw the two plants recently flowering in Sir Trevor Lawrence's garden at Burford Lodge, where the differences exhibited are plain and striking, as in D. infundibulum the flowers are more spreading, the sepals and petals pure snow-white, the anterior portion of the lip longer, prettily frilled on the edge, and stained in the front portion of the throat with rich yellow. This plant was introduced by the Messrs. Low, of Clapton, and provisionally named by them D. moulmeinense. The flowers of D. Jamesianum are slightly smaller than those of the last-named plant. The lip is also very different, the side lobes being somewhat rough on the inside, and stained all over from the mouth of the tube with cinnabar-red, the anterior portion being pure white, prettily fringed round the edge, but much shorter than in D. infundibulum. The spur is tinged with green towards the end, whilst in infundibulum the spur is of a pale amber colour from the yellow of the inside showing through. D. Jamesianum was introduced by the Messrs. Veitch, of Chelsea, and both plants may be termed alpine forms of formosum. They are found on the mountains of Moulmein and Arracan at various elevations, where the average temperature ranges from 70° to 80°. In this country I have seen the same plants grow and flower year after year under cool treatment—not the cool treatment as applied to Odontoglossums, but in a temperature intermediate in summer between that of a Cattleya and Odontoglossum house, in situations well exposed to the sun. The flowers of both these plants are very suitable for cutting.

D. DRACONIS is at once distinguished from the two previously named plants by its oblong pointed lip. The flowers are pure ivory white saving a few streaks of cinnabar-red on the lip. It flowers in spring and summer, and lasts in full beauty for a very long time. Native of Moulmein, and perhaps better known by the name of D. eburneum.

D. LOWI is an extremely beautiful species, and as rare as it is beautiful. The flowers are of a pale yellowish buff, saving the lip, which is ornamented with six lines of reddish crimson, and these are fringed with long erect hairs of the same colour. It is a mountain plant from Borneo at considerable elevation, and should thrive with such kinds as Jamesianum, but I have never had an opportunity of growing it.

D. CRUENTUM.—This is an introduction of Messrs. Sander and Co. from the Malay Islands. The flowers are yellowish green, streaked and netted with deeper green, the side lobes of the lip being deep scarlet, while the edge of the front lobe is of the same striking colour. The flowers are produced in pairs from the ripened leafless stems.

D. CARINIFERUM is a somewhat smaller-flowered kind than D. Draconis, and was, I believe, first introduced by myself from Upper Assam. It is also found in Burmah, and is a pretty species which should thrive under the same treatment as Jamesianum.

D. LONGICORNU bears a similar, but smaller flower than that of D. formosum, and does not appear to be much grown. This is to be regretted, as from its size it is admirably adapted for cut flowers, &c. It is one of the earliest introductions of this section, and enjoys strong heat when growing. There remain one or two other kinds of this division, but not of sufficient importance to be recommended.

Eriopsis rutidobulbon.—Naturally this plant is said to grow upon the stems of Palms, but under cultivation it appears to be too cumbersome for block culture, and thrives best in a pot with well drained fibrous peat. The coolest end of an intermediate house suits it well, but it enjoys full exposure to the sun. If the Odontoglossum house is

span-roofed it will grow well there, but it must have plenty of sun. The pseudo-bulbs are oblong, of a dull purplish brown, the surface covered with tubercles which give it a rough appearance, and these bear on the summit two or three large plicate leaves. The scape springs from the base of the pseudo-bulb, and bears a drooping raceme of many flowers, which are very handsome and long-lived. The sepals and petals are spreading, pale yellowish brown bordered with reddish purple, lip three-lobed, the lateral ones large, curving upwards, but not covering the green club-shaped column; ground colour same as the petals, but so thickly studded with dots of dull crimson as to appear of that colour; the front lobe is small, pure stone white, regularly spotted with purplish brown. It is amongst M. ignea, were in such numbers that quantities of cut flowers could easily be had. The advantage of a cool house is evident here, and I believe I have noted that a lean-to house is more conducive to the health of Masdevallias, and a more uniform dampness so enjoyed by these plants is more easily maintained than can be had in a span-roof, while the black markings caused by their great enemy, the black thrips, are seldom seen. The atmosphere can scarcely be kept too cool and moist for these plants with heavy shade. These plants are infinitely less trouble to grow than Disa grandiflora; the colours are more vivid, and they flower more profusely, and yet they are neglected. Why is this? I imagine they are too easily managed, and that it has become the ambition of Orchid growers to love



The Tulip tree (Liriodendron Tulipifera); flowers and leaves. For description see p. 31.

the rarest of Orchids. I recently noted a fine example flowering in the Burford Lodge collection.—W.

Masdevallias at Burford Lodge.—The glories of the gorgeous Cattleyas are over for a time, some few forms of gigas, the beautiful Schilleriana and an early bloom or two of Gaskelliana being all that are now visible. The same is the case with the Odontoglossums, but the house devoted to the Masdevallias was at the time of my visit a perfect blaze of colour. The varieties of M. Harryana were extremely numerous, and nearly all the best coloured forms are included in this collection, and are blooming most profusely. These, with M. Veitchi and that most which requires the most skill to bring it to perfection. I wish growers of greenhouse plants would adopt this system, and then we should have some of the old standard plants to admire again.—G.

Aerides Schrœderi.—This is beyond question the very finest Aerides in the section to which it belongs, being both handsome in its growth and magnificent when its branched spike of many flowers is at perfection. It is not named in honour of the Baron Schrœder, now so well known in the Orchid world for his wonderful collection of these plants, but in honour of a Mr. J. H. Schrœder, who formerly lived at Stratford Green, in Essex, who was a keen lover and a very successful cultivator of Orchids. The plant was imported from Bombay many years ago amongst other Orchids, but that single plant is the only one ever known to have come to this country, and from it all the plants that are in cultivation have been obtained, so that it is always rare and expensive. It appears to be a natural hybrid between A. crispum and A. maculosum, and admirably combines the beauties of the two parents. The leaves are strap-shaped, broad, arranged in a two-ranked fashion, and are of a cheerful green; the spike is branched several times, the racemes being dense and pendulous; the individual blooms are large and delicate, the sepals and petals white tinged with lilac, and dotted with rosy lilac; lip rhomboid with the sides deflexed, middle lobe lilac, streaked on the middle with rose, spur short, yellowish green. It is now in great beauty in the Cambridge Lodge collection at Camberwell.—W. H. G.

Promenæas.—These are charming small growing Orchids, which are deservedly increasing in popularity, and several kinds are now flowering in Mr. Williams' nursery at Holloway, notably P. stapelioides, its blackish purple flowers being very conspicuous; P. Rollissoni, with pale yellow flowers freckled with crimson; and P. citrina, with rich yellow flowers, which are marked with a crimson blotch at the base of the lip, and the side lobes are dotted with crimson. Promenæas should be grown in small earthernware pans, and suspended from the roof, the temperature of an ordinary intermediate house suiting them admirably.

Acineta Barkeri.—This is a member of an old genus which, after some years of neglect, is rapidly gaining favour again, and deservedly so, for the long pendent flowers of rich golden yellow, spotted on the lip with red, are extremely handsome. The fact of the spikes of bloom always taking a downward direction necessitates Acinetas being grown in open hanging baskets. During the growing season they enjoy copious supplies of water, but in winter a decided period of rest is necessary. They require the temperature of an intermediate house. This species is now in great beauty in the Cambridge Lodge collection at Camberwell.—W. H. G.

Dendrochilum filiforme (the Gold Chain Orchid) is now flowering in several collections around London, some few plants of it being specially noteworthy in Mr. Schwann's pretty garden in Wimbledon Park, where many fine plants beside Orchids appear to be nurtured and well cared for. These plants appear to me rather late in opening this season. They come from the Indian Islands, and require strong heat with abundance of water during the growing season, and should not be allowed to get dry at any season. Their flowers last a considerable time in perfection. The present species is a telling plant on the exhibition table.—W. H. G.

White-flowered Orchis maculata.—On several occasions during the past fortnight I have met with pure white forms of our common spotted Orchis. It is somewhat strange, however, that none of these forms are of so vigorous a constitution as the normal plant, and this is likewise noticeable in the white-flowered O. mascula. Is this so in exotic Orchids? O. maculata is very plentiful in this part of Kent, and grows quite as large and vigorous as I have noticed it in any other part of England. The early flowering O. maculata præcox I have been unable to find, even after diligent search, so I conclude that it is only an inhabitant of hilly districts and at altitudes varying from 300 feet upwards—at least it is only in such situations that I have been fortunate in procuring specimens. O. maculata as a garden plant has much to recommend it, for the tall handsome spikes of variously-coloured flowers are very pretty and last for a long time when placed in water within doors. Then the foliage is so pretty, so beautifully spotted and blotched, that one cannot help admiring it, even when destitute of a flower-spike. Few native plants are more easily grown in our gardens than that under notice, for by lifting the roots carefully in autumn and planting at once in

good rich loam they will give no further trouble, with the exception of protecting them from mice. Miss Hope's Orchid (O. maculata superba) I have not yet met with in Kent, but I used to know at least two stations for it in the Cambrian bogs and marshes. As a garden plant it is not easily managed, its requirements being by no means readily procured, even in well-appointed Orchid beds. The speckled leaves and close-set flower-spike render it of great interest.—A. D. Webster.

Mystacidium filicorne.—A pretty little South African plant, with much the appearance of the Japanese Angræcum falcatum, is now blooming freely with Sir Trevor Lawrence at Dorking. Its flowers are pure white, and are furnished with a very long spur. It requires to be grown upon a block of wood in the East India house.

Masdevallia Wageneriana is one of the oldest cultivated species of this genus, having been flowered in the nursery of Messrs. Rollisson upwards of thirty years ago. It is a small-flowered kind, but seen as it now is flowering in the Burford Lodge collection it is a lovely plant, and well deserves a place in every collection of these plants. It forms dense tufts of only a few inches high and flowers in profusion; the ground colour of the broad ovate sepals is spotted with red. It is a native of Central America, but thrives under the coolest treatment.

Cattleya Gaskelliana.—This is an extremely handsome Cattleya, and useful, inasmuch as it commences to bloom upon the growths of the present season just at the time the majority of the large-flowered kinds, such as Trianæ, Mossiæ, and Mendeli, are past. In general appearance it much resembles the form known as the old summer flowering labiata. It is now just coming into bloom with Sir Trevor Lawrence and Mr. Measures at Streatham. In the last-named collection I also noted a pure white-flowered form of great beauty.

Pleione Schilleriana.—This Indian Crocus is peculiar in that it flowers during the summer months, and consequently has the foliage to set off its blooms, but it cannot compete with the winter flowering kinds, although it is very pretty. The flowers are solitary, the sepals and petals being tawny yellow; lip similarly bordered and blotched with orange-red. It is altogether a smaller plant than such kinds as Wallichi, lagenaria, &c., and appears to be somewhat difficult to manage. I recently noted it flowering in Sir Trevor Lawrence's collection, where Mr. Bickerstaffe grows it upon a Teakwood raft on fibrous peat and Moss, and it appears to thrive better than when treated as a pot plant.—W. H. G.

SHORT NOTES.—ORCHIDS.

The Mocassin Flower (Cypripedium spectabile).—This plant is well grown by Mr. Goldring at Singleton. I have never before seen such healthy, vigorous specimens of this lovely hardy Orchid grown in pots. They were much admired when recently exhibited at the Chichester flower show, few people present being aware that such a beautiful plant was so easily grown.—A. H.

Angræcum Scottianum.—This is a species which improves with acquaintance; it has terete dark green leaves and a pure white flower, consisting of a large ivory white lip and long spur, but the sepals and petals are small. A specimen with about ten flowers open is in Sir Trevor Lawrence's garden at Dorking.

Bletia hyacinthina.—Mr. A. D. Webster, in The Garden dated June 16, called attention to this interesting little Chinese Orchid. I can confirm what he says as to its hardiness. It flourishes well here in partial shade, and in a soil of fibrous loam with a little leaf-mould. Its beautiful and curious flowers are just over. It gives no trouble during winter or summer.—J. V., *Cornwall.*

A white-flowered Cattleya intermedia.—A form of this old and well-known kind is now flowering with Mr. Measures at Streatham, in which the individual blooms are large for the species, and it is of a uniform pure white throughout; the stiff sepals and petals add materially to its primness and beauty. Its size renders it suitable for personal decoration.

Bolbophyllum Dearei.—This is an exceedingly rare plant, which, as far as I know, is almost unique in the Burford Lodge collection. It has somewhat the appearance of B. Lobbi. The sepals and petals are of a tawny yellow, veined and spotted with reddish purple; the lip is jointed and rocks about with the slightest breath of wind. It bears a peculiar horse-shoe shaped mark upon the centre, which at once distinguishes it from its near ally B. Lobbi. It is now flowering with Sir Trevor Lawrence.

Masdevallia coradella.—This is an extremely rare species; indeed, the plant now flowering with Mr. Measures, at Camberwell, is said to be the only one known to be in the country, and is one of the plants from the celebrated collection formed by Mr. Hanbury. It does not belong to the gay flowered section, but yet it is very pretty; the ground colour of the sepals is white, spotted with violet and crimson.

Maxillaria venusta.—This is one of the really beautiful kinds which should be grown by everyone having a suitable house for cool Orchids. It produces large nodding snow white flowers, the lip being ornamented with two crimson spots on the disc, and the side lobes bordered with the same colour. It is a profuse bloomer, and the flowers last a long time in full beauty. It is just now very fine in the Burford Lodge collection.

Catasetum tridentatum and atratum.—In Sir Trevor Lawrence's well-kept collection there is always to be found some rare Orchids, and amongst these I recently noted the above two plants; the first, one of the largest flowered, and the latter with pale green flowers spotted with black. Although green flowers have never been popular, the curious form and combination of colour render it attractive.—W. H.

Sobralias are grown largely by Sir Trevor Lawrence, and many of them will soon be in great beauty, S. macrantha being the only species open on the occasion of my recent visit. It is a great pity the flowers are so fugitive, but this is compensated for by the number of blooms which succeed each other from the same sheath. The plants resemble slender Bamboos in growth, and should be more extensively grown, as they give a very tropical appearance to an Orchid house, even when not in flower.—W. H. G.

Habenaria bifolia.—In reply to Mr. Webster's inquiry, I have had Habenaria bifolia in my wild garden for at least three years, and I believe it is now thoroughly established. I have several plants growing under the shade of some trees in rather dry soil full of roots, one in damp soil (this came up this year with a double spike), and one or two in the bog garden. They all look equally healthy. The first time I tried to grow them here the plants were removed from their natural habitat while in flower, and they failed. I afterwards got some later in the season, and they all came up in the following spring and are still alive. The secret, I am sure, of success with things that are difficult to grow is, first, to remove them at the right time, and, next, to surround them as nearly as possible with the conditions under which they grow in a state of nature.—F. W. Harmer, *Norwich.*

Societies and Exhibitions.

NATIONAL ROSE SHOW.

July 7.

The Rose season of 1888 once promised to be as brilliant as any of its predecessors, but cold winds and heavy rains destroyed the beauty of the opening flowers and dispelled the hopes of the rosarian. This statement may be qualified, however, as on the occasion of the National Rose Society's exhibition at the Crystal Palace on Saturday last we scarcely remember having seen within the past few years the dark-coloured Roses in such striking perfection. In 1887 it was the Tea and pale varieties that were displayed as perfectly as they well could be, but this year they were presented splashed, torn, and spotted, leaving the dark Roses that were miserably inferior in 1887 alone worth inspecting. As regards the Tea section, there was not a stand, from the best to the poorest, in which the flowers had the splendid quality of those of last season; even the premier blooms were marred by the weather, and the delightful tints of such lovely varieties as Mme. de Watteville unfortunately lost. Mme. Cusin, one of the richest of this class, was well coloured throughout, and in individual instances also some of the other leading varieties were in good character. The charm of the extensive Rose show of Saturday was in the dark Roses, and it was the more interesting, as such varieties as Prince Camille de Rohan, Duke of Edinburgh, Marie Baumann, A. K. Williams, with others we might name, were faultless in colour and form. This season has brought out the splendid beauty of varieties not often seen on the exhibition board in first-class character, as, for instance, Duke of Edinburgh, Prince Camille de Rohan, and Duke of Wellington. That richly coloured and now popular Hybrid Perpetual, Ulrich Brunner, was again good, showing that it seems to be a Rose for all seasons, as in 1887 it was certainly the premier flower of the year. The exhibition itself was as large as it has ever been. In many of the classes there was great competition, so that the centre transept of the Palace was filled with flowers.

The great class in the exhibition was that for seventy-two varieties, the first prize a challenge trophy. In this Mr. Frank Cant, Colchester, was the winner, and exhibited a fresh, interesting, and finely coloured collection. Such favourites as Horace Vernet, Marie Baumann, Pride of Waltham (of a beautiful shining rose tint), Prince Camille de Rohan, E. Y. Teas, Glory of Cheshunt, Duke of Wellington (a deep crimson flower), General Jacqueminot, Crown Prince, Countess of Rosebery, Alfred Dumesnil (a beautiful variety, of a rose colour and full form), Abel Carrière, Duchess of Bedford, Marie Verdier, Etienne Levet, and Heinrich Schultheis were in admirable condition. The last of this list was fairly good throughout. It is an open, large, and rich rose-coloured flower. Messrs. Paul and Son, of Cheshunt, were second, and in the large stand were good flowers of Ulrich Brunner, Mrs. Chas. Wood, which partakes of the character of the last-mentioned Rose, but deeper in colour and of the same full form; a seedling with massive petals, of dark colour shaded with a purplish hue; and General Jacqueminot, that was excellent everywhere. When seen as it was last Saturday, this old Rose is still amongst the best. Its deep colour, splendid petals, and fragrance are unsurpassed. Mr. B. R. Cant was third, and amongst the varieties was Gloire de Vitry, an open, shining, rose-coloured flower. A class well represented was that for forty-eight distinct Roses, three trusses of each, and Mr. B. R. Cant was first here, staging those varieties previously mentioned, also Louis Van Houtte, Thomas Mills, Alfred Colomb, and Charles Lefebvre in all their freshness, delightful colouring, and regular form. Messrs. Paul and Son were second, showing the variety Duke of Edinburgh in good form, the brightly-coloured Mdlle. Prosper Laugier, and the very deeply coloured Victor Hugo. Mr. George Prince, of Oxford, was first for twenty-four. There was again a good competition in the class for forty-eight Roses, distinct single trusses, and here Mr. Wm. Rumsey, of Waltham Cross, was the most successful with a very even, well coloured, and excellent lot of flowers, the same varieties occurring again as noted before; the second prize going to Messrs. Jefferies and Son, of Cirencester. Messrs. G. and W. H. Burch exhibited the best flowers in the class for twenty-four single trusses, having the bold Heinrich Schultheis as good as we have almost seen it, with Ulrich Brunner in splendid character and the beautiful Francois Michelon. We mention the second prize stand, that of Mr. G. Mount, Canterbury, to note his flower of Duke of Edinburgh, and we could here see the beauty of this delightful crimson Rose. In the corresponding class for three trusses of each there was great competition and general excellence, Mr. Prince coming first. The blooms of the Duke of Edinburgh and Francois Michelon varieties deserve mention.

The classes for single varieties were one of the best features of the exhibition, and nurserymen came out strongly. The twelve blooms of the variety Prince Arthur, from Mr. Charles Turner, of Slough, showed the excellent character of this Rose. It is of the General Jacqueminot type, crimson, with the outer petals paler. Presented in a mass, it is strikingly rich and fresh. Mr. B. R. Cant, who was second, had that grand dark and deliciously sweet Rose, Prince Camille de Rohan. Another interesting class was that for twelve single trusses of any crimson Rose except Marie Baumann and A. K. Williams. Here Mr. B. R. Cant was first with

the variety Duke of Edinburgh, of a rich and glowing crimson shade of colour. For six trusses of any Hybrid Perpetual Rose, Mr. T. B. Hall, Rock Ferry, Cheshire, was first with six excellent blooms of the silvery pink Mme. Gabriel Luizet, Mr. W. J. Grant, of Ledbury, showing A. K. Williams, a Rose that is in splendid condition this season. For effect, the class for twelve single trusses, six Hybrid Perpetual and six Tea varieties, was the most attractive, as the blending of colours was extremely happy. Mr. A. Slaughter, Jarvis Villa, Steyning, showed General Jacqueminot and the delicately tinted Marie Van Houtte, and was placed first. Mr. S. P. Budd, Bath, for twelve single trusses of any white Rose except Niphetos, exhibited Merveille de Lyon, but the purity of the flowers was destroyed by the weather. Messrs. Paul and Son showed The Bride, a variety that is making its way, but many will not like the greenish tint that runs through the flower. It is certainly not so pure as Niphetos.

The glorious dark-coloured A. K. Williams had a special class devoted to it, and Mr. B. R. Cant staged the best twelve flowers, almost every one faultless in colour, freshness, and expression—a delightful exhibit. All through these classes for single varieties the dark Roses were pre-eminently above the others; those who admire this class could here see the golden qualities of their favourites. There was a contrast in the class for twelve blooms of the variety Lady Mary Fitzwilliam, as the blooms were damaged; Mr. Prince was first. As in the class for A. K. Williams, that for twelve blooms of Marie Baumann made a grand show of colour, and those staged by Mr. Turner well deserved the premier award.

Amateurs are always a large body at the Rose shows, and, as usual, produced a strong contest for the prizes on Saturday. Mr. R. G. Baker, Heavitree, Devon, was first for forty-eight distinct varieties, single trusses, and had on the whole excellent flowers, full, good in colour, and fresh; the same varieties that have been specified before were the finest. A variety named Gloire de Bourg-la-Reine—far too long a title—deserves a note; it is crimson with shining rose petals, a well-built flower (a challenge trophy is in this class the first prize). Mr. W. J. Grant, Ledbury, came second with flowers of commendable quality, amongst them the variety Duke of Teck, a full, self crimson-scarlet colour, globular in form, and excellent in finish. Mr. J. Ridout, gardener to Mr. T. B Heywood, Woodhatch Lodge, Reigate, was first for thirty-six varieties, single trusses, and showed an excellent collection of flowers, in which that little-seen Rose Ferdinand de Lesseps, or Maurice Bernardin, of a rich crimson colour, was well shown. Francois Michelon was admirably exhibited, also General Jacqueminot. Mr. R. G. Baker had the finest twenty-four Roses, three trusses of each, the flowers of general excellence, full, fresh, and brilliantly coloured. Ulrich Brunner was shown to advantage, also the velvety crimson, almost black, Prince Camille de Rohan. The stand of Mr. W. J. Grant, who was second, contained beautiful examples of dark Roses; there were the varieties Duke of Edinburgh, General Jacqueminot, Prince Arthur, Prince Camille de Rohan in perfect form and colour, also Comte de Raimbaud, a crimson-purple, full, and showy Rose. For twenty-four single trusses, Mr. R. E. West, of Reigate, was first, closely followed by the Rev. H. A. Berners, Ipswich. Mr. J. Ridout showed the best eighteen Roses, but the flowers were in many instances spoilt; the colours were grand, especially in the dark Roses, and the velvety crimson Xavier Olibo here appeared in its best dress. The flowers of Mr. E. B. Lindsell were much bruised in some instances, but the hardy Ulrich Brunner was as fresh and lovely as ever. For twelve distinct varieties, three trusses, Mr. R. E. West was first. There was great competition for eighteen single trusses, and Mr. H. Foster, Ashford, Kent, was first with an even, fresh collection of Roses in several varieties. One variety, Pride of Ashford, was shown, and is as deep as Prince Camille de Rohan, sweet, and velvety black, with a shining purplish blue tint covering the strong petals. The Rev. A. Cheales, Brookham Vicarage, Surrey, was first for twelve distinct varieties, and had beautiful flowers. Lieut.-Col. F. Standish Hore, St. Asaph, was second. For nine, the Rev. Frank S. Taylor, Littleton Vicarage, Evesham, was first—Ulrich Brunner, as usual, being a leading feature.

TEA ROSES we must dismiss in a few words, as they were far below the Hybrid Perpetual varieties in point of quality. Mr. G. Prince was one of the most successful in the nurserymen's division. He was first in the leading class for twenty-four, with Mr. B. R. Cant in the second place. For eighteen, Mr. J. Mattock, Headington Nursery, Oxford, was first. Mme. Willermoz, Mme. Lambard, and Hon. Edith Gifford were shown creditably. Princess Vera was in capital form; it is white, tipped with pink, very delicate. Mr. G. Prince had the best twelve flowers, and also the finest eighteen single trusses, having good examples of Comtesse de Nadaillac, the Rose that was shown so grandly last season; Anna Ollivier, and Mme. Cusin, splendid in colour.

Amateurs invariably show well in the Tea or Noisette division, and this season there was no exception to the general rule. The Rev. F. R. Burnside had the finest eighteen flowers, amongst which the lovely Mme. de Watteville was fairly good, but nothing like last year. A Tea not often seen is Comtesse Panisse; the colour is somewhat bright flesh, with an occasional petal shaded pale cream. Rev. F. Page Roberts was second. Mr. R. L. Wright was first for twelve, having Comtesse de Nadaillac of good quality. In the other class for twelve, the Rev. F. R. Burnside, Campden, Gloucestershire, was first. The Rev. L. Garnett showed the best nine flowers distinct, having, amongst others, the dark-coloured Jules Finger. For six varieties, the Rev. Frank S. Taylor was the most successful, and for six single trusses the Rev. A. Foster Melliar showed creditable flowers of the delicate Marie Van Houtte. Mme. Lambard was exhibited by Mr. R. G. Tucker, Swanley, who was second.

NEW ROSES were not surprising. The gold medal that is offered for the finest three trusses of new Roses was not awarded, as no flower was considered worthy of it. There were, however, classes for new Roses, and for six, Mr. T. W. Girdlestone, Sunningdale, was first; he showed Souvenir de Gabrielle Drevet, a Tea variety, white flushed pink; the mauvy tinted Clara Cochet; Silver Queen, rose; Souvenir de Victor Hugo, as bright as General Jacqueminot, which it resembles; Victor Hugo, very deep colour; and Mrs. John Laing, bright pink, full. Messrs. Paul and Son had the best twelve distinct, but the class for twelve single trusses of one variety was the brightest; they had excellent flowers of the variety Mrs. John Laing, which showed its fulness of character, delightful informality, and cheerful rosy pink colour. It appears to be an important contribution to our exhibition Roses.

There were several other classes, but it is impossible to give a detailed notice of them here. The twelve bunches of button-hole Roses shown by Mr. Mattock displayed an exquisitely beautiful class; what can be more lovely in the bud than the pinky Homère, or the brilliantly showy Ma Capucine? Messrs. Bunyard, of Maidstone, exhibited the finest Moss or Provence Roses, beautiful flowers, better seen on the plant than on the exhibition stage, and many fine old Roses were seen in the collection of garden varieties from Messrs Paul and Son.

PREMIER ROSES always excite interest. The Rev. A. Cheales had the best Hybrid Perpetual in the show, a magnificent flower of Camille Bernardin, faultless in shape, colour, size, and freshness; we scarcely remember seeing a finer example of this crimson Rose. In the nurserymen's division the model Rose amongst the Hybrid Perpetuals was Etienne Levet, shown by Messrs. Cranston, of Hereford. It was a splendid, massive flower, perfect as regards colour and fulness. Mr. R. L. Wright exhibited the best Tea Rose, showing Mme. Cusin, the largest flower we have seen of it, but without its glowing colour. In the nurserymen's classes, Jean Ducher, exhibited by Mr. J. Mattock, was the premier flower; it was large, but otherwise not of great merit.

Amongst miscellaneous exhibits were admirable Roses from Messrs. Veitch and Sons, of Chelsea, and Mr. W. Taylor, Hampton; tuberous Begonias from Messrs. H. Cannell and Sons, Swanley; Verbenas from Mr. W. Stacey, Great Dunmow; Pansies in many varieties from Messrs. Dobbie and Co., Rothesay; herbaceous flowers from Messrs. Cheal, of Crawley; Carnations from Mr. C. Turner, Slough; and Oranges, Nectarines, Cherries, &c, from Mr. T. Rivers, Sawbridgeworth. Special prizes were also offered by Messrs. Sutton and Sons and J. Carter and Co.

A full prize list is given in our advertising columns.

ROYAL HORTICULTURAL.

JULY 10.

HARDY flowers in season, such as early Lilies, Delphiniums, Gaillardias, and Roses, comprised the chief things at the meeting in the Drill Hall, Victoria, on Tuesday last.

OSTROWSKIA MAGNIFICA.—This was the most interesting plant exhibited, and certainly the finest new hardy flower we have seen for a long time. Cut spikes of it were shown by Messrs. J. Veitch, of Chelsea, who have it in bloom in their Coombe Wood Nursery, as noticed in THE GARDEN, July 7 (p. 17). It is a herbaceous perennial from Central Asia, and flowered last week for the first time. It is quite a surprise, as the flowers are fully 4 inches or 5 inches across, bell-shaped, and of a very delicate purplish tint, boldly veined. The leaves are in whorls, and the whole character of the plant betokens a robust constitution. It grows in the open air at Coombe Wood.

PRUNUS DOMESTICA VARIEGATA.—A brightly variegated variety of the common Plum, the leaves blotched with green and yellow, the young tips dull bronzy red. It appears to be an ornamental tree of no mean value. From Messrs. Paul and Son, Cheshunt.

DELPHINIUM USTANE.—A very fine variety, one of the best of a batch shown by the Messrs. Kelway, of Langport. It has a bold, handsome spike, the flowers large and blue, with the inner petals of a peculiar shining mauvy rose tint.

D. PRINCE OF NAPLES.—This has a tall, well developed spike, the flowers individually large, dark blue, with the inner petals bronzy red.

ALLIUM PEDEMONTANUM.—This is an old, but uncommon plant, one of those beautiful hardy flowers seldom seen. It comes from Piedmont, and is an excellent rock plant, its graceful pendent clusters of rosy purple flowers, borne about six together, having a charming appearance. There are a few other Alliums that may be classed amongst the best of hardy flowers. Shown by Mr. Ware, of Tottenham.

GYMNOGRAMMA PEARCEI ROBUSTA.—An exceedingly handsome Gymnogramma, the fronds like beautiful lace, pale green, finely divided and graceful. It is, as its name denotes, of robust habit, and is a most welcome addition to a lovely class of Ferns. From Messrs. J. Veitch and Sons, Chelsea.

RHODODENDRON SOUVENIR DE J. H. MANGLES.—This greenhouse variety has a good truss of large, pale brick-red coloured flowers, quite a new tint. From Messrs. J. Veitch and Sons.

ESCALLONIA PHILIPPIANA.—This was also exhibited by the Messrs. Veitch, and though it is not new it should be better known, as there are not many shrubs so beautiful as this that bloom in July. The long, slender shoots, clothed with small deep green leaves, are laden with myriads of tiny white flowers, that when a large bush is in full bloom are quite showy. It thrives well in the Coombe Wood nursery, and is hardy. Such things as this scarcely show their true beauty when cut.

CARPENTERIA CALIFORNICA.—A coloured plate of this was given in THE GARDEN for January 29, 1887. Our illustration was from a plant in the garden of Miss Jekyll, Munstead, Godalming, and the flowers in the present instance came from the same

Surrey garden, exhibiting this pure white and delightful Californian shrub in its finest character. It should become widely grown, and is already fairly common considering it was introduced comparatively recently.

CARNATION GERMANIA.—This is an excellent self Carnation of the Pride of Penshurst character. It is of neat, full, regular outline, and of a rich yellow colour. From the flowers we saw it does not split the calyx. If it only had fragrance, which it seems to totally lack, it would be unsurpassed in its line of colour. Messrs. Hooper and Co., Covent Garden.

CŒLOGYNE SANDERIANA.—This is a Cœlogyne of the ocellata section apparently. The plant of it shown by Mr. Jaques, gardener to Baron F. D. Rothschild, Waddesdon Manor, Aylesbury, bore a raceme of seven flowers, which are of comparatively large size, ivory white in the sharp-pointed sepals and petals, and with a narrow lip, yellow at the base, pencilled in the throat with dull red. It has an aromatic perfume like that of Schubertia grandiflora.

PTERIS TREMULA ELEGANS.—A remarkably elegant form, the fronds bending gracefully, giving the plant a frail, slender aspect. It is of a pleasing shade of green, and will make a good specimen. From Mr. H. B. May, of Edmonton.

The group from the Royal Gardens, Kew, was a most interesting contribution, and it is well that such a variety of choice things from the greatest of botanic gardens should be sent to these fortnightly meetings. Many of the exhibits we have already recently described in the "Notes of the Week," and some also receive recognition in the columns of the present issue. There were several pots of the beautiful rosy-flowered Erythræa diffusa, a native of the Azores, a large specimen full of flower of Schubertia grandiflora, of which a coloured plate was given in THE GARDEN July 30, 1887. Its Cocoa-nut-like fragrance is as marked a feature of the flowers as their ivory whiteness. Dianthus Grievei was capitally shown, and amongst other notable things were the downy-leaved, robust, rose-crimson-flowered Primula mollis, Allium cæruleum, with a rather small head of blue flowers; Phyteuma limonifolia, bearing tall spikes of starry blue flowers, a graceful, beautiful plant; and Olearia insignis, with the ray florets white, the stamens yellow, and the leaves leathery.

Hardy flowers were not so numerous as we should have liked to see. Messrs. Kelway and Sons, Langport, received a silver medal for a group of Amaryllis, Delphiniums, and Gaillardias. A special note respecting the Amaryllis was given in THE GARDEN, p. 18. This firm has obtained an excellent assortment of Delphiniums. The plants have tall, robust spikes of flowers of all shades of colour. Archidamnus, deep blue; Blue Sky, delicate blue; Prince Oscar, fine single purple; Acantha, blue; Wildenow, blue; and Agnes Mary Kelway, blue, dense spikes, we singled out as well worth a note. The stands of Gaillardias showed how this rising flower is improving. We hope that the well-defined colouring so admirably depicted in the Gaillardia will not be destroyed by hybridising. Excelsior, deep red, tipped with orange; Roselle, yellow; Mrs. Kelway, red and yellow; Splendidissima plenissima, a kind of semi-double, deep red, with the petals tipped with yellow; Formosa, neat, with a central ring of deep red, were excellent varieties of desirable robustness. Mr. T. S. Ware had a large bank of miscellaneous hardy flowers. There were forms of the beautiful Erigeron speciosum, Iceland Poppies in variety, striking by reason of their brilliant colours; the white Chrysanthemum maximum; Armeria cephalotes rubra, with heads of rosy red flowers; Gaillardia luteola and Admiration, two noteworthy varieties; as also Tufted Pansies and Chrysanthemum semi-duplex, which has been described before. Lilies are now opening their flowers fast, and Mr. Ware showed varieties of the Martagon Lily, the scarlet L. pomponium, the yellow L. Parryi, and Liliums alutaceum and Prince of Orange, both allied. Messrs. Paul, of Cheshunt, had alpine plants, including forms of the common Campanula rotundifolia, such as the white C. linifolia alba, the blue C. Scheuchzeri, two sweet gems. There were also exceedingly well-flowered plants of Edraianthus dalmaticus and of Campanula pelviformis, a form of turbinata, the flowers of delicate porcelain blue; Epilobium Fleischeri, of mossy growth and with rose-purple flowers, was conspicuous. Miss Jekyll, Munstead, Godalming, sent, besides the Carpenteria californica, flowers of the Carnation Pink, quite white, small, double, and deliciously fragrant, and the deep blue Siberian Larkspur. Mr. G. F. Wilson, of Weybridge, had Lilium monadelphum Szovitzianum, of which a coloured plate was given in THE GARDEN, Feb. 26, 1876, and L. Hansoni. The stem of the first of the two was 7 feet, and bore flowers that showed how splendidly this Lily thrives at Weybridge; L. Hansoni was a foot shorter, the flower orange, richly spotted; it had been grown in the open air at Wisley. Erigeron multiradiatum has a fine deep violet-purple flower, and Mr. Wilson also sent the Welsh Poppy (Meconopsis Wallichi) in two colours, steel-blue and purplish. Mr. Walker, of Thame, Oxon, exhibited a box of the dwarf Dutch Honeysuckle, Sweet Peas in variety and of great merit; also a fine strain of Sweet Williams, described as Auricula-eyed. The Sweet Peas from Mr. Eckford, Boreatton Park Gardens, Shrewsbury, were as fine as ever; he has done wonders with this flower. Seedling Pansies also came from this grower. Pot plants of the purple-flowered Orchis foliosa were sent from the society's Chiswick Garden.

The collection of Ferns from Mr. H. B. May, of Edmonton, included such interesting forms as Adiantum Weigandi, the dense-growing Pacotti, and the handsome Reginæ, rhodophyllum, scutum, Williamsi, and decorum. A. Mariesi is a dark-coloured, free-growing Fern of the Capillus-veneris type; Pteris hybrida has an upright, dense habit. The Ferns mentioned include some of the best that can be grown.

Messrs. J. Veitch, of Chelsea, contributed a large group. There were several specimens in pots of the fragrant Clethra alnifolia with white spikes of flowers; it makes a capital pot plant; also the white bell-flowered Andromeda speciosa pulverulenta, the scarlet Clematis coccinea, the mossy, white-flowered Pratia angulata or Lobelia littoralis, Philadelphus microphyllus, with small white flowers; and a collection of early-flowering Gladiolus, of which Rosea maculata, fiery red, lower segments blotched with white; Prince of Wales, bright scarlet; Delicatissima, blush tint; Lord Grey, salmon-red; General Scott, blush, lower segments coloured with scarlet; and Ardens, scarlet, were varieties that should be obtained for their choice range of colours and fine spikes.

ROSES are just now at their best. Messrs. W. Paul, of Waltham Cross, had seedling varieties, amongst which were the Hybrid Perpetual Inigo Jones, a full, crimson, fragrant variety of promise; Silver Queen, of the Baroness Rothschild shade of colour; Duchess of Albany, very free, rosy red; and the dark-coloured Grand Mogul; also the pretty Moss Roses Little Gem, crimson, and Little Pearl, white. Mr. Ridout, gardener to Mr. T. B. Haywood, Reigate, showed several boxes of Roses, amongst them a matchless flower of the lovely Horace Vernet. Messrs. Keynes, Williams and Co., Salisbury, had also a large collection of Roses (bronze medal). The same varieties that were so fine at the Crystal Palace appeared here. Mr. C. J. Grahame, Croydon, had several superb flowers; the one of Baroness Rothschild was the finest we have seen in this notably bad year for light-coloured varieties; the flower had all the freshness and delightful tint of this Rose. From the same exhibitor came excellent flowers of Lilium japonicum Krameri, a beautiful Lily when well grown, as here presented; it is cultivated in the open. Messrs. Paul, of Cheshunt, had a box of interesting Roses. The best of all was the Glory of Cheshunt, a climbing variety, wonderfully free, and the flowers of almost exhibition standard. Why do we not see more of the finer kinds of climbing Roses in gardens? We may mention that the same exhibitor had several Spiræas, as S. Douglasi, pink; salicifolia, bold, closely packed spikes of rose flowers; the pink-flowered Acacia Decaisneana, and Veronica Traversi præcox, flowers bluish, and the growth compact. Roses, as the Persian Yellow, Maiden's Blush, and the Crimson China, were sent by Mr. Walker.

ORCHIDS were not numerous. Two delightful boxes filled with cut spikes of excellent varieties of Odontoglossum Alexandræ were sent by Mr. Ridout (silver medal). From the same also came a white form of Miltonia vexillaria. Mr. Cowley, gardener to Mr. F. G. Tautz, Studley House, Shepherd's Bush, showed the small-flowered, pale rose-lilac Dendrobium hercoglossum, a fine variety of Cattleya Gaskelliana, and a white variety of the same, also the long-tailed Cypripedium Wallisi. Messrs. Sander, of St. Albans, had Lælia majalis and the new L. Eyermani, described as a probable natural hybrid between L. autumnalis and L majalis. The flower is medium in size, neat, something like that of L. majalis in colour, but paler, and Epidendrum vitellinum majus, remarkable for its large ovaries. A well-grown specimen of Grammatophyllum Ellisi from Mr. G. Firth, Manningham Thorpe, had two racemes of the glossy brown flowers.

The tuberous Begonias of Messrs. John Laing and Co., Forest Hill, showed the flower in perfection. The double variety, Duchess of Teck, we can scarcely think could be surpassed for size; it is sulphur-yellow. This firm also offered prizes for three double-flowered Begonias and six single varieties. Mr. Hodgeson, Shirley Cottage, Croydon, won the first prize in the former class, and in the other, Mr. A. Newell, gardener to Sir Edwin Saunders, Wimbledon, had the best, Mr. Wright, Devonhurst Gardens, Chiswick, showing well; he was placed second. Caladiums were exhibited by the same firm. Messrs. H. Cannell and Sons, of Swanley, had Gloxinias with bold, sturdy flowers (spotted) and Coleus Hart's Conqueror, a brightly coloured variety. Mr. Noakes, Brockley, sent a yellow Carnation, but no better than existing kinds.

Of fruit and vegetables there was very little. Messrs. Veitch had a collection of Peas to show habit and productiveness. Chelsea Gem, American Wonder, and William Hurst were strikingly dwarf and ready at the end of June. Such sorts as these would do for the smaller gardens. Messrs. Lovell, of Driffield, showed fruits of the Vicomtesse Héricart de Thury and the excellent early La Grosse Sucrée Strawberries.

Council meeting.—In consequence of the great success of the last Apple and Pear conference, and in order to correct and bring up the reports then published to present date, the council of the Royal Horticultural Society have decided to hold another Apple and Pear conference at their Chiswick gardens from October 11 to 18. Anyone desiring information in reference thereon is requested to communicate with Mr. A. F. Barron, Superintendent, Royal Horticultural Society's Gardens, Chiswick.

BOOK RECEIVED.

"How to Grow Tomatoes." *The Horticultural Times* Office, 127, Strand, London, W. C.

Names of plants.—*W. Nelson.*—1, Peristrophe salicifolia variegata; 2, Duranta Plumieri variegata.——*J. Malcom.*—1, Tsuga Sieboldi; 2, Cupressus macrocarpa; 3, Taxodium distichum; 4, Syringa Emodi; 5, Taxodium sempervirens; 6, Cupressus sempervirens—all very fine specimens.——*F. W. H.*—The Orchid is apparently Stanhopea Wardi aurea, but the flowers were very much withered; the Lily is Lilium monadelphum Szovitzianum, and the other flower is Salvia Horminum.——*W. W.*—Rose Maiden's Blush.——*R. Wharfe.*—1, Doronicum austriacum; 2, Thalictrum aquilegifolium; 3, Hemerocallis flava; 4, Begonia fuchsioides; 5, Begonia Weltoriensis; 6, Hydrangea paniculata grandiflora.——*Sentax.*—1, Clematis erecta; 2, Spiræa Aruncus.——*Valentine Cluse.*—1, Hesperoscordum lacteum; 2, Triteleia laxa; 3, apparently Campanula Scheuchzeri—should like to see foliage.——*No name.*—1, Selaginella Apoda; 2, Nephrodium molle; 3 Pteris cretica albo-lineata; 4, Adiantum Capillus-veneris; 5, Selaginella Martensi.

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WOODS & FORESTS.

THE MANNA, OR FLOWERING ASH.

(FRAXINUS ORNUS.)

SINCE writing a short note in THE GARDEN regarding the above tree, I have had numerous inquiries regarding it as well as several applicants for specimens. This clearly proves that the tree is but little known in our home collections, for several of the interested parties have large and well-arranged collections of hardy trees and shrubs. To save trouble in replying to all, I think it well to supplement my previous short note by a full description of the tree as now seen in the grounds at Hollydale. Casually examined, the Manna Ash resembles very nearly our common Fraxinus excelsior, but the whole tree is smaller, more compact of growth, and with shorter and narrower leaves. It blooms very freely even in a young state, the large, open, plume-like panicles of deliciously scented greenish white (almost white is, perhaps, a better phrase to use) flowers being produced in great abundance during the last week of May and first week of June. The fragrance exhaled by the flowers, particularly after a warm shower, is distinctly perceptible for several yards away from where the tree is growing. The flowers last for three weeks, but if cut and placed in water wither in one-third of that time. In the Hollydale tree, which has attained to full dimensions, the leaves are elliptic-shaped, 2½ inches long by 1½ inches wide, distinctly serrated, and of a much lighter green than in the common Ash. Indeed, the colour and shape of the leaves put one much in mind of those of the Walnut (Juglans regia). They are smooth almost as if oiled over on the upper surface, while beneath they are downy, not all, but particularly near the base and along the midrib.

Usually seven leaflets compose the leaf. The bark is smoother than in the common Ash, generally speaking, purplish yellow in colour, and usually marked with lighter coloured spots. At no time is the Manna Ash more beautiful or conspicuous than when loaded with its panicles of flowers, these usually averaging 10 inches in length by fully half that in width. As before stated, they are nearly white in colour, and being produced thickly on the tree have a very pleasing and effective appearance. The branches are short and twiggy, not nearly so brittle and lithe as those of Fraxinus excelsior, and produced almost at right angles to the main stem. From 30 feet to 40 feet is the usual height attained by the Manna Ash in its native wilds, and the Hollydale tree is not much short of these dimensions. As regards choice of soil, the Manna Ash would not seem to be over-particular, at least, judging from the specimen here, a dampish loam of fairly good quality suiting its wants admirably. It does not want shelter, for the tree under notice is growing in the open park beside some gnarled and weather-beaten Cluster Pines (Pinus Pinaster).

The manna of commerce is obtained from this tree, which flows freely enough during the warmest weather.

Propagation of this tree is usually effected by grafting, but I see no valid reason why layering or increase by cuttings might not be resorted to. When good stout plants can be obtained at the rate of 1s. each, it is to be regretted that so distinct, handsome, hardy, and easily grown a tree as the Manna Ash is not to be found more generally cultivated in this country.

A. D. WEBSTER.

Stupid planting.—According to the English papers, an extraordinary piece of tree planting has been undertaken in Wales. On the side of Moel Rhiwen Mountain a loyal enthusiast—Mr. Assheton Smith—is inscribing in letters formed with trees, and each 600 feet in length by 25 feet in width, the words "Jubilee, 1887." The first trees were planted with much ceremony on the Queen's jubilee day; 630,000 trees will be needed to complete the giant inscription, and 200 men are constantly employed upon the work. It is not pleasant to think what an amount of good planting might have been accomplished if a different direction had been given to the expenditure of all this energy and money, which now will go merely to disfigure a whole country-side with a colossal monument to wastefulness and bad taste.—*Garden and Forest.*

FOREST TREE PLANTING ON THE PRAIRIES.

AMONG the various methods of planting trees on the prairies, two have been recommended as more expeditious than digging holes for the roots and covering with the spade. One is to mark off the ground both ways as for a corn crop, and at the intersection of the lines to strike the spade down vertically, and then push the handle forward and backward, leaving a slit in the ground. Into this the tree is then inserted, the earth is pressed with the foot and the tree is planted. This method may do for inserting cuttings, or such trees as will readily root from the stems, but the roots will be cramped into an unnatural position, and, aside from this, as the ground dries it will shrink, allowing the air to penetrate and destroy the crowded roots. I have examined many plantations made in this way, and I never saw one—except in the case of Poplars—where there were not more dead trees than living ones at the end of the season.

Another method often recommended is to mark the ground one way and plough furrows the opposite way, and then place a tree in the furrow at every cross mark, and plough the earth back over the roots. This is also an objectionable method, for it is not possible to plant all the trees at the proper depth, nor to tighten the roots properly. And even if that is attempted it will occupy more time than it would require to plant them with the spade. I never saw a plantation treated in this way that did not show many failures and an unevenness in the growth of the trees, besides being more troublesome to cultivate than if properly planted. All that is claimed in favour of either of these methods is that it is more expeditious than planting with the spade.

I will now describe fully the method which long experience has convinced me is not only the best, but, all things considered, the most expeditious way, and the only way in which a great number of inexperienced workmen can be handled to advantage.

As many land-owners who are not farmers plant forests on the prairies, I will commence with the prairie in its natural condition. It is very important that the prairie sod should be broken at the proper time, otherwise the planting will be delayed at least one year, and even then will not be in as good condition as if broken at the proper time.

Break the prairie in June or at the time the Grass is in the most thrifty condition. Break quite shallow, not deeper than 2 inches, or at most 3 inches, as the greater the succulent growth and the shallower the breaking, the more surely will the sod be killed during the summer. Late in August and during September of the same year, turn the sod over lengthwise of the furrow, and deep enough to bury the sod and leave 2 inches or 3 inches of earth over the entire surface. If it is not to be planted in the autumn leave the ground in this condition until the following spring, when the harrow and roller will put the land in excellent condition for planting. If planted in the autumn run the harrow and roller over after the ploughing is done, mark off the ground both ways for planting, strip the leaves from off the young trees, if frost has not already done so, then gauge the tree digger so as to cut the roots to the length required—6 inches to 8 inches, according to the depth and quality of the land—and commence planting.

The workmen are divided off into companies of three each, or two men and one boy, the two men with spades, the boy with a bundle of trees—the trees having previously been tied into bundles of 100 each. The two men with spades plant on adjoining rows, the tree-holder walking between them. The planter strikes his spade vertically into the ground on the running line close up to the cross mark, raises a spadeful of earth, the boy inserts the tree, the earth is replaced, the planter places his foot close up to the stem of the tree, bearing on it his full weight and passes on to the next mark. This tightening of the tree is very essential, and must be insisted on. The boy is kept quite busy attending two planters, but after a little experience he will learn to bring each tree out of his bundle with a quick circular motion that will spread out the roots when placed in the ground, about as evenly as they could be placed with the hand.

By this method the trees are planted in a straight line, and all at the proper depth, the roots are spread and the earth packed firmly over them. Two men and a boy will plant 4500 trees in a ten-hour day, being two and one-half trees planted per minute for every man and boy employed, and the land will be left perfectly smooth and level for cultivating making this not only the best, but the most expeditious way to plant forest trees on the prairie.—ROBERT DOUGLAS, in *Garden and Forest.*

PLANTING EVERGREENS IN SUMMER.

I AM not aware that anything new can be said in favour of planting evergreen trees and shrubs during the summer months, but as it is a subject that interests a good many, it may be useful to say that the time of year has arrived when that kind of work should be done if done at all. The questions bearing on this matter are two—the probable results as compared with spring planting, and the effect that a hard winter has on newly-planted subjects. I have no hesitation in saying that the best results will be obtained from summer planting in all cases where the plants to be moved exceed 6 feet in height, provided they have only to be moved from one part of the grounds to another; but in the case of large plants that have to be brought long distances by railway, I should prefer to wait until the middle of September. When practicable I prefer to prepare all the plants to be moved if they have stood in the same position more than four years, and if they exceed a height of 6 feet. The preparation should be made in the previous October, and should consist in digging a trench round the stem of the tree 2 feet deep and 1 foot wide. In digging out the trench all roots met with should be cut clean asunder; the trench may then be filled in again and left in that state. It will be found, when the time arrives for removing the tree thus operated on, that every root cut asunder has broken out into a nest of fibres, and it is considered that these fibres are of far greater benefit to the tree after removal than the single root would have been if left undisturbed until the time of lifting.

The question as to the effect that a hard winter has on newly-planted trees is one that demands the serious attention of intending planters. In my own experience I have had trees removed during the late summer months that have stood to all appearance sound and healthy up to the time when severe frost has set in, then become brown in the foliage and ultimately die. This, however, to my mind does not to any serious extent injure the cause of summer planting, because it is only in the severest winters that trees thus suffer. On the contrary, it cannot be too well known that there is a decided gain by adopting summer planting. If a tree is moved towards the end of July, it will in a great measure have completed its growth for the year; and if moved as soon as it has done that, it will get, other conditions being favourable, pretty well re-established before growth commences next season. Many trees make two growths in a year, and the best time to move them is in the interval between the first and second growth. A little observation will enable anyone to detect when that time occurs.

J. C.

No. 870. SATURDAY, July 21, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

W. COLEMAN.

CHERRIES.

ALTHOUGH page upon page has been written upon Apples, Pears, and Plums, how rarely does it happen that hardy fruit lore is diversified by a single paragraph on the Cherry. The European species, from which nearly all our finest varieties of sweet and heart Cherries have sprung, having been grown in this country mostly as a standard for many centuries, there exists no question as to its hardiness in every respect save its early flowers, which are liable to be caught by spring frosts, and yet the quality of the fruit offered for sale in the markets is not one atom better than it was thirty or forty years ago. Ripe fruit, I gather from an old book, was publicly sold in the streets of London as far back as the beginning of the fifteenth century, and this most likely was gathered from very old trees planted in Kent many years before. From that date down to the present time the lists of Cherries have been increasing, as we find the late Mr. Rivers enumerating fifty-nine varieties, the Royal Horticultural Society in 1842 eighty varieties, Mr. Knight about that time adding his seedlings, and more recently the Messrs. Rivers, by the introduction of scores of greatly improved sorts from the Continent and America, have made this delicious fruit specially their own. No one for a moment will suppose that the fine large Sawbridgeworth Bigarreaux can be profitably grown in open fields as we now grow the old Bigarreau, the Kentish, the Elton, and the May Duke, for it is a well-known fact that birds and wet are great destroyers of the fruit; but many of them, as I have often remarked, are worthy of glass, while all will do fairly well on heavily coped brick or timber walls, and not a few can be grown as bushes or pyramids upon the Mahaleb stock on sheltered banks where old standards have become centenarians.

Indoor or wall fruit, as a matter of course, will never reach the masses, but I see no reason why hundreds of tons of very choice Cherries should not be grown on warm naturally drained sandy loams, where, sheltered from the north wind and morning sun and well above the fog and frost line, the average yield might be equal to that of the Plum and Gooseberry. But few, perhaps very few, fruit growers can command the cream of the cream of sites for choice Cherries. Those who are thus fortunate I cannot help thinking might safely venture upon making the attempt, if only to the extent of an acre. Mahaleb trees, Mr. Rivers says, are not so fastidious as to soil as the old wild Cherry. Then, again, the trees may be planted quite as close as we now plant the Gooseberry, the Pear on the Quince, or the Apple on the Paradise stocks. Upon the right sort of soil the first cost would be trenching only, manure being held in reserve for mulching. Then would come the planting; and taking into account the number of trees required for an acre—say 6 feet each way—the cost at present retail prices would be rather heavy. But, assuming that a few men of means felt disposed to take the matter up, the trade, if alive to their own interests, would waive copyright by offering trees at prices quite as low as those quoted by producers on the Continent. Once planted, the principal work would be keeping the land clean, loose, and friable on the surface, summer pinching, and occasional root-pruning. When fairly established, an acre of Cherry trees would pay for a bird-scarer for a few weeks and possibly for netting, first in the spring from bullfinches and frost, and again later on from the wary blackbird.

Ordinary Cherries have been sold this year on the trees at £20 an acre, exclusive of the Grass, the cost of picking, and bird tending. The better class of fruit should realise a much higher price, independently of the sum which for the first few years might be made for Strawberries. In course of time Strawberries might suffer from too much shade; they like a little, nevertheless; but then the thrifty grower within reach of a good market might turn his attention to Violets and other crops now met with in good kitchen gardens.

Varieties.—The grower of Cherries as bushes or pyramids for market has an endless choice before him, but for two reasons I am inclined to think the early varieties will best answer his purpose. In the first place, the Cherry is the first ripe English fruit which finds its way into the market; consequently, early consignments command the best price. In the second place, early picking means speedy relief from depredations by birds, damage from wet, and the avoidance of a glut from large ordinary standards. If I might venture to suggest a dozen sorts, I should say let May Duke form the sheet-anchor, but also try Bedford Prolific, Belle de Choisy, Belle d'Orléans, Bigarreau Jaboulay, Bohemian Black Bigarreau, Bowyer's Early Heart, Early Red Bigarreau, Early Rivers, Elton, Empress Eugénie, and Waterloo. Then, had I suitable land of my own, I would erect wooden walls similar to those I once saw in the late Mr. Niven's model garden at Drumcondra, near Dublin, only they should be heavily coped for protection from wet and face the south or west. Upon these the exposed sides should be planted with Morellos; the sunny sides with all the best Bigarreaux and blacks, such as Bigarreau Napoléon, Bigarreau White, Governor Wood (one of the best American Cherries and a prodigious cropper), the old Bigarreau, and Frogmore Bigarreau; and with the Dukes, Archduke, Duchesse de Palluau, Late Duke, and Royal Duke. These, as far as the stock suited them, I would have on the Mahaleb. They should be sheltered from birds and frost by pilchard netting in the spring, and again with the same nets when changing for ripening. When Cherries, like Gooseberries, are set and safe from frost, every thread of netting should be removed for the convenience of dipping the points of the shoots touched with black fly, washing with the hose, manipulating and training.

The preceding list only touches the fringe of the collections enumerated in trade catalogues, but it is quite long enough, and might be improved by paring down to a smaller number of varieties.

Strawberries.—Lovers of abnormal dimensions in garden products must have been delighted with the wonderful samples of James Veitch Strawberry exhibited the other day at the Ealing Flower Show by Mr. Garlandroy, of Greenford, where there seems to be a remarkable Strawberry soil. The samples were not only of huge dimensions, but for such large ones also fairly handsome. Big Strawberry fruits seem plentiful this year, as the general crop is not large and the first blooms were saved from the frosts. Still, all such fruits are both watery and acid. A very fine sample of Dr. Hogg from the same exhibitor lacked finish, the points being green and hard, and it is very evident that a lot of flavour is indeed needed to compensate for the lack of ripeness. Several kinds, some new, have recently been certificated; it will be interesting to learn later how many competed merely with the size of James Veitch, and how many excel the flavour of British Queen. Somehow, to Strawberry raisers, high class flavour, good size, colour, and free bearing, seem unattainable combinations. One of the handsomest new Strawberries I have seen was shown the other day at Twickenham as a seedling by a cottager. It was of good size, flattish, handsome, and of that rich scarlet hue which marks the old Grove End Scarlet. If its flavour was equal to its appearance it merits further attention. There is yet much room for the introduction of good Strawberries.—A. D.

*** Runners of this new variety should be sent to the Royal Horticultural Gardens at Chiswick, to be grown for comparison with other varieties.—ED.

SCALDED GRAPES.

THIS term is one well known amongst gardeners, and is applied to Grapes which seem as if boiling water had been poured over the bunches. Unfortunately, it is of frequent occurrence, judging from the many complaints made and questions asked concerning it at this season of the year. It certainly is very vexing to have a fine house of Grapes spoilt in this way just as they are beginning to look well, and be forced to perform a second thinning, and this time of berries not of our own choosing. There seems to be some doubt and differences of opinion as to the exact mechanical or chemical change which takes place in thus changing green, firm, and healthy berries into soft and lifeless pulp; and as to the cause, some are of opinion that it is to be attributed to too much heat, while others affirm it is caused by a chill, but it certainly looks more like partial cooking than anything else. I have no doubt but that it is caused by a sudden rise in the temperature of the house; the atmosphere quickly becoming warmer than the Grapes. The sun striking the berries at the same time, they are, as it were, scalded by hot vapour; but why they should be subject to this danger during a short period of their growth only is more difficult to understand, also that some varieties are much more liable to suffer than others. Lady Downe's is notorious for its susceptibility to scalding; Muscat of Alexandria, Madresfield Court, and other Muscat kinds are also liable to be caught, while other varieties will occasionally show signs of it on a few berries. The period of growth when this scalding is most likely to occur is when the berries are about half grown and before they commence colouring, which would seem to point out that the change which is going on in the berries from sour to sweet is a favourable condition to it. Generally there is most danger in the early part of the morning, but I am inclined to think it will happen at all times during the day if the conditions which produce it are present, and afternoon sun, especially if allowed to strike the bunches through the west end of the vinery, will be almost sure to leave the exposed berries brown and soft. The morning, however, is the most critical time, and no doubt scalding more often occurs at this time of the day than at any other.

Fortunately, this destructive malady is not difficult of prevention. The remedies are simple and easy of application, and consist of careful ventilation and shade. I have never known a vinery in which it could not be prevented by these means. In the first place, it is requisite to impress upon the person in charge of the house

the conditions which contribute to its cause, and the way to prevent its occurrence. To understand these things oneself and leave those in charge in ignorance is only courting disaster. Young men are often slow to understand that one of the most important principles in airing a house is to prevent an undue rise of the temperature, not to lower it after it has risen. Not unfrequently the houses remain closed on warm days, if the sky is overcast, until a sudden burst of sunshine causes a rush to the ventilators, which are thrown open indiscriminately, resulting in cold currents of air and draughts in all directions; neither is it advisable on showery days to close the lights for every storm which will, perhaps, be over before one can go the round of the houses.

Scalded berries are the work of a few minutes; therefore, to avert disaster it is best to have some definite mode of ventilation especially for the period when it is liable to occur. The vinery should never be quite closed, or if it is closed for a short time in the afternoon, air should be put on again the last thing in the evening, but it is safer not to close entirely at any time, neither is it necessary to do so, as forcing at this stage is not judicious treatment. The first thing in the morning the overnight air should be increased a little, and the attendant must be guided by the conditions of the weather as the day advances as to a further supply or otherwise. A good night temperature is 60°, with a gradual rise to 80° during the day, and by maintaining a gentle heat in the pipes at night, an extra safeguard will be provided in giving buoyancy to the atmosphere. Artificial shading is only necessary when the natural covering is scanty. Undoubtedly the best shading is the foliage of the Vine, which ought to be thick enough for the purpose, but failing this, a thin piece of canvas or hexagon netting will give ecurity.

The position of the house must also be considered; if the ends are high and light and much exposed to morning or evening sun, it is not safe to leave them unprotected.

A sufficient number of shoots should be trained on the inside to protect the berries, or the glass may be given a coating of limewash, or have some shading material tacked on for a time. In such positions I have found the removal of a few panes of glass, substituting in their place perforated zinc, to be of great advantage in preventing a too sudden rise of the temperature, also in counteracting overheating during the hottest part of the day.

Hindlip. A. BARKER.

Figs on open walls.—These appear to promise an abundant crop. I lately saw a magnificent specimen of the Brown Turkey variety carrying hundreds of healthy looking fruit, which look like swelling up to a large size. The heavy rains that have fallen lately have evidently helped to swell the fruit, which was of that dark green colour that is the best guarantee of its becoming fully developed. The owner informed me that he never pinched the points, as he found that it did not answer for outdoor culture, his plan being to cut out the long straggling shoots at the spring pruning, saving the short, stubby shoots that sprang from the main branches, and tying them down to the next main branch. In this way the entire wall was covered with bearing wood. The soil in front of the tree was as hard as a footpath, and this was found to conduce to fruitfulness. For such strong-rooting trees as the Fig, there is no doubt but that some check to rampant growth is necessary. Beyond the walk, where the soil is manured and dug for vegetables, the roots are shortened back occasionally to prevent gross growth. Where these precautions are taken, and the wood short-jointed and well ripened, it is very rare for the winter frosts to be severe enough on the south coast to hurt the Fig trees, even when left quite unprotected. Although last winter was both protracted and severe, the crop of Figs promises to be one of the best of the season, as, taken collectively, fruit crops are certainly below the average. Looking round old-fashioned gardens, one feels convinced that the Fig was more largely grown as a wall tree a century back than now.—J. G., *Hants.*

OLD AND NEW STRAWBERRY PLANTATIONS.

IT is many years since there have been so many barren plants of Strawberries, and there are as many barren plants in young plantations as in old ones. This, I think, plainly shows that old plants and young ones are suffering from the same cause, viz., the long drought of last summer. In all the cases that have come under my notice, I find that there are now fewer barren plants in plantations that received a good supply of water when they were maturing their crop last year than there are in those that had little or no water given them at that time. Remembering the excessive heat and the long drought the plants had to endure last season, we cannot be surprised that they should suffer in places where they did not obtain the needful supply of root moisture. I think this experience should teach us to water our Strawberry plantations in dry weather, not only for the purpose of assisting the plants to perfect the current season's crop, but for the benefit of that of the succeeding year. I must mention another point in connection with the subject of watering the plants in dry seasons, which will strengthen the views I hold as to the cause of sterility in the plants this year — that is, I find, after visiting and making inquiries amongst gardeners in small places and cottagers that there are more barren plants in gardens of those classes than in large places; this is what might be expected. Such cultivators would, in a general way, be quite as ready and willing to supply the needful quantity of root moisture, but not many of them have the time or convenience for doing so. The crops have, therefore, to take their chance, with the result that in some cases every plant has been sterile this year, and in others there is only half, or a third, of the number that have any bloom upon them. Then, again, the character of the soil has a great influence on the condition of the plants. In strong, heavy land the crop of Strawberries is a fair average one, but in lighter mediums, where the plants were not well attended to last summer, the quantity of fruit is much below the average. I find the greatest number of failures occur in old gardens.

In connection with the subject of barren plants occurs a very important question as to what is to be done with them. Having already had to answer this question from anxious inquirers, I repeat my answer here. Destroy all the barren plants and make new plantations at the earliest possible moment. I advise the obtaining of runners from plants that have fruited this season, not because I am a firm believer that runners produced by barren plants would be sterile next season, but because there is just a doubt about their being so. It is therefore better to be on the safe side and plant those runners that can be safely relied upon. As regards destroying the old Strawberry beds, inquiries show that many are troubled as to what course to follow in cases where only a part of the stock has been barren this year. To this question my reply has been, that the line of action must be guided by circumstances, because, however early and carefully new beds may be made, they cannot in the majority of cases be depended upon to produce such a full crop of fruit as those that are two or three years old. For this reason it is a question for each one to decide, according to individual circumstances, whether he will get rid of all the old plants or only those which have failed to fruit this year. It seems to me that the best plan to follow in all such cases is to leave the old plants as they are, as there is just a possibility that all of them may bear fruit next year. At the same time the importance of forming new beds must not be lost sight of to prevent disappointment. Those who find themselves compelled to make new beds this year cannot do better than provide the runners at once. There are several ways of doing this, but my favourite plan for securing young plants for early planting is to layer the runners, and plant them out as soon as the pots are full of roots. I find that plants turned out of pots before the roots get too much matted together establish themselves more quickly than those that are not so treated. On the subject of preparing the ground for Strawberry beds I would remind the reader that the preparations should be of the most substantial kind. Deep trenching of the soil and plenty of well rotted manure incorporated with it at various depths should be carried out. Planting if possible should be done before July is over, and under no circumstances ought it to be delayed after the first week in August if fruit is required next year.—J. C. C.

—— As with other of THE GARDEN correspondents, so with me. Strawberries planted last year are bearing a crop, while strong healthy two-year-old and three-year-old plants have produced nothing but an unusually rank growth of leaves. It was not the effect of transplanting, for some two-year-old roots that were transplanted when I made the new bed are just as leafy and fruitless as their fellows. The garden in which I grow my Strawberries has a dry gravel subsoil, but is covered with a moderate depth of good earth, which was carted thither a few years ago and has since been well cultivated and manured. But here is the curious fact. Adjoining this garden is one which contains on merely the original shallow soil ample beds and borders of Strawberries that have not been renewed, manured or properly attended to for many years. So old are they and so poor is the ground, that here and there large patches have entirely died out. The dry old crowns that remain did get weeded and hastily forked between last autumn; and if they have been as well treated once a year for these last ten years, it is more than I credit. Yet these worn-out veterans produced a splendid show of blossom, and are ripening (in spite of the deluge) a fair crop of fruit, not very large, but by no means small, while my hearty two-year-olds on the improved ground close by have not a berry. Next year, however, the result may be different.

My year-old plants, which I got last September from Mr. Lovel, of Driffield, and planted as advised in his pamphlet, consist of President, Black Prince, La Grosse Sucrée, Vicomtesse Héricart de Thury, Wizard of the North, Elton Pine, British Queen, Dr. Hogg, Sir Charles Napier, Duke of Edinburgh, Salveur, Princess Alice, Sir Joseph Paxton, and Keen's Seedling. Of all these, Duke of Edinburgh has proved unmistakably the best this first year. The fruits were quite as well-flavoured and numerous as those of any other kind, and much superior in size. Several others were superior to the average; notably, President and Dr. Hogg. Vicomtesse was not among the best; Keen's Seedling and Black Prince were poor both in size and quality. I had a heavy crop of early Lettuces between the rows, and have Garlic, Onions, and Shallots still growing between the plants.—W. SIMMONS, *Enfield.*

Bush fruits.—The great crops of these fruits this season are found in the Red and Black Currants and Raspberries, if the latter may be so included. Raspberries simply need that the weaker suckers shall be removed, and as they fruit, on the whole, chiefly during July, fine weather is always very probable. Thus it happens that Raspberries, where they do well, prove to be amongst the most profitable garden fruits. Currants have made such strong leafage and summer growth, that some summer thinning is more than usually needful, in order that the heavy crops of fruit which the bushes are carrying may be ripened. The heavy rains have thoroughly washed the Gooseberry bushes, and where the moderate crop has been already taken, which is generally the case, new and strong growth is being made, so that the bushes bid fair to make quite a fresh start in life this season. The foliage is as green and glossy as can possibly be conceived. This strong growth should enable plenty

of stout cutting wood to be formed, for the drought of last year materially checked growth, and stout shoots were far from being plentiful.—A. D.

Peaches for succession.—I have Royal George and Grosse Mignonne Peaches. These I wish to retain, and I want two other large-fruited ones to precede them. What two are suitable for a good succession, highly coloured varieties being preferred? I have only one heated house. Would Lord Napier Nectarine be a good one to grow, with Violette Hâtive and Pine-apple in the same house?—J. E. R.

*** In answer to the above, plant Condor and Hale's Early, two large, highly coloured varieties, to precede Grosse Mignonne and Royal George, Bellegarde and Barrington or Prince of Wales to succeed them. These, including the two varieties you have, will succeed each other in the order of ripening, and will give a long succession of highly-coloured fruit. They flower and set freely under glass and force well. *Nectarines.*—Lord Napier, Stanwick Elruge, Violette Hâtive, and Pine-apple, the cream of the Nectarines, will ripen in the order here named. If a later variety to succeed Pine-apple is wanted, plant Victoria in the coolest part of the house. This is a grand Nectarine under glass, but requires an extra warm situation when planted against an open wall.—W. Coleman.

Colouring of Peaches.—When cultivators of Peaches plant young trees under glass, they contrive to have them as close to the roof as circumstances will allow, being under the impression that such close proximity to the glass is conducive to the colouring of the fruit, and is helpful to the flavour so desirable in a well-ripened Peach. Practical experience, however, has shown that no benefit is derived from the almost roasting heat where air can scarcely reach the foliage and where the use of the syringe is almost impracticable. I have had to do with various forms and sizes of Peach houses in different parts of the country, and had often to arrange the erection and planting of many, but because of the difficulties of airing and syringing the foliage I have always kept the trees trained a good distance from the glass. The houses I have charge of at present are lofty and wide, lean-to (18 feet high and the same in width), and I never have had stronger reasons to be satisfied with the crops of fruit. Setting never costs any anxiety, while the colour and flavour are all I could wish. The back wall is clothed from the apex to within a foot of the ground with healthy foliage and abundance of fruit. The trellis at front is fully 5 feet from the glass. At the lower portion of the back wall we are now gathering Hale's Early Peach, bearing a deep crimson colour. Higher up Royal George is taking on a beautiful colour, and Early Crawford always colours well. The same may be said of the fruit on the trellis. Nectarines especially always colour well. Soil has much to do with success in Peach growing, lime, wood ashes, and strong loam doing wonders.—Scot.

SHORT NOTES.—FRUIT.

Peaches in America.—Peaches can be bought through the Exchange at Wyoming this year for 1s. per basket. Entire orchards are now being offered to speculators at these figures. The old plan of consigning Peaches to commission merchants is no longer in use. Nearly all are sold after rigid inspection and grading to cash purchasers, who deal through the Fruit Exchange.—*New York Times.*

Pot Vines.—Mr. A. Trail, The Gardens, Falshaw Hall, sends us a photograph of the pot Vines (of which we gave an illustration in The Garden, Nov. 5, 1887) to show that by repotting them into pots of a larger size they will bear as well the second year as the first. Mr. Trail says that six pot Vines bore fifty-three bunches, the average weight on each Vine being about 8 lbs., the berries large and well coloured.

Figs in Sussex.—The Fig seems to do very well in the western district of Sussex as well in the open as upon a wall. Standard trees carrying heavy crops which ripen well and are of good flavour are frequently met with. The heaviest crop I have ever seen is borne this year by several very large trees in the bishop's garden at Chichester. The trees are old and the wood made is short-jointed and firm. Fig trees against walls are often pruned too much, the consequence being a lot of strong, but sappy barren shoots.—A.

Moving the roots of Figs.—In the south of England it is probably not necessary to interfere much with the roots of Fig trees, especially on the chalk. At least, my memory runs back to a time when I had charge of some old Fig trees in Sussex which had not been interfered with in the memory of the oldest inhabitant, and they still bore good crops. But in the North Midlands, it is wiser never to lose touch of the roots if we wish the trees to bear abundantly. Trees that are often lifted or occasionally transplanted, never lose a crop or suffer any check by removal.—E. H.

FRUITS UNDER GLASS.

Cucumbers.

Continuous firing having been absolutely necessary, it is more than probable that house plants which have been in bearing for a considerable time will now be more or less infested with red spider. If so, and there is no immediate prospect of dispensing with them, a bold effort must now be made to free them from this troublesome destroyer. To many this may appear a hopeless task, but when it is borne in mind that dry fire-heat, heavy cropping, and a lean larder are largely, if not entirely, contributory to its advent and existence, they will at once see that converse conditions will sadly inconvenience the enemy, and strict attention to other matters of detail will most likely annihilate it. The first step, then, is cutting off fire-heat, an economy which may be safely practised for the next six weeks; and the second is the removal of all badly infested leaves—in fact, a thorough cutting over where the supply from other sources will justify the entire removal of the fruit from a few lights or half the house at one time. In some places it may be convenient to cut over the whole house—a step which will greatly facilitate matters, as the enemy can then be attacked front and rear, and there will be no reserves to recolonise, as often happens when the work is performed piecemeal. Over-cropping, to which 90 per cent. of growers must plead guilty, is almost, if not quite, as bad as dry fire-heat; but the knife for once must be laid in deep, none but the newly-set fruit being left to bear witness to the onslaught. So far good, but these measures will not cut off the remnant; this must be dealt with, first of all, by nightly syringing with mild insecticides such as soft soap, nicotine soap, clarified soot, and sulphur water; by daily syringing from within and without with pure soft water; by light shading from bright sun; and last, by a thorough cleansing and lime-washing throughout the structure. Poverty of soil, and possibly of bottom-heat, comes next, and this must be corrected by the removal of all inert top-dressing, if not, by a reduction of the hills or ridges and replacement with good warm, rich, turfy compost, which must be kept warm by the addition of fermenting material, the best of all stimulants and insecticides in houses devoted to Cucumbers. It is by no means unusual for winter plants to continue fruitful throughout the summer, but unless treated as I have suggested they become troublesome and untidy before the autumn, the usual time for replanting. This being the case, I would suggest sowing a few seeds now in a light manure frame for the replenishment of a compartment about the end of the month, when, free from spider and mildew and full of vigour, they will go on fruiting until their quarters are wanted for the first batch of Melons. Plants in pits and frames will now be in full bearing, and capable of carrying off large supplies of tepid water, hardly stimulating, as the compost will not be overfull of roots. When this condition has been secured and the old leaves begin to show signs of going off, weak liquid at a temperature of 85° to 90° may be poured in freely, and after dressing rather closer than usual, the old stems and vines originally pegged down may be very lightly covered with fresh flaky compost, consisting of fibry turf and leaf-mould, rough charcoal and lime rubble. Where turf is scarce, Cucumber plants can be kept vigorous and prolific for months by the use of the lime rubble, or old hair plaster alone, diluted liquid, which it absorbs, being given at every watering. The best time to dress frame Cucumbers is immediately before closing when they may be well bathed overhead with pure water at 90°, and shut up for the day. Treated in this way, frame plants grow quickly and rarely get touched by mildew, whilst spider is beside the question, but should the first appear, sulphur in some form will be found the best destroyer. Destruction of the fungoid growth alone, however, will not suffice; prevention of its return must also be secured, and this in a great measure will depend upon the heat from the linings, which must be frequently renovated to admit of a free circulation of air. Canker in some places, especially in cold, sunless seasons, is often troublesome, but this, like mildew, is brought about by conditions inimical to the vigour and healthy growth of the plants. Quicklime and flowers of sulphur well rubbed into the parts affected will stop it for a time, but unless the cause is removed it will surely return, and eventually destroy them. The best preventives are cleanliness, frequent top-dressing with sweet maiden soil, the application of water at a high temperature, and liberal ventilation, not only above the foliage, but also on a level with the surface of the bed.

Melons.

Where a good supply of late fruit is imperative a few seeds should be sown at intervals of a fortnight well into August. After that period, unless the houses are very light and well heated, the crop will hardly pay for the labour, especially when good Pears, which always take precedence of inferior Melons are likely to be plentiful. Like Cucumbers, young Melon plants should always be raised in light frames placed upon beds of fermenting material, and the closer they are kept to the glass the better. A single light frame will keep up a large supply of plants, and, provided the bed is well surfaced with ashes, old tan, or Cocoa-nut fibre, there will be no necessity for plunging the pots or sods in which the seeds are sown. Young plants at this season should be as stout and stocky as seedling ridge Cucumbers, and they should always be put into the permanent beds or fruiting pots as soon as they are well rooted and ready for the first shift forward. When so treated and fermenting material is freely used for bottom heat, they go away at once without sustaining the slightest check, and carefully guarded from injury to the stem leaves, they rarely suffer from canker. When the growth of Melons in hot-water pits first came into practice, no one thought of taking more than a first and second crop, provided the first set of plants would stand it in one season. The vines, in the first instance, were trained up stout sticks to the wires, then they were stopped to secure a break of four vines for training to each corner of the space allotted to them. In due time these were pinched, when the laterals set and carried the crop to maturity. If the common practice of cutting off every stem leaf to get rid of spider did not result in canker, a portion of the old soil was taken away from each hill and replaced with fresh compost to sustain the second crop, generally set by the time the cutting of the first was finished. The plants, it is true, carried more fruit, but then the old growers had not ten where now we have twenty in a given space, and these so long about sent colonies of spider to all parts of the establishment. The thrifty grower now puts out three sets of plants in the same house in the course of the season. These he stops once, takes his crop from the first set of laterals, carefully preserves every stem leaf, and not only is free from spider, but cuts a greater weight of finer fruit in the aggregate. Late Melons, I may observe, should always be grown in pots 12 inches to 16 inches in diameter and for these reasons: they can be plunged in fermenting material immediately over the bottom-heat pipes, which, by the way, may remain remain cold until the short days in autumn render supplementary heat necessary. The root-run in pots being limited, conditions favourable to setting and to ripening can be produced by withholding or reducing the supply of water, and feeding to any extent can be carried on when stimulants are most needed.

Pits and frames.—Although this mode of culture

is fast dying out, there are a few who must adopt it or go without Melons. Like all other tropical plants, the Melon will succeed best where heat and moisture are abundantly and regularly supplied, but how rarely it happens that the linings are found in first-rate working order when sudden changes take place. The successful management of these plants no doubt entails a great amount of work, and that at a heavy time; but unless the temperature of the bed as well as the frame is kept at the maximum the effort should be left alone. Heat, on the other hand, from this source is just the thing needful to most satisfactory progress, and this accounts for the success of the old McPhail growers, who had hardly heard of hot-water pipes, at least in Melon pits, and had no other source to fall back upon. To secure this the linings should be turned and renovated every ten days, and the better to retain the heat thus generated, a covering of mats should be applied throughout the summer. When frame plants have all they require the fruit sets as freely as in houses, but for all this it is prudent to fertilise every flower until a good crop is secured, when all laterals carrying later shows should be cut away. If a chink of night air is given as a safety valve against rank steam, it should be shut off when the mats are removed, but not for any great length of time, as the temperature in close frames rises quickly and scalding follows. If the first tilt is put on at 75° and the temperature is allowed to rise gradually to 85° or even to 90° with full air on the back only, the foliage will stand any amount of sun provided it is dry; and again, it will luxuriate in a mist of vapour after shutting up on the hottest afternoon.

FIGS.

The weather of late has not been quite up to the best standard for colouring Figs; they have ripened fast enough, but bright sun which enforces liberal ventilation is the best and only agent for giving high colour and good flavour. Early houses in which the second crop is now approaching ripening will require very careful syringing wherever this operation can be performed without wetting the fruit, and warm diluted liquid at every watering will be necessary. Second-crop Figs are not always sufficiently thinned; consequently the fruit runs small when ripe. The best judges of Figs I know do not object to small fruit provided they get the quantity, but when size is reduced by the presence of a great number of figlets too forward to hang through the winter and too backward to ripen before the trees go to rest, the latter undergo a useless and unprofitable strain at a time when they should be laying up force for another year. Trees, then, from which a full first crop is of primary importance, from this time forward should be divested of every fruit that will not be ripe by a given time. Those left will then attain their full size, and the trees with the points of their shoots standing well up to the glass will have plenty of time for roasting and ripening. It is not unusual to see early forced trees stripped of their covering in August; but unless they are infested with insects, and the season is unusually hot and dry, when exposure to thunderstorms may be of service, I question if anything is gained by stripping at all, unless it be for a fortnight when the foliage is ripe and the lights require painting in September. Prolific sorts like Brown Turkey and early Violet, a most delicious old Fig, may be induced to yield a third crop in the course of the season; but nothing is gained by this high pressure, as it takes too much out of the trees, and no matter how well they are fed they settle the account when their most valuable produce should be forthcoming the following April.

Succession houses.—Where the trees are planted out in circumscribed borders and the shoots have plenty of trellis room, they should be kept constantly extending in every direction, and, provided they are well mulched and fed, they will give a succession of fruit quite up to the end of August. The secret of success in the management of large extension-trained trees lies in keeping the roots in check by annual pruning as soon as the foliage is ripe, and in keeping the young wood thin throughout the summer. I never stop my largest trees unless any part of the trellis is likely to become sparse of short-jointed growths for the coming year; but thin out freely all branches that have reached the extremities of the house in the autumn, and give them an abundance of heat and fresh air after the last Fig is gathered. To prepare large juicy Figs for packing and travelling, they should have a free circulation of any warm air (the best preventive of spot), full exposure, if possible, to the sun, and although for home use they cannot be too ripe, for this purpose they should be picked under, rather than over, perfect maturity. When gathered they can be kept for a day or two in a dry airy room, but once they are detached the sooner they are sent off the better. As fruit of this kind and for this purpose is not improved by direct syringing, the health and cleanliness of the trees must be maintained by damping the stems and floors on fine mornings only, and by a thorough syringing as often as close picking renders this operation practicable.

Next to the Strawberry, the Fig is the most tender fruit we have to pack, and many young beginners entertain an idea that safe transit depends upon the avoidance of the slightest pressure. Such, however, is not the case, as we always find the most fragile fruits travel best when tightly, but not crushingly, bedded in dry elastic materials, such as very soft, well-beaten Moss or paper shavings. The skin of the Fig being so liable to adhere to the finest paper, we always roll each fruit in a large, soft Vine leaf; enfold this in tissue paper and pack in single layers, using plenty of soft paper shavings to prevent them from touching each other or moving on the journey. Boxes 3 inches to 4 inches in depth will hold the largest hothouse fruit, with ample room for bedding and covering, the length and breadth, as a matter of course, being governed by the number of Figs fit for transit. Large boxes, however, are not recommended, 18 inches to 24 inches in length and 12 inches in width being quite sufficient for a general stock size. If larger boxes are preferred, they should be fitted with a division across the centre, but two of medium size corded together will travel and carry the fruit better than one large enough to take double the quantity.

Pot trees.—Where these are extensively used for forcing, it is a good plan to have two sets of the best prolific sorts for keeping up a full supply of fruit through the early part of the year; also for reversing the order of starting, and by this means giving the least promising trees comparative rest by throwing them into the second division. When pot trees have given their second crop of fruit, there should be no whipping the willing horse for a third, neither need there be if the system I have just suggested is adopted, as the second set will be in full bearing by the time the first have finished and are ready for potting. These remarks apply to small trees which require potting every year and are entirely dependent upon the compost contained in the pots, top-dressing, and feeding; but when we come to large, well-managed pyramids of great age —the older in reason the better—in 20-inch pots or small tubs, and whose rootlets are coaxed over the sides into large sods of turf and eventually into the decaying leaves originally used for bottom-heat, the less they are disturbed the better. Trees of this description I have kept in the same pots for five years, simply trimming off all the escaped roots annually, top-dressing with fresh turf and bones as soon as the leaves fell, and allowing them to remain on the same pedestals winter and summer. The manufacture of specimens of this size of course takes a long time, but once they are formed they make very short spur-like growths, which may require thinning, but very little pinching, as they fruit profusely. Trees of ordinary size from which the second crop has been gathered should be turned out of the pots, slightly reduced, and transferred at once to others a size or two larger. The best compost is sound sandy loam of a fibry nature, bone-dust, and old lime rubble, which should be rather dry when used, as it must be very firmly rammed to prevent the too free passage of water. When potted the trees should be returned to the house or pit and replunged in gentle bottom-heat to induce quick root action, as it is very important that they become thoroughly re-established before the leaves fall. Tepid water, as a matter of course, must be given as soon as they are plunged, and the house must be kept close and moist for a week or two, but once the plants commence making roots into the new compost, the house may be freely ventilated to prevent a rush into fresh growth, as this result would detract from their value for early forcing. In due course the lights may be drawn off altogether in fine weather, but the syringe must be freely plied to prevent the spread of spider. W. C.

A SOAKING OF WATER.—WHAT IS IT?

THE matter seems plain enough, but somehow, either through the perverseness of human nature, or our shiftiness when hard work has to be done, the soaking often degenerates into a dribble, which is useless to the plant or tree, and has at the same time a bad effect upon the cultivator, because it takes him further away from that thoroughness which is essential to the attainment of the fullest measure of success. If an average person is told to give a fruit tree growing against a wall, a bed of Strawberries, a row of Peas, or a bed of Roses a good soaking of water, if the matter is left in his hands he will probably not give half enough to reach the best roots. All men do not shirk their work, and, therefore, it cannot be accounted for in that way. But in the majority of cases, where the watering of outdoor crops is ineffectively done, it arises chiefly from getting into that happy state of mind which is apt to take things for granted without making an effort to ascertain if the water has been given in sufficient quantities to reach the best roots. In watering, it is the common practice to pour it close to the stem of the plant. This may be right enough in the case of young plants, but such a watering is not of much value to large specimens. If a Peach or Apricot in a bearing condition against a wall requires water (and they certainly do require more moisture than they get in most gardens) I should first form a basin 4 feet from the stem all round, by drawing soil from the border with a hoe into a ridge. On sloping borders this is especially necessary if the water is to be retained long enough to soak into a dry soil. Then flood the space so enclosed until the soil for 2 feet down has been moistened, and add a mulch of manure. I have often used short Grass when manure was not available. To be really serviceable a large tree, carrying a load of fruit, should have from 60 to 100 gallons given to it at once, and then with the mulch to check evaporation the moisture will remain among the roots for a long time, and the tree will show its gratitude by its improved appearance and the rapid manner in which the fruits will gain in size. Liquid manure will be a great help to many struggling trees in dry weather, and might be given a few days after the first soaking of pond water, when it would more readily penetrate to the extremities of the roots following the trail opened up by the first stream. It is probable, judging from present appearances, that the present season will not be so hot and dry as last, and the question of watering may be less urgent, but with so much evidence everywhere in the country of the injurious effects of last season's drought, a few showers should not be permitted to lull cultivators into a false security. E. H.

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Ferns.

W. H. GOWER.

WOODSIAS.

In the early days of my Fern collecting, to get specimens of these plants was quite a desideratum, and the lucky possessor of a plant or plants of any of the kinds nursed them with tender care. It is rare, however, now to find anyone care for these little gems. The Woodsias are all natives of the mountain regions of the northern hemisphere, two nearly allied kinds (W. ilvensis and W. hyperborea) being found in Wales and in Scotland, and I still consider the finding of the last-named plant in Glen Turret, in Perthshire, some few years ago, as amongst the richest finds I ever had, and I trust if any other person should discover the locality of this rare Fern that he will not eradicate it, but be satisfied with taking a couple of fronds, the same as I did myself. These two plants under cultivation do not form striking objects, and rarely live long (in the south, at any rate) in the open-air fernery, but they form handsome little tufts when grown in a damp, shady spot in the cool house fernery, and I remember as amongst my greatest treasures a plant of each kind, which I grew upon a lump of sandstone rock, in which two holes had been drilled, and the cavity filled with pieces of the rock broken small and some light loam and sand mixed together. These plants grew with me for some five or six years. In addition to the above sorts natives of these islands, there are about a dozen other kinds known, a few of which are in cultivation and well deserving the attention of all Fern lovers. The majority of these, however, belong to the section of the genus called Physematium, which is distinguished by not having jointed stems. This particular feature, which is characteristic of the true Woodsias, is of no importance to the cultivator, and yet I have found the Physematiums more easily managed.

W. polystichoides is a pretty little Fern for the cool house fernery, and may prove to be hardy, as it is a native of China and Japan, but it is not of sufficient size to render it of any importance in the open-air fernery in this country. The fronds are tufted, from 5 inches to 9 inches high, scaly at the base, and pinnate. The variety called Veitchi, for the introduction of which, I believe, we are indebted to the late Mr. John Gould Veitch, is a somewhat dwarfer form, in which the fronds are densely hairy, whilst the variety sinuata, also collected by Mr. Veitch, is much broader in the pinnæ, and these are obtuse and distinctly lobed or deeply toothed on the edge.

W. mollis.—This is a distinct and handsome plant from Mexico, and has been grown in this country for nearly fifty years, yet has never become common; indeed, it is only known to few. I have grown this plant to nearly 1½ feet high, but a foot is more nearly its usual development. The fronds are lanceolate in outline, twice divided, pale green, the under side clothed with numerous soft light-coloured hairs. The fronds are deciduous, and during the winter when at rest the roots must not be allowed to suffer from drought.

W. obtusa is another deciduous plant of great beauty, a native of the Rocky Mountains, with fronds from 9 inches to 12 inches high.

Phymatodes saccata (*C. M.*).—The above is the name of your Fern, but it is altogether too large to be figured in these pages. It is a bold-growing, noble plant, and few Ferns surpass it in massive grandeur, where space can be afforded for its accommodation, either as a pot specimen or when planted in the indoor fernery, but it requires strong heat to develop its beauties. Its fronds rise from a stout, scaly, creeping rhizome; they are from 3 feet to 4 feet in length (a foot or more of which is naked stem), and upwards of a foot broad; the pinnæ are bold and deeply divided, being joined to the rachis by a broad wing; sori numerous, immersed, causing large raised protuberances on the upper surface, which is deep green. It is the Polypodium nigrescens of some authors.—W. H. G.

Lygodium flexuosum.—This pretty climbing Fern is largely used for covering the rafters in the Fern house for shading other Ferns, a purpose for which it appears to be admirably adapted; the fronds are larger than in the case of many of the species, and cover a larger area.

ASPLENIUMS FOR BASKETS.

Few things contribute more to the beauty of a plant house than hanging baskets with appropriate Ferns. To properly furnish these, the



Asplenium rhizophorum. Engraved for The Garden.

bottom portion should be covered with some kinds of Selaginellas, of which there is a great quantity to select from. Amongst the various genera of Ferns the Aspleniums furnish a goodly number, which are seen to the best advantage when grown in this manner. Some few choice kinds are here enumerated; foremost amongst these is the subject of our present illustration.

A. rhizophorum is a variable plant. The frond here depicted is in the young state, just before it becomes more divided and fertile. It is an elegant plant in all its stages of growth. The fronds attain a length of 2 feet and some 6 inches in breadth, the upper surface lively green. The tail-like points produce a young plant on the end, and these, if pegged into the outside of the basket, soon produce a fine effect. It is widely distributed in South America, and appears to be a common Fern in Jamaica.

A. rachirhizon.—This is a charming plant. The fronds are somewhat oblong in outline and tripinnate, the ultimate divisions being small and bright green. The fronds are some 2 feet or more long and pendent, the points destitute of pinnæ and proliferous at the apex; the stem and branches are black. It is a native of Brazil and the West Indies, but is by no means a common Fern in cultivation.

A. cirrhatum.—By some this is considered the same as the species figured, but, however they may merge into each other by selection of specimen, the plant in the form usually seen in cultivation is very distinct. The fronds are from 1 foot to 18 inches long, with a naked proliferous apex, and only once divided, the pinnæ being large, dentate on the edges, and thickly ornamented with conspicuous oblique lines of brown sori. The pinnæ oftentimes extend to nearly the proliferous point of the frond, but gradually become reduced in size. I have received this form from Trinidad on several occasions, but am not aware of any other habitat being recorded.

A. myriophyllum.—A very elegant plant, producing very finely cut fronds, which are pendent and proliferous at the apex; the pinnæ, although becoming gradually narrower upwards, usually extend quite to the point. The stems are smooth and jet black, frond three times divided, the segments being quite small, dense, and bright green. Native of Brazil, &c.

A. caudatum is a very strong-growing plant, producing fronds from 1 foot to nearly 4 feet in length by some 7 inches or 8 inches in breadth; they are once divided (pinnate), bearing nearly forty pairs of pinnæ, which are coriaceous in texture, somewhat oblique, and very coarsely toothed and lobed at the edge, the upper side deep green; beneath the sori are large and conspicuous. Native of Polynesia, &c.

This is a noble plant for a large basket, but on account of its not being proliferous at the apex, it cannot be made to furnish the outside of the basket, as the previously named kinds can and do. All the above-named kinds require stove treatment.

Filmy Ferns at Dangstein.—A corner of the Filmy Fern house at Dangstein is devoted to the growth of the Killarney Fern. It is planted out and has covered every available space, forming a most interesting feature. Hymenophyllum demissum grows here also in wild luxuriance, forming a little bank of green 6 yards long and 1 yard wide. Considering how beautiful these Filmy Ferns are, and how easily they thrive when provided with proper conditions, it is surprising how rarely one meets with them. In summer the open garden generally has more attractions than the houses with their oppressive heat, but a place like this cool fernery at Dangstein is a house into which one can go during the greatest heat, whilst its occupants are a relief to the eye after the gorgeous masses of outdoor colouring.

Hardy exotic Lastreas.—The following are a few strong-growing Ferns which lend an additional charm and assist in diversifying the general appearance of an open-air fernery, especially as they thrive with and under exactly the same conditions as our indigenous kinds: L. Sieboldi, with fronds some 2 feet high and simply pinnate, the pinnæ being entire, about 6 inches broad and 1 inch wide; the sori are large and conspicuous. L. varia, perhaps better known by the name of L. opaca, is a robust-habited plant, producing a fine crown of fronds from 1 foot to 2 feet high; the colour is very deep green, and the copious sori are jet-black; the crown of the plant and the base of the stems are clothed

with black chaffy scales. It comes from Japan. L. erythrosora is another Japanese plant similar in habit to the last, with light green fronds, the sori large, the scale which covers them (indusium) when young being bright red. L. Goldieana is a North American plant, and is also found in Canada; it is a robust grower; the fronds are broad, some 3 feet high, and of a rich deep green. L. Standishi of gardens, known also by the name of Polystichum concavum, is a spreading plant growing about 2 feet high; the pinnæ are closely set and very stout, and give it a massive effect. It comes from Japan. L. intermedia is another bold and handsome Fern from North America, with broad fronds about 2 feet high. The texture being somewhat thin and delicate, a well sheltered nook should be selected for its reception.—W. H. G.

ROSE GARDEN.

TEA ROSES AT WALTHAM CROSS.

THE Tea Roses have so far had a hard time in this capricious unpleasant season of 1888. The frail flowers cannot weather the severe rains, cold cutting winds, and almost sleet that have made this a phenomenal July; they are presented on the exhibition board, where we naturally expect the finest type of flower, torn, splashed, colourless, and blown out of character. This was strikingly noticeable at the National Rose Society's Exhibition at the Crystal Palace recently, where the Tea class was outshone completely by the dark-coloured Hybrid Perpetuals, which have had no scorching sun to discolor or hinder the perfect development of the generally massive flowers. The lover of Tea Roses need not despair of yet seeing this season good specimens of his favourites, as probably, if only we have anything like summer weather, there will be a creditable display later on. In Messrs. W. Paul and Son's nursery at Waltham Cross there is a batch of this section planted out with not a sickly specimen amongst them, notwithstanding that they have been left to fight the winter unprotected. The dwarf vigorous bushes are flowering freely, but promise a finer show in a week or two's time when the buds, now prevented from expanding freely, are favoured with the warmth we may reasonably expect, and which is essential to the bringing out to the fullest perfection the exceedingly delicate colours and delightful tints that have made the flowers of the Tea class so admired by all who love a Rose. Devoniensis was conspicuous (July 11) and is worth a note as much for its vigorous leafage and stems as for its pale yellow flowers; it is an old Rose, but may still rank with the best. Niphetos is seldom seen so thriving as here, and Waltham Cross has certainly not the most genial climate; the rows of unprotected plants showed not a single blank, and hard by was that lovely flower in the bud state, Mme. Falcot, with the beautiful Souvenir d'un Ami and Jean Pernet as companions. The last of the three is a delightful Tea Rose; it is not one of the strongest in growth, but it has a large globular flower of a delicate shade of yellow; the coppery coloured Ma Capucine, so esteemed as a button-hole Rose was also exceedingly good in the open. Edouard Gautier has become one of the most admired in this section; it does well with Mr. Paul, and it must be something extremely delicate to match the salmon rose-tinted centre and white outer petals of this flower. Mme. de Watteville has been often described, and the coloured plate given of it last week will convey far more than mere words the matchless character of this queen of Tea Roses. Unfortunately, it has suffered perhaps more than any of its class from the inclement weather; its flowers are distressingly washy and bruised. Sunset is a variety we may expect great things of if the batches in Mr. Paul's nursery may be taken as a criterion. It sported in New York with, we believe, Mr. Henderson from Perle des Jardins, itself a fine Rose, but the other has, although much the same form and substance, a deeper yellow colour; it is a free and useful flower in the bud. Souvenir de Gabrielle Drevet is one of the new varieties, and is of the Mme. de Watteville style of flower, coppery rose in the centre, shaded almost white; it is very sweet and free. Grace Darling is another Tea variety not much known, but it is likely to be, as the foliage is abundant, growth strong, and the flowers delicately coloured—a creamy tint, with shadings of a peach hue. Papa Gontier is a break away from the more refined colours; in the bud it is self rose-crimson, very bright, but it is only as a Rose for cutting that it can be recommended; when expanded it is not double, and is thus debarred from the exhibition. Those who esteem a rich crimson fragrant bud will like this. Luciole promises well; it has long buds, the colour of the sweetly scented flowers rose-crimson, touched lightly with yellow; the form full and excellent. Mme. P. Pernet is beautiful when its yellow buds are at their best, but it changes its character with age, becoming white, and for all useful purposes of little value. Adrienne Christophle varies somewhat; it is of a yellow tint, shaded with peach and beautiful in the bud; its fragrance is thoroughly characteristic. Marie Van Houtte is too well known to scarcely need mention. Perle des Jardins shows itself well adapted as a standard from the buxom specimens at Waltham Cross; and the same may be written of Mme. Chedane Guinoisseau, a lovely flower in the bud, canary-yellow, full and excellent in form.

These are a few of the best of the charming Tea section noted last week at Waltham Cross. If we could only infuse into the flower the vigour that prevails in the Hybrid Perpetuals, we should have scored a great victory in Rose culture, but there is evidently a gradual improvement in this direction.

PYRAMID ROSE BUSHES.

WHEN walking round a friend's garden the other day, I met with a form of Rose bush that, I think, is rather uncommon. I have seen very handsome pyramid Rose bushes exhibited in pots at the London shows, but I do not remember having noticed plants of the same form grown in the open with anything like a systematic course of treatment as is the case with those in question. The plants are not formal, and although their shape partakes something of that of a pyramid, they are not so stiff as we might expect in examples of that kind of training. It might be said with some truth that such a form of training is not wanted amongst Roses when they can be grown with less trouble as bushes; but when one has room for three or four hundred Rose trees, there cannot be any objection to having the plants growing in different ways, and especially as was the case in this instance, where there was room for the plants to stand on the lawn without in any way interfering with other subjects.

Another feature of the plants was their vigorous growth, which showed that they were well cared for, and evidently that the selection of varieties was a wise one. They were not all of the same height and diameter, but every plant was more than 4 feet 6 inches high, and some nearly 6 feet. It will be seen that none but vigorous growing varieties had been selected, and all were Hybrid Perpetuals, the varieties including Paul Verdier, Magna Charta, Charles Lefebvre, General Jacqueminot, Abel Grand, and Jules Margottin, which were the tallest and best furnished specimens. Some of them at 2 feet from the ground were nearly 4 feet through. Dupuy Jamain was particularly conspicuous for the number of flowers it was producing. François Michelson was also in the most satisfactory condition, the growth being vigorous and the flowers abundant.

Each plant is in the centre of a round 3-feet bed, and has an iron stake in the centre. Every winter the plants are thickly mulched with rotten manure, which, of course, serves to keep them in health. With regard to pruning, very little of this is done the first two years. The first point to attend to is to secure the leading shoot to the stake. If this is allowed to grow its own way, with just its point taken off at the spring pruning, there will be very little difficulty in furnishing the stem with side branches. In all probability they will not be very regularly placed, nor is it desirable that they should be, for I noticed that amongst the plants in question the most pleasing specimens were those of somewhat irregular outline. By allowing a certain amount of freedom of growth consistent with the form of the tree required, a more satisfactory result will be obtained than by hard pruning to keep the plants within certain fixed limits.

J. C. C.

TEA ROSES FOR WINTER BLOOMING.

THERE are some flowers which have their season, and which we admire and enjoy during that time. The Chrysanthemum and Dahlia belong to this class, while others, such as the Rose and Carnation, are acceptable at all seasons, and always appear beautiful and fresh.

The Rose, especially the Tea section, possesses so many sterling qualities, no matter whether it be the delicate bud produced in winter, the fuller and deeper spring flower, or a full sized summer bloom, each one has its charms, and never fails to elicit admiration. The scent, too, is so delightful. What is a Rose without scent? There seems to be a great proportion of scentless Roses creeping into our gardens under the guise of being new tints, or possessing exceptional size, and there is a danger of losing the delicious perfume of the older Roses if this point is not kept prominently in the foreground. Those of the Tea section all possess this most desirable quality, and being truly perpetual bloomers, are the most suitable for culture under glass, where, sheltered from wet and wind, the blossoms, although paler in colour, are often more beautiful. Being such continuous bloomers, to ensure a supply of flowers in winter a period of rest must be given to those plants intended for that season. I do not mean rest from growth, but from blooming, and now that plenty of Roses can be gathered from plants growing in the open, the opportunity must be taken to rest those required for winter work. Not many gardeners can boast of a house devoted especially to the Rose, although such houses are more frequently met with now than they were a few years ago, and, considering how the Tea Rose has advanced in favour of late years, no doubt such a house will soon be considered necessary in the garden. The lack of a special house, however, need not deter anyone from attempting their culture, as being well suited for growing in pots they can be introduced into various houses and grown with other plants.

The plants required for winter blooming should now receive attention as regards potting, &c. We always overhaul our stock of plants about this time. The young ones are shifted into larger pots, the old ones, when growing in 10-inch or 12-inch pots, are shaken out, the balls reduced, and returned to clean ones of the same size. Large bushes can be maintained in a healthy condition, producing quantities of flowers for many years by adopting this method of culture. The balls become a mass of roots similar to those of a pot fruit tree, and will bear reducing without much check if done every year. The pots must be clean and well drained and the soil of a rather light nature, consisting principally of loam, with a third of leaf-mould and coarse sand, a few crushed bones greatly improving the mixture. The leaf-mould is best not more than a year old. In repotting, work the soil well round the balls, making it rather firm. A rather shaded position outside will suit the plants best for a time,

or if such a place is not at command, shade may be given, if the weather is very hot, by spreading a piece of canvas over the plants; but as soon as growth recommences they must have full exposure and the watering be well and carefully attended to. Pick all the flower-buds off as they form, and thin out the old weak wood to make room for the new shoots, the object being to encourage a firm, well-ripened growth that will readily respond to forcing. Young plants which have been grafted or struck from cuttings this spring will require shifting into larger pots, and will be better for the shelter of a pit for a time, but ventilation must be carefully done, so as to avoid draughts, or mildew will make its appearance. If there is any tendency to this disease, the plants will be better with full exposure. Young plants are not the best for winter blooming. It is advisable, however, to bring on a few young ones every year to take the place of any which show signs of failing. They should be encouraged to grow to a good size before any attempts are made to force them. By the beginning of October the plants which were shaken out and repotted will be well furnished with firm, healthy wood, and if required to bloom about Christmas-time, a portion of the plants should be placed under cover, keeping them a little drier at the roots. All the pruning and training required by them consist in simply thinning out the shoots where too thick and placing a stout stake to the centre of each plant. In two or three weeks' time place the plants where a temperature of 55° at night can be maintained, and if the pots can stand on a bed of leaves it will be a great advantage. This, however, is not necessary as long as the house is light and airy. The worst enemy to contend with at this time of the year is mildew, to prevent the appearance of which we commence syringing with weak soft soap and water after the plants are housed every day if the weather is fine. I have found this a most effectual means of preventing its appearance, but it will not remove it when once it is established on the plants. I have tried sulphide of potassium, quarter of an ounce to a gallon of water, but even at this strength I find it injures the flower-buds.

The following varieties are free bloomers, producing quantities of buds at the dullest time of the year: For small buds, Mme. Falcot, Safrano, Mme. Charles, and Isabella Sprunt. Amongst larger kinds I must place Souvenir d'Elise Vardon first. It does not flower so freely as some kinds, but the blooms are indeed beautiful. Souvenir d'un Ami is very free, with lovely pink, delightfully perfumed blooms. Other good kinds are Rubens, Catherine Mermet, Niphetos, Homère, Innocente Pirola, Mme. Lambard, Anna Ollivier, Mme. Bernard, and Devoniensis. A. Barker.

Hindlip.

Glory of Cheshunt Rose is a climber of the greatest value. It is not thin in the petal and inferior, like many of the climbing varieties, but has flowers as perfect in finish, expression, and deep velvety crimson colour as many of our exhibition Roses. It is also wonderfully free.

Ella Gordon is a Hybrid Perpetual Rose of a bright crimson colour, with the shape somewhat of the noble Ulrich Brunner. It is a large, well-built, globular flower, the shell petals smooth and with plenty of substance. Some half standards of it are blooming freely in the Waltham Cross Nursery.

Duchess of Albany Rose has strong recommendations. Imagine a full, large, fragrant flower, much deeper in colour than the lovely La France, and then one can form an idea of this new acquisition of Messrs. Wm. Paul and Son. The plant was seen to better advantage in the intensely hot summer of 1887.

Silver Queen we noticed at the National Rose show as a promising flower. We could judge of it better at Waltham Cross, where it is flowering freely. It is a good companion to the variety Queen of Queens, a delicate peach colour, full, large, and of excellent globular shape. In a better season than this its fulness and fine character would be brought out more clearly.

Earl of Dufferin (Dickson, 1887).—A fine bloom of this splendid dark Rose was exhibited in one of the prize-winning seventy-two's staged in the championship class at the Crystal Palace on the 7th inst. That so new a Rose should be at once occupying a position in such company is good evidence of the beauty of its blooms, and the plant is certainly a very vigorous grower.

SUCCESSIONAL BLOOMING.

From whence are the successional Roses to come if they are whipped off in the bud to add to the size of the earlier and central blooms? Left to herself, Nature links more or less closely together the first Rose of the season and the last Rose of summer through the ministry of buds and breaks in succession. Nature and art assist us in keeping up a continuous supply of Roses by the conservation and prolongation of existing supplies and hastening the reproduction of fresh crops. By these dual processes not only may our crops of Roses become continuous, but be made to overlap considerably, with Roses galore to spare between the first, second, or other crops. If old crops and new can thus be made to meet together with time to spare between them, then may bed and border, bouquet and boudoir be continuously enriched and sweetened with Roses throughout the season.

Our first step towards this consummation so devoutly to be wished for must consist in the abolition of wholesale and indiscriminate disbudding. This, as generally practised, curtails the Rose season into the brief interval included within the time needed to expand the largest central buds on the flowering shoots, or, in other words, into the shortest possible period; for no one conversant with Rose blooming can have failed to note how the central blooms on different varieties open almost abreast. This simultaneity of expansion is, in fact, the chief hope ray of exhibitors; hence all the side buds are removed to fetch the prize blooms up to time as well as size. And thus it has come to pass that while our Rose harvests have been increased in their beauty and interest also to mere exhibitors, they are also becoming shorter every year—more like a brilliant flash in the pan than an orderly procession of beauty extending over several months. Disbudding, that is so largely responsible for reducing the glory period of our Rose gardens to the shortest period, might be so wisely practised as to considerably extend the blooming period. By leaving the matter to Nature and giving every bud the chance of becoming a flower, the season would be doubled in length. But by removing the larger buds and buds of differing sizes we might still further differentiate the flowering period. In cases, too, where quantities of Roses are grown it might be desirable at times to remove the whole of the first buds from a few plants or varieties, thus forcing them to bloom at a season when the majority of Roses had faded and securing a better succession. This matter of disbudding to force bloom out of season has by no means received the attention it deserves. This much, however, is certain: the flowering shoots of Roses are amenable to considerable control as to the time of blooming, and that the cultivator has it in his power to gather first, second, third, or later shows or sizes of buds as he likes. More than that; Nature is so prodigal of blooms in some varieties, that if the whole of the first shows are picked off, other adventitious buds will appear and expand out of season almost from crown base to the flowering shoots. This reserve force in Roses will doubtless be more drawn upon as the influence of disbudding on the successional supply of Roses in the open air is better understood. Roses are so fragrant, beautiful, and welcome, that cultivators will not be content much longer to enjoy a mere dazzle for a few weeks to be succeeded by dreary wastes of mildewed or rust-smitten leaves, but will demand a continuous supply of blooms from May to November. As doing somewhat to satisfy this demand, discriminate and skilful disbudding will bear an important part.

But when all that is possible is done to prolong existing crops by disbudding, a good deal remains to be accomplished by hurrying forward successional crops before beds and borders can be fully furnished throughout the season. Plenty of stamina in the plants is the first condition for the production of second or other crops of Roses to succeed the first or earlier ones. Rose plants full of vital force almost overflowing with sap often break into second crops before the first are fairly exhausted. If a few or many plants in such an excitable state were set aside for second crops, the first buds as well as part of the shoots being cut back boldly, these plants would promptly show afresh and fill up any possible break that might occur in the most desirable chain of continuous blooming. The few plants needful to fill up any possible gap in the blooming season would hardly be missed from the great Rose season; while the earlier and better second shows thus obtained would prove invaluable alike in border and boudoir.

But stamina alone would, as we have already seen, suffice to reproduce second crops with such rapidity as almost to fetch them up abreast of the first. True perpetual Roses should also be demanded and grown in greater numbers. Most of the Teas are or may readily be made so by pruning, and a few such Perpetuals as La France and Boule de Neige—if indeed these ought to be classed among Perpetuals. Homère may be mentioned as a model perpetual-blooming Tea, and the old Souvenir de la Malmaison as a model Bourbon; but the rank and file of our so-called Perpetuals are impostors as far as perpetual blooming is concerned. We want a whole class with the stamina and reproductive force of La France and a few others, and, considering the number of successful Rose raisers, Rose growers ought not to have much longer to ask in vain for a full class of perpetual-flowering Roses—not such as we have now that may be counted upon for one bloom, that one may exercise a forlorn hope in for a second (disappointed nine times out of ten), and will never see a third, but Roses such as the few here named that will, under fostering conditions of soil, climate, and care, go on blooming, breaking, blooming, breaking and blooming yet again and again in succession until the sluggish touch of cold and the more violent arresting wrench of frost force them to rest with many eyes and buds open for the winter. D. T. F.

Rose Mrs. John Laing, a seedling from François Michelon, and with which the raiser, Mr. H. Bennett, of Shepperton, won the gold medal in 1885, was shown splendidly this year at the Crystal Palace. It is of a charming rose tint, something like that of Mme. Gabriel Luizet, the flowers large and finely shaped, and possessing all the qualifications of a first-class exhibition Rose. The excellent stand of twelve blooms from Messrs. Paul, of Cheshunt, gave rosarians a good idea of its worth.

Rose Grand Mogul.—In this season of dark-coloured Roses, this variety has proved its extreme value for the garden. In the nursery of Messrs. Paul and Son, Waltham Cross, there is a large batch of it full of flower and in vigorous growth. It is a seedling from A. K. Williams, and has the same deep crimson ground colour, but this is shaded with almost black and scarlet, a brilliant blending of dark colours. It has also an admirable form, full, symmetrical, and large, though finely finished, such as to raise it amongst the best of exhibition Roses. It was well represented at the National Rose Society's exhibition.

Tea Roses.—I have never seen Tea Rose blooms on walls so injured by rain and general cold, damp air as this year. Scores of fine flowers of Niphetos and Marie Henriette had their outer petals soddened and rotted, and these prevented the flowers from expanding so long that the petals fell almost as soon as really open. Could the blooms have both dried quickly and have opened rapidly such harm would not have happened to them. The unusual summer moisture is promoting very robust growths on most Roses, and without doubt, should dry, warm weather eventually come, there will be an unusually abundant autumn bloom—at least we are justified in looking for this.—A. D.

Rosa Hardyi.—So seldom is this rare and extremely beautiful Rose seen in bloom, that the fact is worth notice that it is in flower in the rock garden at Kew. It is (as seen at Kew) a dwarf slender

shrub, with small foliage of a pale green, different in form from that of other Roses. The flowers are about the size and shape of those of the Dog Rose; their colour is a clear canary yellow, each petal being heavily blotched with rich crimson at the base. The contrast of these colours is charming, and is quite unique among Roses, and, indeed, exists only in very few flowers. It is a sweet-scented Rose, and is altogether delightful, but, unhappily, it is not one of the most robust in growth, and seems to require special conditions. The plant at Kew seems to be succeeding well on an elevated warm rocky bank, and, no doubt, the present moist season suits it. R. Hardyi is said to be a hybrid between the Barberry-leaved Rose, R. simplicifolia, from Persia, and R. involucrata, or clinophylla, from India, but in the flowers it most resembles the former. Perhaps some readers can give some practical hints upon the culture of this little Rose.—W. G.

PROPAGATING ROSES.

SPRING PROPAGATION.—When Roses are forced into early bloom it is always an easy matter to propagate them from cuttings. The wood made under glass is clean and firm, whilst it retains just enough succulency to facilitate the free formation of roots. The method I have found most successful consists in taking the cuttings immediately the plants have done blooming, before the wood has had time to mature. The shoots are cut into as many pieces as there are eyes, just as is commonly practised with the Vine, leaving from 1 inch to 2 inches of wood below the leaf, and making the cut with a very sharp knife in a slanting direction. The pots are filled about one-third of their depth with drainage, a little fibrous material being placed on it, and some finely-sifted, light sandy compost on that, allowing sufficient space for a good depth of silver sand in which to insert the cuttings. These are inserted round the edge of the pot in a slanting direction, so that the base of the cutting inclines towards the centre of the pot, and deeply enough to bring the eye level with the surface. A good watering is given and the pots are placed on a brisk bottom-heat, plunging them to the whole of their depth if possible. From this time the great point is to regulate the moisture both of air and soil in a manner that will keep the foliage fresh until roots are formed. The genial atmosphere of a house that is maintained during spring at a temperature of from 60° to 70° will keep the leaves green if sun is carefully warded off, and the sand in which the cuttings are inserted is kept constantly moist. On fine days it will need to be well watered every morning before the influence of the sun is felt in the house. If through any neglect the leaf drops or turns yellow, the cuttings rarely form roots. I know a trade establishment where the Roses in pots are always made to serve two purposes. They supply a quantity of early blooms, and then furnish a good lot of own-root plants that find a ready sale. The cuttings are potted off as soon as rooted, kept for a time in warmth, and then gradually hardened off, eventually coming into 4½-inch pots, in which they get well established by the autumn. They have the tips of the shoots pinched out when they begin to grow early in spring, and thus make nice well-branched specimens. These make the best of plants for growing in pots. Both Maréchal Niel and the Teas can be readily increased in this way.

AUTUMN PROPAGATION.—Taking strong ripened shoots and inserting them in an open border towards the end of the autumn is, budding excepted, the method most commonly practised of propagating the Rose. Whilst some, however, find little or no difficulty in getting the cuttings to strike well, others are by no means so successful as they would desire. Soil is undoubtedly an important factor in the successful increase of Roses in this way. There are some that seem to root readily. I know, for instance, nurseries where Aucubas, Laurustinus, Spiræas, and similar things may be relied to give 90 per cent. of plants without any special care. But the natural soil is a light marly loam, where the water never remains stagnant about the cuttings in winter. Where the soil is naturally cold and moisture-holding it is of course practicable to specially prepare a piece of ground that shall not possess this defect. There is nothing better than the refuse from the potting bench, which, containing a good proportion of sand, will remain in a free condition even in a time of heavy rains. If a depth of some 4 inches of this material can be had, it will last for years and will be found useful for many purposes. I fancy that failures are often due to the cuttings being put in too late. They ought to begin to callus before the temperature of the soil drops very low, and if propagation is delayed until November they can hardly do so. By the latter end of September the wood has become firm and quite well enough ripened for the purpose. Every week of delay from this time materially lessens the chances of successful propagation. Although clean free growths should be selected, I do not think there is a better prospect of success by choosing the rank growths that some kinds are apt to make. They contain a greater amount of pith, which predisposes to rot during the winter. Medium-sized wood, I have noted, gives the best results, and if a bit of heel can be secured to the cuttings they will be sure to give a larger percentage of plants. The cuttings should have three or four eyes to them, and should be so inserted that only the topmost eye is out of the ground. This gives them a firm hold of the soil. The north side of a wall or hedge is much the best place, as it is better for them to be sheltered from hot sun and drying winds in spring, at which time they should not be allowed to become dry until it is seen that they have made roots. If handlights or frames can be given up to them, there will be a greater certainty of their doing well, as they can then be screened from extremes of wet and cold. They should, however, only be covered in inclement weather, for the Rose is so easily excited, that the slightest amount of coddling in autumn and winter will cause the plants to push into growth, thus drawing the sap out of the wood and preventing them from callusing. I have seen in a mild season Rose cuttings with an inch or more of growth on them in early winter through being kept close, and but few of them made roots.

SUMMER PROPAGATION.—It is not often that the attempt to propagate Roses from cuttings in August is made, but they will make root very quickly at that time if they get the necessary attention. I have struck hundreds of the China, the little Fairy Rose, and Teas in this way, and there is the advantage that they get well rooted by winter, and are therefore ready to grow away strongly the following spring. The first week in August is the best time, and a north aspect is the only really suitable position for putting in cuttings, which must have the shelter of a frame. The cuttings should have three eyes, leaving the topmost leaf only, and inserting them firmly quite to the base of the leaf. Give a good watering to settle the soil round them, and keep them quite close for a day or two. The lights must be removed every night except when a parching wind prevails, which, however, is rarely the case at night at that time of year. This, through the heavy dews and refreshing coolness of the night air, restores the vigour that the atmosphere that has to be maintained during the daytime takes out of the foliage. If this is not attended to punctually, it is useless to attempt propagating Roses in August. The heat must be kept down by means of a rather thick shade if the sun shines on the frames at any portion of the day. Needless to say, the soil must never become dry, and a gentle dewing with the syringe every morning on hot days will help to keep the wood plump and the foliage green. This method of propagating Roses is preferable to any other if the requisite care can be bestowed on the cuttings, but the least neglect is fatal to a successful result. If the frames are kept too close for a day or two in hot weather, the leaves will be sure to drop. In a rainy time the lights should be left off unless there is a danger of heavy showers, which are best warded off.

THE FRENCH METHOD.—This is a variation of the above-described method, which, by the way, is much practised in Continental nurseries, and consists in taking growing shoots in June and assisting root-formation by means of bottom-heat. The first time I saw Roses increased in this way was in a garden in Normandy, and the gardener assured me that he experienced no difficulty in getting plenty of young plants, and that roots were made much more quickly this way than by any other. The cuttings selected were the more slender shoots taken with a little bit of heel to them, and having about three joints. Each cutting was inserted in a small pot in fine sandy soil, care being taken that the cutting did not flag, the pot being plunged into a bed where the heat was partly spent. As is well known, a manure bed made up late in spring will retain a certain amount of warmth all through the summer, and this is just enough for the Rose cuttings. I have never practised this way of propagating Roses, but was told that the cuttings root as freely as Verbenas, provided only that they get all needful care. I was also told that the frame should be in a sunny position, so that the cuttings feel the influence of solar heat, keeping off, of course, direct sunshine. J. C. B.

SHORT NOTES.—ROSES.

Charles Dickens is a vigorous variety, the flowers rose-coloured, large, and full. It may be well recommended as a garden Rose. It is one of the best of the newer kinds at Waltham Cross.

Rose The Bride, as seen at the Crystal Palace on July 7, was disappointing. The flowers were marred by a greenish tint. It is from forced plants that we have blooms in all their freshness and purity of colour.

Emperor is a Rose almost darker than Xavier Olibo, and although not of exhibition standard, is a good button-hole flower; it is both free in growth and bloom, as can be seen from the plants in Mr. W. Paul's Waltham Cross Nursery.

Lady of the Lake, one of Mr. W. Paul's gains, is of the Mdlle. Thérèse Levet class, and makes a free display of bloom. The rosy colour, excellent form, and delicious fragrance make this a desirable addition to the Hybrid Perpetuals.

Brilliant will become a favourite with those who require a neat button-hole flower. It is of a brilliant crimson, in the way of Eclair, but brighter; an excellent garden Rose. It was blooming freely with Messrs. Wm. Paul and Son recently.

Rose Maiden's Blush.—A Rose was never more appropriately named than this, and the soft blush tint as seen in this kind is not to be found in many Roses. Large bushes in country roadside cottage gardens have been perfect pictures this season.

Lady Helen Stewart (Dickson, 1887) has several times been shown in fine form by Messrs. Paul and Son, of Cheshunt, and proves to be a handsome rich crimson variety, shaded darker, and lighted with almost scarlet touches, with a very smooth velvety petal. A most attractive flower.

Mrs. John Laing (Bennett, 1886) is flowering well in the garden, and has been finely exhibited this season. In colour it is not unlike Monsieur Noman, but it is larger, better formed, and infinitely easier to flower in perfection than that variety.

Marie Pare (Jamain, 1880) is an extremely pretty Bourbon Rose with clear flesh-coloured flowers, which are produced in the utmost profusion throughout the season. They are stiff-stemmed and admirably adapted for cutting, as well as very effective in the garden.

Comtesse Panisse is a handsome Tea scented Rose which is surprisingly little grown in this country, although it is ten years since it was first distributed here. The plant grows well, and the flowers are large, very well formed, and flesh-coloured, shaded with coppery yellow and rose.

York and Lancaster.—In the class for garden Roses at the Crystal Palace on the 7th inst. several growers staged under the above name what was really Rosa Mundi, undoubtedly the most beautiful of the old striped Roses, but which nevertheless might just as well be shown under its own name.

Monthly Roses.—Looking over a large breadth of Monthly Roses in the Sea View Nurseries, Havant, we selected three as being the most distinct and effective. They were Cramoisie Superieure, rich velvety crimson; Hermosa, a soft rose; and Fellenberg, cerise-red. These kinds can be well recommended as distinct, vigorous, and free flowering. Ducher, a white variety, is also good.

Crown Prince (Wm. Paul, 1880) is remarkably fine this year, and the richness of its glowing crimson-purple colour is most conspicuous. Many of these dark Roses are benefited by a cool season, and there is no doubt that this is a valuable variety, for which the past two summers have been too hot. It is very hardy, vigorous, and free-flowering.

Ethel Brownlow, the new Tea-scented Rose sent out last year by Messrs. Alex. Dickson, is flowering well out of doors, and, owing to its erect, sturdy habit, is withstanding the rough weather which is disfiguring and dirtying most of the varieties whose flowers are pendulous. The flowers are large, well formed,

with petals of great substance and of a pleasing shade of rose with yellowish base.

Mrs. George Paul.—A bloom of a new seedling Bourbon under this name was staged in their seventy-two at the Crystal Palace by Messrs. Paul and Son on the 7th inst. As shown, the flower was large, well finished, and of a very pleasing flesh tint, quite distinct. If only the novelty is worthy of its name, it will prove an invaluable acquisition.

Flower Garden.

NARCISSUS JOHNSTONI.

Mr. Baker in his last revision of Amaryllideæ places this interesting plant as a variety of N. pseudo-Narcissus, and perhaps he is right, though many Daffodil-fanciers consider it a hybrid, the parentage of which has not yet been decided with any certainty. N. muticus, pallidus præcox and other natives of Portugal are all brought in as having something to do with it, and the only thing left will be to await results. We are not altogether sure that Parkinson has not included



Narcissus Johnstoni. Engraved for The Garden.

this rare bulb in his "Garden of Pleasant Flowers," where a figure will be found (page 101, fig. 5) called Oileus hexangularis, the six-angled clipt trunk, and which we believe has been copied from Rudbeck's Elys, 60, fig. 3, and copied into Swertius' Flor, t. 22, fig. 1. The only fault one can find with this figure is the tube being drawn almost upright instead of drooping, as we know it in N. Johnstoni. It is just possible that the same thing may have happened with this Daffodil which we found to be the case with N. cyclamineus. However this may be, we are not a little indebted to Mr. Barr for bringing within our reach a Daffodil of such rare merit; we find it as hardy as pallidus præcox, and though a little later in flowering, it is so distinct in every way from all the other sulphur-flowered kinds as to claim our special attention. The short tube towards the base is tinged with green, the corona pale sulphur, and the segments a little deeper shaded. It was, we believe, first found by Mr. Tait, of Oporto.

K.

DAHLIAS AND THEIR CULTURE.

These are now growing at a great pace, the drenching rains appearing to suit strong succulent plants of this class. It is necessary to stake the plants, so that they be not beaten about and injured by the winds which often accompany heavy showers. The plants are fairly certain to grow taller during a wet than in a dry season, and this must be considered when staking them. Plants required only for cutting and general decoration can be allowed to carry all the growths they make, unless they are unusually dense, and then thinning out will be necessary. When hot dry weather sets in flowers will come, and the act of cutting assists to regulate the growth. In the case of the Dahlia fancier, who grows for the production of exhibition flowers, a different course is necessary. If a number of Dahlias be planted out in a bed of soil of average fertility, and the plants are left to grow without any control from the cultivator, it will be found, when the blooming time comes round, there will be great differences in the growth of the plants, their freedom of blooming, and the size and character of the flowers they produce. Some varieties will present to view such an intricate mass of branches, shoots, and foliage, as to prevent the free circulation of air through the centres of the plants, and there will be overcrowding and confusion. Such sorts demand severe pruning if flowers of exhibition form are to be produced. Some varieties, in addition to a tendency to an exuberant growth, bloom excessively, and if the flowers they furnish are below the medium size, free disbudding is necessary in addition to a liberal thinning of shoots and branches. In the case of these two classes of varieties—if they are constant, that is, if the great majority of the flowers they bear are true to their best character—disbudding cannot well take place too early.

Then there are varieties of Dahlias in cultivation which, although they occasionally afford flowers of the most perfect shape, cannot be depended upon for good blooms. As a group these varieties are fewer than they were, but they exist, because when caught in good character they are blooms of great merit. Now to disbud these varieties early, that is as soon as the buds begin to show themselves, will so seriously impair the chances of obtaining a fine bloom, that there would probably be a greater chance of finding one in a hundred than one in ten. By exercising a little patience and judgment the cultivator is able to ascertain which buds must, from their formation, produce faulty flowers, and these are removed as soon as their faulty character is determined upon, but not until then. The same delay is advisable in the case of varieties that produce large and coarse flowers, since the late and sparing removal of buds decreases the size of the bloom and increases the compactness and symmetry in an equal ratio. So much, then, for the general principles regulating the thinning out and disbudding of exhibition Dahlias.

There are varieties of Dahlias—very few now comparatively—that form hard green eyes or centres which refuse to close up until the back petals either fade and turn brown, or actually drop from the bloom. The only remedies for such an evil—for it is an evil from the exhibition point of view—are vigorous growth in the plant and rapid development of bloom, and such varieties require a liberal application of manure and copious waterings. I have already observed that the Dahlia is a strong-growing, succulent plant, and requires a free supply of water from the time of planting out, but the use of stimulants, as a general rule, should not commence until the plant has nearly matured its growth and the bloom-buds begin to show themselves. Stimulants are seldom used now by Dahlia cultivators; they trust to good soil, copious waterings, and mulching on the surface. The young beginner should be especially careful not to use stimulants unless he is intimately acquainted with the flowers operated upon.

There is yet another class that produces soft blooms with loose centres which fly open and display the yellow disc at the moment when the hopes of a good flower were at their highest. Such sorts need to be grown less vigorously and rapidly; they should have a poorer soil and less water; in a word, they need to be put upon a low diet. As a general rule, varieties of Dahlias that produce hard eyes should be planted in a stiff soil; those with soft centres that open prematurely requiring a soil more open and porous in character. R. D.

EREMURUS ROBUSTUS AND ITS VARIETIES.

As I have bloomed this season in full perfection three varieties of the above-named handsome and perfectly hardy plants, all of which are horticulturally quite distinct the one from the other, I think some account of them may not prove without interest to that large portion of your readers who take an interest in beautiful and easily grown hardy plants. By far the handsomest of the three varieties is that known as E. robustus nobilis, which is still, unfortunately, an extremely scarce plant, as I believe there are only three flowering sized specimens in Europe, and it is likely to remain so till the stock can be increased from seed, which is fortunately produced pretty freely, but seedlings take at least seven years to grow to flowering size. When this fine plant was sent to me from Germany, I was told that it was of comparatively low growth, and that its flower-spike did not exceed 3 feet 6 inches in height, commencing to bloom at 18 inches from the ground; this, however, did not turn out to be in accordance with facts, as the flower-stem of my plant reached a height of 7 feet 7 inches, and as it commenced to bloom at 3 feet from the ground, it gave a beautiful pillar of bloom of 4 feet 7 inches. Its flowers are decidedly of a larger size, much finer substance and more perfect form than those of the type, though the shade of colour is almost the same. The individual flowers are borne on stout horizontal footstalks of at least 3 inches in length, while those of the type are about half that length and tend upwards at an angle of about 45°; this makes a great difference in the appearance of the spike, as its diameter is at least doubled thereby. The foliage also is most distinct and handsome and of great substance, the outside leaves being quite 6 inches across, and of a much lighter shade of green, while shorter in length than those of the type, which are of a dark glaucous hue and rarely exceed 2½ inches in breadth, while they attain a height of from 4 feet to 4½ feet, those of E. nobilis averaging about 3 feet in height. My spike of the type form reached a height of 8 feet 8 inches, the blooms commencing at 5 feet 4 inches from the ground, but these were quite poor and thin in form when compared with those of the grand variety first named in these notes. E. robustus nobilis commenced to bloom on May 17 and lasted in flower for quite three weeks; the type form did not open its first flower till the end of the first week in June, and remained in bloom for about the same time. The third variety, for which I am indebted to the kindness of Professor Michael Foster, F.R.S., and which I have provisionally named E. robustus intermedius, is a very beautiful form, of which a tolerably accurate idea can be formed from its portrait on plate 6726 in vol. cix. of the *Botanical Magazine*, where it was figured in 1883 from specimens furnished by Professor Foster. It is intermediate between the other two forms in everything but height, the stem only reaching about 6 feet, but the flowers, while smaller in size than those of E. nobilis, are nearly as perfect in form and infinitely more beautiful than those of the type. All these fine plants are now ripening numerous pods of seed. W. E. GUMBLETON.

NOTES ON HARDY PLANTS.

Gypsophila cerastioides is certainly one of the choicest of alpines. It is very distinct, its habit, flowers, and foliage all forcibly reminding one of the Cerastiums. It is very beautiful when seen in good-sized pieces, and remains effective during May and June. It closely resembles a patch of Phlox Nelsoni, but the white flowers are smaller and streaked with fine purple lines. When closely examined, however, the foliage and habit more resemble those of Phlox amœna, the leaves being oval or spoon-shaped, and the flowers held up on short scape-like stems. It is one of those neat and charming plants which, when seen in flower, makes a lasting impression. Many fail to grow it and deem it wanting in hardiness. Such, I am sure, is not the fact, for it has been grown here at least eight years, and never had any protection, even in severe winters. It is much troubled with the grub that eats its way down the stems, the same as in the case of the alpine Pinks. If the plants are looked over during the months of July and August and kept clear of this pest by hand-picking, I have no doubt but that they will thrive with otherwise ordinary care. Height about 3 inches.

Apple of the East (Aristolochia rotunda).—I daresay this may be propagated by seeds, which it ripens in great plenty. I have not, however, tried this mode of increasing it, because I have found that by cutting the somewhat hard and woody tubers I can gain that object in other respects more satisfactorily. The plan followed was to shake out the stronger roots when the growths have well advanced; the tubers were cut downwards into two or three parts, each part having its share of shoots; the long, stringy roots, well furnished with fibres, were laid under damp Moss, and the cut parts of the tubers were exposed so as to heal for nearly a day; then all were potted, and the results, as seen at present, are that every piece has grown well. All the plants are also showing for flower as if nothing had been done to them. I grow them in pots plunged in sand without any protection at any period of the year.

St. Bruno's Lily (Anthericum Liliastrum).—Both the type and major form of this are to be highly esteemed for the herbaceous border; they are practically two distinct things. The major variety is very much like a white Lily, as that name is commonly understood; the flowers are 3 inches to 4 inches long, and when expanded the effect from a big clump or a row of plants is most striking. The flowers, however, are almost too distant from one another on the scapes, which are nearly 3 feet high, and as but two or three flowers are open at the same time, the individual spikes are not so showy. It is owing to this quality that it is almost needful to grow the plant in strong or large specimens, and it is when we compare this large form with the type that we see in the latter at least one superior point.

St. Bernard's Lily (A. Liliago).—The ordinary form of this is much inferior to Liliastrum, but there is a vastly improved kind which has come to me under the name of A. L. major. It has starry flowers on very short stalks, or closely set on the main stem; they are about the size of a penny piece, of stout substance and the purest whiteness. The scapes attain a height of nearly 3 feet, and amongst a broad mass of German Iris show up grandly. J. WOOD.

Woodville, Kirkstall.

SHORT NOTES.—FLOWER.

A good Spiderwort is Tradescantia virginica alba major. It has a comparatively large white flower and grows freely.

The white Valerian (Centranthus albus) is a useful border plant. It is as well worth growing as the more vigorous type.

Fuchsia Riccartoni.—There is an immense specimen of this Fuchsia isolated on the lawn at Shopwyke. It is 8 feet to 9 feet high, and is of sufficient size to form a group in itself, the effect of which when in full flower is beautiful.

White Everlasting Pea.—The white Everlasting Pea makes a splendid pot plant, growing well and flowering freely. The flowers come in at a time when white indoor flowers for conservatory decoration are much desired.

NOTES FROM GLEN COVE.

CHIONANTHUS RETUSUS.—My acquaintance with this new shrub does not altogether coincide with what is said about the plant in your note in THE GARDEN, June 16 (p. 549). The Chinese plant differs a good deal from the American species (C. virginica). It is smaller and of more slender form, and has much smaller, obovate, downy foliage; it also starts into growth earlier than the other, and is nearly done flowering before the American form comes into bloom. Its flowers are white, fringe-like, fragrant, and in less ample panicles than are those of C. virginica. It blooms with us about the end of May and first days of June; the flowers of the American species this season became white about the 7th or 10th of June.

STYRAX JAPONICA (p. 549).—This is quite as good as you say it is. It blooms beautifully with us every year (this season it was at its best June 20). It is a small tree, easily raised from seed, but not very hardy; it is of dense symmetrical form, broadly pyramidal, with horizontally disposed branches. Plants 3 feet to 5 feet high and only a few years old bloom freely. I have grown it for a good many years. It bloomed with me for the first time in 1879.

STYRAX AMERICANA.—This is a rarer plant in cultivation than is the above species from Japan, but get it and give it a trial. It is a beautiful and desirable shrub, but a little tender.

STYRAX OBASSIA (p. 549).—Is not this the same as Halesia hispida, which is usually known in gardens under the name of Pterostyrax hispidum? A year ago we got Styrax Obassia from a Californian nursery that makes a specialty of importing plants from Japan. It is growing well, but has not yet flowered with us. On comparing it with our old plants of Halesia hispida in habit, wood, bark, or foliage, I cannot find any difference between them. Halesia hispida is a handsome small tree with large conspicuous foliage and corymbose racemes of white flowers. Our plants first bloomed with us two years ago.

VIRGINIAN FIRE PINK (Silene virginica) (p. 550).—The petals of the wild plants are two-cleft. It is one of the most brilliant of our native flowers and somewhat scarce.

PENNSYLVANIA PINK (S. pennsylvanica).—This is a very common plant from New England southwards, growing in rocky and gravelly places, particularly on slopes, sometimes in open sunny places, and sometimes in slightly shaded woods. It begins to flower in May and lasts into June. In the woods at Waltham, near Boston, I found a pure white variety. The children call it May Pink.

MANETTIA BICOLOR (p. 552).—I grow it as an outdoor vine. In the autumn I put in a few cuttings, and then let the old plants perish. By May I have a nice lot of young plants in 3-inch or 4-inch pots, and then plant them out against a low (4 feet to 5 feet) trellis in the hottest part of the garden. They soon take hold, and grow enough to cover the trellis. Throughout their whole life they are laden with their bright little flowers.

VIOLA PUBESCENS (p. 557).—I am glad Mr. Smith has a good word for it. It grows in our woods hereabout in the greatest abundance. But instead of being 6 inches high, it is oftener 12 inches or 15 inches. It loves a rich soil with

a deep surface coating of rotted leaves. It sows itself abundantly, both in a wild and cultivated state ; indeed, the best way to enjoy this yellow Violet and V. canadensis is to plant them on a rockery, and there let them naturalise themselves.

Viola rotundifolia.—This species is not so general. I never saw it in finer perfection than wild in the woods near Lewiston, Maine. There in a thinly shaded wood, and associated with Linnæa borealis, Dalibarda repens, Polygala parvifolia, Cornus canadensis, Mitchella repens, Epigæa repens, and some other gems, it formed many a sod in the general carpet. It does not scatter itself about as freely as do most of the other species, but it is longer-lived than most of them. The great secret of growing this and most other of our little wood plants is to surface the ground with an open spongy carpet, say fine-chopped Sphagnum and leaf-mould, and to keep the plants from encroaching on one another, or allow them to be choked out by over-growing weeds.

Berberis Thunbergi.—Regarding this handsome shrub, two of your correspondents some months ago wrote of it as being the same as B. sinensis, quoting the labels at Kew as authority. I believe this is a mistake. Both species are very distinct from each other. We have them both, and both are hardy, of comely form, and desirable ; but B. Thunbergi is, I consider, of more horticultural importance than is B. sinensis. On the other hand, B. sinensis will live and flourish where B. Thunbergi would be starved to death. W. Falconer.

Glen Cove, New York, U.S.A.

Kitchen Garden.

AUTUMN SUPPLY OF MUSHROOMS.

In many districts Mushrooms are frequently very plentiful in the open fields, more especially late in August and during September and the early part of October, but as they are much in demand in many private establishments not only then, but all the year round, it is not advisable to depend upon a chance supply. As far as the south-western counties of England are concerned, it is very doubtful if there will be many in the fields during the months named, the weather being altogether unfavourable to the spread of the spawn. At the present time the ground is in a moister state, this more nearly approaching saturation, than at any time previous during the past sixteen months, torrents of rain and very little sunshine being the rule during June and up till now (July 9). Much moisture, whether accompanied by heat or cold, invariably proves most destructive to the Mushroom spawn. It is all the same both under cover or in the open fields—at any rate, as far as the effect of too much moisture is concerned, and it is equally certain that very low temperatures, if the ground or beds are in a comparatively dry state, will not injure the spawn. Cold weather may and does check the growth of Mushrooms, but with returning warmth and gentle rains or waterings they are soon plentifully produced. As a proof of the indestructibility of the spawn by frosts or cold only, I have only to mention that during May and the early part of June large quantities of good Mushrooms were gathered from open fields in this district, and a few baskets were found even during April. Early in May the wholesale price (locally) for house-grown Mushrooms was 1s. per lb., but the prices soon dropped to one-third that sum, and have not since much recovered from the sudden drop. This exceptionally early crop is altogether abnormal, but so also were the conditions under which the Mushrooms were produced. In all probability it will be all we shall get this year, and in several respects we much prefer to experience weather more favourable to the production of autumn rather than spring crops.

It is always unsafe to indulge in prophecies, and Mushrooms may yet be forthcoming when wanted in the autumn; but, as before stated, the prospects are altogether against their being very freely produced in the open fields, and the prudent among those who must have them will do well to prepare manure and form beds as soon as possible. Even should there yet be abundance in the fields, those obtained from beds can also be profitably utilised, and probably these beds will remain productive much the longest. It is unwise to form beds thus early in houses or sheds of any kind, the open air being by far the better position. The site should be clear of trees, well drained, and sheltered from cold winds. Successional beds may be made in cool sheds, outhouses, cellars, or unheated Mushroom houses, though it is quite possible to maintain an almost unbroken supply from beds formed entirely in the open air. Much depends upon the way in which the manure is prepared, innumerable beds being spoilt by the use of either nearly raw manure or the other extreme, viz., that which has been allowed to become unduly hot, and, as a consequence, quite worthless either for heating or manurial purposes. What is wanted is plenty of fresh droppings from a rather large stable of corn-fed horses, enough being collected in a week or less to form into a bed. If it takes several weeks to save sufficient manure to form a bed, or if much green food is given the horses, success is very doubtful. Rather than keep the droppings till they become very dry or stale, I should prefer to form beds piecemeal, a length of 3 feet or more being added every week. In any case, while sufficient droppings are being collected, the first saved should be kept in shallow heaps to prevent heating, and also be protected from rain and drying winds. In order to get rid of superfluous heat, as well as to sweeten the manure and start decomposition, all should be thrown into a heap for about five days, or until the centre has become quite hot, when it should be turned inside out and again allowed to heat. This process ought to be repeated at least three times, all the masses being well separated as they are formed. In dry, hot weather the manure is apt to become too dry, and in this case it is necessary to well moisten it, or otherwise it will fail to heat and decay sufficiently to encourage the spread of the Mushroom spawn. I ought perhaps to point out that plenty of short straw should be retained with the droppings, or a much greater proportion than is usually left in the material for forming beds under cover of a shed or house. It is the non-retention of straw in the manure that has led to many failures in the open air, loose droppings not holding well together in the first instance, and being most liable to become saturated in wet weather.

Beds in the open air, formed away from a wall, ought always to be wedge-shaped, being 3 feet wide at the base, the same in height, and not more than 6 inches wide at the apex. This gives two good surfaces as well as the ends for spawning, and, in addition, renders it a comparatively easy matter to ward off heavy rains. Mushroom beds cannot well be built too firmly or too neatly, looseness being fatal to the prospects of a profitable crop. A large mass of manure, however well prepared, is liable to heat violently in the centre, and as this quite spoils the beds, it ought to be prevented as much as possible. If deep holes are opened at short intervals right down through the centre of the bed, and which can best be done with the aid of a stout iron rod, these will let out superfluous heat, and can be closed when it is found there is no further danger from over-heating. A trial stake kept plunged in the bed, and examined frequently, admits of the heat being easily ascertained, and when it has declined sufficiently to allow of the stake being held comfortably in the palm of the hand, spawning time has arrived. Three, or at the most four, lines of spawn should be inserted, the lowest about 6 inches from the ground, good-sized pieces, or, say, about 2 inches square, being used. These may be inserted 9 inches apart each way and in much the same manner as flat beds are spawned—that is to say, the holes are formed with the hand, the lumps of spawn fixed with a flat surface outwards and only just covered with manure, a good beating with the back of a spade completing the work. A little strawy litter may well be thrown over the bed to prevent its becoming much dried, but it is not often safe to soil it at first, as this may cause too great a rise in the temperature. Should the stakes denote, shortly after spawning, a rapid decline in the temperature, the bed may be cased over with soil at once, otherwise it is advisable to wait for about twelve days before doing this. The finest portion of the heap of loam collected for potting purposes is most suitable for soiling Mushroom beds, and, failing this, use the sweetest loamy soil procurable. This ought before use to be moistened sufficiently to hold well together, and an even thickness of about 2 inches spread all over the bed, making it as firm as possible with the aid of the back of a spade. Again cover with clean strawy litter, and later on the beds ought either to be thatched with straw, or, better still, be enclosed with tarpaulin kept down with strings and pegs. In dry weather, or whenever the soil is at all dry, remove the outer covering, and give a gentle watering to the litter covering the bed, this serving to well moisten the soil underneath, the outer covering being then returned. Mushrooms ought to be plentiful within six weeks of the date of spawning, and if the spawn is very good, it is possible to have them in a month. W. I.

TOMATO PLANTS DYING OFF.

I have a large house 80 feet long which has only just been erected. I have planted it on each side with Tomatoes in a well-drained border, fresh soil having been used from good Strawberry beds. I manured the soil and exposed it to frost, and then planted the Tomatoes. The Tomatoes have made most excellent, strong, vigorous growth, and each plant has plenty of good-sized fruit. The plants have done remarkably well in every way up to a fortnight ago, when I noticed that some six or seven of them were looking very bad, their leaves all drooping down as if they wanted water. I examined them very carefully, but could not find anything the matter with them, and I am at a loss to know what can cause the sudden collapse. I have grown Tomatoes for several years and have never had anything the matter before. I should be glad of any advice as to the cause. W. W.

*** In the absence of any specimens of affected plants and their roots, I can only surmise what may have been the cause of the sudden collapse. This season many diseases are prevalent in a much more virulent form than usual, notably those of fungoid growth. Plants of Tomatoes that are attacked by any of these do not, however, suddenly droop their leaves, but are first covered with small patches or spots of mildew-like fungus, and this soon spreads all over the leaves and to the fruit as well. In this, as well as in various other cases, prevention is better

than cure—there is no remedy in fact for either the Potato disease or the more-to-be-dreaded Cladisporium fulvum, the latest bad thing among Tomato diseases. In dull, wet and cold weather more fire-heat ought to be turned on the houses containing Tomatoes and plenty of air admitted, so as to maintain a drier or more buoyant atmosphere. A close look-out ought to be kept for any yellow spots or black patches on the leaves, these being removed and burnt directly they are found. If this does not check the spread of the fungus, all the affected plants ought to be cleared out, and more side growths from the healthy plants laid in. In several instances nothing short of a wholesale clearance of the houses, plants and soil being entirely removed and the former destroyed, accompanied with a thorough cleansing of the houses, has been effectual in stamping out the disease for a time. Indeed, so destructive and difficult to deal with has the Cladisporium become, that already there is an appreciable falling off in the supply of Tomatoes in both London and provincial markets. Should the present dull, cold, and wet weather last much longer, there is every prospect of Tomatoes being comparatively scarce this season, especially seeing how backward those in the open are bound to be, let the weather from this date be what it may.

If the foregoing does not meet the case of "W. W." in any way, he may conclude that the cause of failure may be traced to the roots, and in all probability is brought about by the use of compost either too rich or which is infested with wireworms. The soil from good Strawberry beds would naturally be rich in nitrogen and other plant foods, and to add manure to this, especially at the outset, was distinctly a blunder. The same tiny worms that injure the roots of Cucumbers also attack the Tomatoes, and these are introduced with the manure. When the roots are injured by insects they cease to spread and become swollen or knotty. Plants with the roots in this state will flag badly in sunshine, and may easily be pulled out of the soil. When wireworms abound in the soil these are liable to eat their way up the centre or pith of the stems, the end being a sudden breakdown much as described by "W. W." Wireworms ought to be looked after when the soil or compost is being prepared, and they may be caught in established beds by plunging pieces of Carrot, Potato, and other roots, these being drawn out of the soil and examined occasionally for any wireworms that may have eaten their way into them. A plant badly crippled by wireworms cannot be saved, but the rest may yet be saved, and would soon fill up more trellis space.—W. I.

KITCHEN GARDEN NOTES.

PLANT-RAISING UNDER DIFFICULTIES.

INSTEAD of the season being extremely dry, as was prognosticated, the reverse, it is only too evident, will be the case. The long spell of very wet, cold, and sunless weather experienced, more particularly in the south and south-western counties, has already left its mark on many previously most promising crops, and unless a change for the better soon takes place, the effects upon the late crops must be most disastrous. It is the heavy, clayey lands that suffer the most, but, thanks to the comparatively dry, yet severe winter, these were easily got into good condition for the reception of seeds and plants, and, therefore, not so quickly affected by either drought or too much rain. Previous to the advent of dull, showery weather slugs were quite harmless, but now these and other pests are in the ascendant, and the greatest difficulty is felt in raising plants for the autumn and winter crops. Repeated dustings of soot and lime were quite thrown away on the tiny plants of Lettuce and Endive, and the only way to keep up a close succession was to sow seeds thinly either in handlights, frames, or boxes, the seedlings being planted out before they spoiled each other by crowding. If the dull weather continues more seed will be similarly sown, Lettuce especially being in great demand during September and October. Coleworts and Cabbages cannot, with us, be raised in the open ground in very wet weather, and these also are sown under glass, the seedlings being pricked out until the Onions are cleared off the ground intended to be planted with them. Turnips are eaten off as fast as they come through the ground, only a few patches being saved. These will be made the most of, and all blank spaces again re-sown until a good even plant is secured. Early Milan is the quickest to bulb, though not so good in quality as Snowball and Veitch's Red Globe. If there is a prospect of a break in the supply, the former should be sown as well as the somewhat later varieties. The seed of late Peas, Runners and Kidney Beans sown in the ordinary manner perished in the ground wholesale, but we blamed the state of the ground for this and not the seedsman who supplied us with them. The only remedy was to sow nearer the surface of the ground, and to cover the seeds with dry soil obtained by sifting the accumulations under a potting bench. We have sown several long rows of Asparagus Kale and Coleworts, and if the seedlings can be preserved from slugs, these will be merely lightly thinned out and allowed to remain where they are. These, as well as Spinach Beet, sown now, are frequently very serviceable when other green food is scarce.

BLANCHING CELERY.

The earliest Celery or that required for use in September will now require closer attention, as unless well blanched it is of little value other than for flavouring soups. Where very little rain has fallen, water must be liberally applied to the rows of Celery, and in any case liquid manure is most effective when given either in showery weather or after the soil has been well moistened with the aid of the watering-pot. Moulding up should be commenced a few hours after the liquid manure has been given or while the soil in the trench is in a moist state. First, however, pull off all small leaves and suckers that may have formed, and then lightly gather up the leaf-stalks together and fasten with matting, so as to prevent the soil finding its way into the hearts. At the outset 3 inches or 4 inches of soil may be pared off from the sides of the trenches and loosely distributed about the plants, this serving to keep the leaves well together without confining the inner leaves and heart, which are required to lengthen and thicken considerably. The ties to be then removed, and in the course of a fortnight or three weeks fixed higher and another layer of finely broken soil disposed about the plants, at least one other such moulding up being required before the plants are sufficiently enclosed to ensure thorough blanching. These early and moderate beginnings act as a mulch to the roots, and if plenty of soot or soot and lime is dusted about the plants, this, when washed in, acts as a manure and also checks the ravages of slugs. If salt is given as a manure, this must be applied very sparingly and none of it lodged on the foliage, or it will quickly disfigure it. The White Plume Celery introduced from America is supposed to require no earthing up, but if not needed as far as colour in concerned, the flavour is much too strong, unless greatly moderated by blanching in the ordinary manner.

OTHER METHODS OF BLANCHING CELERY.

When a few extra fine and clean sticks of Celery are required for exhibition or other purposes, blanching can be best ensured by wrapping the stalks in several coils of brown paper so as to effectually exclude the light. This plan is especially recommended when the plants are grown in beds or several rows wide in a trench, and it is also the best for keeping the stalks free from worms and slugs. The papering up should be done gradually or according as the hearts advance, and not too tightly, as this may cause bulging at the base. Fully six weeks ought to be allowed between the final papering and the date the Celery is required, as the blanching process is slow during the summer months. Common drain-pipes also answer for blanching Celery, as it turns out of these much cleaner than when blanched with soil. If the plants are strong, pipes not less than 5 inches in diameter should be used, and in any case 4-inch pipes must be the smallest employed. They ought to be placed in position early or before the plants have grown much. If the leaves do not at first reach well out of the pipes, they soon will do, and in time form a dense head. No further trouble is necessary, as the blanching commences early, and in the end is perfect. Should the pipes be too short for the variety of Celery grown, a slight moulding up may be given and the pipes raised a few inches, but it is better to avoid raising the pipes if possible, as in this case the slugs have freer access to the stalks. A mulching of short manure or a slight surfacing of mould, however, will benefit the plants, and perhaps save the watering-pot somewhat.

LATE CELERY AND CELERIAC.

By the end of July all Celery planting ought to be completed, as any put out later rarely attains a serviceable size by the time moulding up must be completed. Although planting in wide trenches may be a means of economising space, it is scarcely to be commended for the late crops; nor should these be assigned a low position or given deep trenches. Frost and too much moisture prove most injurious to Celery that is to be kept say till March or much later, and it is better, therefore, to form shallow trenches on rather high ground. Plants in single lines can also be the most carefully moulded up, and in any case double rows are a doubtful gain. When the plants are strong and sturdy and can be moved off a hard bottom with a good square of soil and roots attached, these may be set 8 inches apart, but a distance of 6 inches is ample for weakly or very late-raised plants, as these cannot be expected to grow very large before cold weather intervenes. The plants of Celeriac or Turnip-rooted Celery raised and otherwise treated similarly to the ordinary main crop Celery should now be finally planted; in fact, if extra fine roots are needed, the plants ought to be well established in the open ground. Land that was previously well manured for early Cauliflowers and now just cleared answers well for Celeriac, and in most cases requires no further preparation beyond cleaning and surface-hoeing. What is needed is a rich, yet rather firm root-run, this encouraging the formation of large roots rather than a superfluity of foliage. If, then, it is decided to plant on well-manured, newly-dug ground, this should be made firm prior to planting. Plant on the surface in rows 18 inches apart and 15 inches from plant to plant, and give plenty of water in dry weather. When growing strongly it is sometimes advisable to snap off some of the leaves and mould up slightly, this encouraging the formation of large roots. W. I. M.

GARDEN FLORA.

PLATE 658.

SNOWDROPS AND WINTER ACONITES.

(WITH A COLOURED PLATE OF GALANTHUS NIVALIS AND ERANTHIS HYEMALIS.*)

THE Snowdrops and Winter Aconites in the accompanying coloured illustration will give our readers some idea of the charming natural effect that may be produced in the wild garden. The idea of a wild garden as the phrase is now understood is by no means a new one, and must not be confused with the so-called wilderness which our attention has been especially drawn to in gardens, and which was nothing less than a confused mass without shape or form, and entirely devoid of interest. The wild garden, on the other hand, is a phase of floriculture that may be added with advantage to every garden. In the wild garden plants with a little assistance may be grouped in a perfectly natural way and allowed to develop without the cutting, trimming and staking necessary to make plants in the trim border look respectable. The number of plants at our command for a purpose like this is innumerable, including among others Snowdrops, Aconites, Daffodils, Bluebells, Squills, Crocuses, Tulips, Fritillaries, Lilies of various kinds, Snowflakes, and numerous other

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, March 7, 1888. Lithographed and printed by Guillaume Severeyns.

TRICOLOR VIOLETS. (See p. 111.)

bulbs. The idea can be carried further, however, and with the aid of Spiræas, Globe Flowers, Poppies, Day Lilies, Hydrangeas, Cylamens, Pelargoniums, Pæonies, Larkspurs, American Daisies, many of the finer umbelliferous plants, &c., the interest could be kept up all through the year with half the expense attending the carpet-bedding system. The place of the scarlet Pelargonium could be taken by many of our hardier plants, and the blazes of colour such as may be had by planting large stretches of Anemones, &c., are certainly not surpassed by any of the exotic plants we have seen bedded out. The sketch was made in the wild garden at Kew, where we are told over 60,000 bulbs of various kinds have been planted in the Grass, and the result so far gives the authorities every encouragement to extend the wild garden.

The common Snowdrop (G. nivalis), as defined by Mr. Baker in his "Amaryllideæ," includes G. Imperati and G. caucasicus as sub-species, and these again include many well-known garden varieties. The common Snowdrop is a true native of our copses, and in many places it may be found even now growing wild, though the avaricious would-be botanists have almost extinguished it from easily accessible stations. Although a fairly common bulb in gardens, it might with advantage be greatly increased. Its usefulness as an early spring flower can hardly be overrated, and its beauty in a semi-wild condition is delightful. Associated, as we have seen it, with Winter Aconites, Squills, Crocuses, and early Daffodils, all peeping through the "long and pleasant Grass," it leaves nothing to be desired, and as the flowers only die to come again with renewed vigour, labour is reduced to a minimum.

G. corcyrensis, or præcox, as it is often called, is one of the earliest, as its usual flowering time is December. It was introduced to this country by the late Harpur-Crewe, who received the bulbs from Mr. Hughes, late chaplain at Corfu, and differs little from the type except in the time of blooming.

G. octobrensis was also introduced by Harpur-Crewe, who received a single bulb from Lord Walsingham while travelling in Albania, and from which our present stock has developed. It always flowers during the month of October. That this is a precocious variety of G. nivalis there can be no doubt, but it is an extremely useful addition to the autumn bulb garden.

G. Sharlocki is more curious than beautiful, having two long spathes exceeding the green-tipped flowers by an inch or so.

G. poculiformis is one of the most beautiful of the spring Snowdrops. The inner segments, instead of taking the usual form of a tube or cup, are produced to about the same length as the outer, making a fine regular flower. All the segments are pure white. It is of garden origin.

G. reflexus has smaller flowers than the type, with narrow segments.

G. lutescens has the inner segments tipped with yellow instead of green; otherwise it is identical with the type. It seems to have a very delicate constitution and wants care. There is a double variety, but I believe it is as yet very rare.

G. Imperati differs from G. nivalis in having broader leaves and much larger flowers, and is a native of Naples and Genoa. Matthiolus figured it as early as 1575, and Clusius, we are told, received it from Byzantium in 1582. G. Melvillei is a garden variety very nearly allied.

G. caucasicus has also broader leaves than the type, eventually 8 inches to 10 inches long, and about 1 inch broad; flowers larger and later than in type. Native of the Caucasus. Redoutei major and Caspius are hardly distinct.

G. virescens.—This was introduced by Herr Max Leichtlin, who received the bulb from Vienna, but its origin is somewhat obscure. It comes nearest to forms of G. caucasicus; the outer segments flushed on the outside with green.

Other forms of G. nivalis in cultivation are angustifolius, Saundersi, n. fl.-pl., serotinus, quadripetala, &c., many being unnamed.

Elwes's Snowdrop (G. Elwesi).—This is a glorious addition to our Snowdrops, although at the present time rather scarce in most gardens. It is a native of mountains of Asia Minor, 2000 feet to 5000 feet elevation, and was first gathered by Balansa in 1854, although not considered distinct until individualised by Mr. Elwes, 1875. There seems to be two strains in cultivation at present, one in which the flowers are smaller than in the other. The flowers of this species increase in size from the opening of the flower onward, and it is not unusual to see them three times larger when fully developed than when first open. G. globosus is a variety of Elwesi with globose, usually two, flowers. We have selected three or four from a batch of Elwesi from the Continent.

Broad-leaved Snowdrop (G. latifolius).—This species is usually found in gardens under the name of Redoutei. It is very distinct, with broad bright green leaves and rather small green-tipped flowers. Native of the Caucasus; flowering February and March.

The Crimean Snowdrop (G. plicatus).—A useful and distinct species from the mountains of the Crimea and Dobrudscha, flowering with us near London in March and April. The leaves are very glaucous, growing to a foot or more long, and usually an inch broad with reduplicate edges; flowers large, outer segments white, inner green on the upper half, with a white edge. G. Olgæ and græcus we have not seen.

Winter Aconite (Eranthis hyemalis).—Although the beautiful little bulbous plant figured in the accompanying plate may have no claim to be considered a true native of our woodlands, it has been naturalised to such an extent in many woods and copses as to appear quite at home among the surrounding vegetation, and infinitely more charming and interesting than we are in the habit of seeing it, as it is usually grown in small and out-of-place patches in the well-trimmed beds or borders. It seems to be one of the very oldest cultivated plants, and, as Gerard informs us, it was grown in great quantities in our London gardens earlier probably than 1596. He calls it Winter Wolf's-bane or small Yellow Wolf's-bane, by others Yellow Aconite, Winter Hellebore, &c. It is fairly common still, and is sold annually in quantities by our bulb merchants for purposes of naturalisation, &c., a use to which the bulbs are specially fitted. They are quite as hardy as our native bulbs, increasing by offsets with such rapidity as soon to take possession of large expanses. It ripens seed also, by which means it may be increased and possibly improved.

D. K.

Dressed table stands.—Any break away from the stereotyped March stand is welcome, because this latter practically admits of only one style of dressing. If committees of horticultural societies would make classes for flower stands in which novelty in design of stand should have consideration, we should get clear in time of the big glass platter for a base out of which, usually in a pancake of flowers, rises a spiral stem, sometimes carrying other dishes, sometimes not, but still all dressed in the same fashion. The other day at the Twickenham show, Miss Walker, of Whitton, put up a stand which was unanimously awarded first place in its class. The stand comprised a centre vase with three others round it, but without any dish base. When dressed the general outline was that of a pyramid, but the flowers and Grasses still were quite clear of the table. The flowers, so simple and yet so charming, were white and pink Gladiolus Colvillei, with just a few of the lovely pink semi-double Shirley Poppies thrown in, and dressed with a few Grasses. The artist in avoiding all warm colours, and using but two or three in entire harmony, showed that the most refined effects are always obtained from soft hues, and few of them. The Sweet Sultan and some of the delicate yellows and whites found in Papaver nudicaule are very pleasing. Heavily dressed stands and those holding several diverse colours should always be put into the background by judges.—A. D.

Stove and Greenhouse.

T. Baines.

LESCHENAULTIA BILOBA.

If proof were wanted that this beautiful Leschenaultia is all but lost sight of, it is only necessary to point to the comments that have been made respecting it at a recent exhibition. It is now a rare occurrence to meet with the plant, yet it never fails to attract the attention of even those who are little conversant with the routine of cultivation, but who, nevertheless can appreciate the merits of a distinct and beautiful plant.

This Leschenaultia is unrivalled for the lovely shade of blue in its flowers, which, when it is well managed, are produced in profusion, and keep on opening in succession, so as to render the plant a conspicuous object for five or six weeks. Much difference of opinion has been expressed as to the character of this Leschenaultia in relation to its being easy or difficult to grow. Some aver that it is a bad grower, and others make out that it is easily managed. The plant is not so long lived as some things, and occasionally goes off without showing previous signs of being out of condition. But as long as it keeps healthy it grows freely, and more quickly than many hard-wooded subjects that naturally attain a similar size. It is well to state that those who attempt to make all plants that come under the head of greenhouse kinds conform to a like course of treatment are not likely to succeed with this Leschenaultia. There are two or three matters connected with its cultivation that those who undertake to grow it will do well not to lose sight of. It does not like so low a temperature in the winter as many hard-wooded sorts will bear; if kept for any length of time too cold, mildew will attack the leaves, and if this is not destroyed before it gets much hold, it will quickly kill the leaves, causing them to fall off, the effect of which is that the plants are so weakened, as to bring on a stunted condition, from which it is difficult to get them to move freely. A temperature of 45° should be maintained for the plant during the night through the winter and early spring. Though a free-rooter it cannot bear its roots being disturbed, in the way that most things will, without showing any ill effects. So sensitive is it in this respect, that when repotting is necessary the old drainage material at the bottom of the ball must not be removed, simply shifting the plants just as they are, with the crocks in the mass of roots, with which, in vigorous examples, they are closely interwoven. Aphides frequently attack this Leschenaultia, and being in colour so near that of the leaves, they often get numerous before they are seen, in which case they do much injury, especially in the spring, when they get down into the points of the shoots and quickly destroy the newly formed bloom-buds. The above are the three principal matters connected with the cultivation of this Leschenaultia which it is necessary to keep in view, and which if attended to there need be little fear of failure. As already said, an odd plant will go off without giving much warning that anything is wrong with it, and this may be set down as counterbalanced by the little difficulty there is in increasing the plant. The propagation of most hard-wooded subjects is generally best left to those who grow for sale, and have the requisite means at hand for striking cuttings. But this Leschenaultia is an exception.

It strikes freely and grows well afterwards.

Cuttings about 2 inches long composed of the points of the young shoots that have got a little firm, but not nearly hardened, will root in about six weeks if put in during the spring or early summer. They may be put 2 inches apart in 5-inch or 6-inch pots filled with sand. Cover with propagating glasses and stand where they can be kept at an intermediate temperature, moderately moist, and shaded. They must be looked to to see that the leaves do not turn mouldy, or they will cause the cuttings to damp off. To prevent this some air should be given by tilting the glasses a little when it becomes necessary. It often happens that the cuttings make top growth during the time they are rooting; if this occurs pinch out the points a week or two before potting them off, otherwise the stopping may be deferred until the little plants begin to move after they are potted. It is necessary to attend to stopping thus early, as the plant is naturally an erect grower, not disposed to branch out much of its own accord, and unless the foundation for a dense bush—which is the form it should be grown in—is laid early, the specimens will have a leggy appearance, which no treatment afterwards can correct; 3-inch pots will be large enough to put the newly-struck cuttings in at first. Good brown peat that has plenty of fibre in it, with a moderate amount of sand added, is the best soil to use. For the first potting the peat should be passed through a sieve, or broken up finely by hand. Give a moderate amount of drainage and keep the plants a little close for two or three weeks, in which time they will begin to make both root and top growth. The pots should be placed on material that will hold some moisture, but whatever is used it must only be kept damp, not wet, otherwise the pots will absorb more water than the roots will bear. The practice of standing small plants of this and most other things on dry shelves or open lath-work stages that is often followed should be studiously avoided by all who attempt to grow plants well. On a dry material, the small amount of soil the pots hold during the early stages of the plant's existence dries up too quickly in the summer time for their well-being. Give plenty of light with a thin shade in bright weather. Admit air freely all through the growing season in the middle of the day, but avoid cold currents. Syringe overhead in the afternoon at the time the air is shut off. When 2 inches or 3 inches of growth have been made again pinch out the tops of the shoots. If the cuttings were struck early in the spring, the plants will most likely bear moving into pots an inch larger by the end of July or beginning of August. As already pointed out, the crocks should not be interfered with, simply transferring the plants from the small to the larger pots without disturbing the ball in any way. At the beginning of September cease syringing and shading, at the same time admitting more air. All through the growing season examine them daily to ascertain the condition of the soil as to moisture; the roots must never be allowed to want for water, of which this Leschenaultia will bear more than many hard-wooded kinds.

The plants should keep growing slowly during the winter. This they will do if given the temperature already mentioned. A degree or two more will do no harm, but lower than the figure named, 45°, they should not be allowed to remain for any length of time. The soil may be kept a little drier in the winter months. In the spring all the strongest shoots should be tied out horizontally. This will throw the strength into the weaker ones that are left in an erect position, and in this way equalise the growth. About the end of March move into 6-inch or 7-inch pots, and in the course of six or eight weeks again pinch out the points of the shoots, and as soon as they have started into fresh growth again tie out the strongest ones. Treat through the summer as advised for the preceding season, giving more air, but continuing to shade slightly in the middle of the day when the weather is sunny. Syringe overhead as before, and keep the plants well up to the glass in a light house or pit. In autumn again cease shading and syringing, giving more air with a view to getting the growth well matured. Treat during the winter as before. If the shoots were not stopped a second time in the summer the tops should be again nipped out soon after Christmas. Give pots 2 inches or 3 inches larger in spring, using the soil in a more lumpy state, adding about one-sixth of sand to it. Pot moderately firm. Again attend to the shoots by keeping the strongest tied out.

The treatment through the spring and summer should be similar to that which was followed before. About June again take out the points of the strongest shoots, keeping them neatly tied out, but do not use more sticks than necessary to support the branches and keep them in their right position. Syringe overhead and give a little shade in the hottest part of the day when the weather is bright and clear. This autumn dispense with syringing and shading a little sooner with the object of getting the growth well ripened. Winter as before. If all goes well the shoots will set flowers at every point; these will be perceptible about March. As before, care must be taken to avoid cold draughts, the effect of which would be, if allowed to come in direct contact with the plants, to cause the flower buds to go blind. The flowers will begin to open towards the end of May or beginning of June. As soon as the blooming is over shorten the shoots back, reducing them to about half the length that has been made from the last time they were stopped in the previous summer. Keep the atmosphere a little closer until growth has again started, after which give pots 3 inches larger and treat during the rest of the summer as before advised, except that no further stopping must be attempted, as it would be likely to interfere with the next season's flowering. With continued attention through the autumn the plants may be expected to bloom well again the following year. In fact, so free a flowerer is it, that if wanted the plants would most likely bloom a year sooner than the foregoing treatment would permit of their doing, but if this is desired they must not have the points of the shoots removed in the winter. Small examples in 6-inch or 7-inch pots often flower profusely, but in that size they are necessarily much less effective than when a year older. Where there is a sufficient stock it is a good plan to bloom a portion whilst small, growing the remainder on a year longer before allowing them to flower. As already said, the plant is so readily propagated, that it is well to strike a dozen or two each spring; in this way a stock sufficient to produce a telling effect can be easily kept up.

The finest specimen I ever saw was exhibited at a local show near Manchester a good many years ago. It was over 3 feet through, and was a sheet of lovely colour, such as those who saw it are not likely to forget. As a pot specimen it is a fitting companion to Hovea Celsi when planted out. The different shades of colour in the two plants are as desirable as they are scarce amongst greenhouse subjects.

As I have already said, peat is the best soil to grow this Leschenaultia in, but where this cannot be had of good quality, yellow turfy loam will answer. The large-flowered form, L. biloba major, is the best.

Zonal Pelargonium Queen of the Whites.—This new zonal is undoubtedly destined to become popular. It is quite as compact and dwarf in habit as the old Mme. Vaucher, whilst the trusses are double the size and the blooms almost perfect in shape and very pure in colour. Up to the present I have observed no tendency to take on that pink tinge which mars the purity of the white zonal kinds hitherto raised. The trusses, too, are so plentifully produced as to make it in this respect a worthy rival to the white form of Vesuvius. I do not know what its capabilities for winter bloom may be, but for pot culture in summer and for bedding I believe it to be the best white zonal.—J. C. B.

Chili Jasmine (Mandevilla suaveolens).—This is an old, but beautiful plant, as the large, pure white, Convolvulus-like flowers are borne in great profusion. It needs liberal treatment to be seen at its best, and on that account should be planted out, as if confined in pots, as a matter of course, it does not grow so freely, and should it suffer any check the leaves are almost certain to be attacked by red spider, even if they were free of it before. This insect is the one drawback to the successful culture of the Mandevilla, as when trained near the roof of the greenhouse the dry atmosphere is of course favourable to its development, so that a liberal application of the syringe is necessary in order to keep the foliage clean. Cuttings of the plant under notice strike root readily if taken at this season and formed of the young growing shoots. —H. P.

Schubertia grandiflora.—In one of the stoves at Kew this very beautiful South American climbing plant has for some time past been one of the chief objects of interest. It may be called an old plant re-introduced, since it was first known in English gardens fully half a century ago, and the credit of bringing it again into notice is due to Mr. Bartholomew, Park House, Reading. The plant was made known to the readers of THE GARDEN through the fine coloured plate published of it about a year ago, and since then there has been a demand for it at nurseries, few of which, however, are as yet able to supply it. It is a climbing plant with large, deep green leaves, and at intervals on its slender twining stems are clusters of large pure white flowers 2 inches or 3 inches across, of thick texture, reminding one somewhat of Stephanotis, and strongly perfumed. It appears to be a very free flowering plant, judging by the plant at Kew, which, though small, bears numerous flower clusters. Mr. Bartholomew appears to treat it as a greenhouse plant, but at Kew it seems at home in a stove trained in a balloon shape in a pot. It would make a glorious rafter or pillar climber in a warm greenhouse, and we hope to see it so treated at Kew. As a plant for general culture it is undoubtedly of great value, and since there is a demand for it, nurserymen will find the means of supplying it. It is a native of the Argentine Republic, and was originally named Schubertia, but now it is known at Kew as Araujia grandiflora, the same genus under which the well-known Physianthus albers has now been placed.—W. G.

Blandfordias in bloom—The Blandfordias are a very beautiful class of flowering plants, the whole of them being natives of Australia, yet in this country they are but rarely met with in cultivation, and still more rarely in a flourishing condition. As far as my experience of them extends, however, they are by no means difficult to maintain in a healthy state. The different members of the genus all form a tuft of Grass-like leaves, from whence the flower-stems rise up to a height of 1 foot or 2 feet, and bear upon their upper portion a number of drooping bell-shaped flowers of a wax-like texture. The plants bloom at this time of the year, and I find that the best time to repot them is just as the flowers are over. In potting, the greatest care should be taken to see that thorough drainage is ensured, for when in full growth the Blandfordias like plenty of water,

and at the same time they are very impatient of stagnant moisture, for unless well drained the large fleshy roots quickly decay. A very good compost for the plants consists of two-thirds fibrous peat to one of loam, with a liberal admixture of silver sand. The best place for the plants is in a fairly cool moist spot where they are shaded from the full sun. At the same time they should be kept in a greenhouse or a frame in order that they may be protected from very heavy rains. The soil must be kept moist during the winter; indeed, at that season of the year the treatment accorded to a Pelargonium will suit the Blandfordias perfectly. There are several species of this genus, but throughout the whole there seems a strong family likeness. Three of the best are B. Cunninghami, B. flammea, and B. nobilis. The last of the three has flowers, which are smaller than those of the other two. It is the least particular in its requirements, and the most free-flowering of all the Blandfordias.—H. P.

WORK IN PLANT HOUSES.

PALMS.—The smaller growing kinds of Palms, such as are usually kept in pots, do not require so much root room as is often given them. Unless the houses are larger than usual, the object is rather to restrict growth than to treat the plants in a way that will encourage them to attain a large size. But if the roots are too much cramped the foliage becomes yellow and sickly in appearance, though much may be done by the use of manure water given during the season of active growth to keep the plants in good condition. In the case of old specimens that are already in pots or tubs as large as can conveniently be given them, manure water may be given once a week from this time until the end of the season, when little more growth will be made. In the matter of repotting Palms there is no particular time, as from early in spring until the middle of summer will answer; at the latter period there is still enough time before the roots cease growing for them to make the necessary progress in the new soil. Young Palms should not be too much cramped at the roots, as it is desirable to grow them to an effective size; consequently larger pots should now be given if required. Palms will grow in either peat or loam, and even if the latter is of a heavy clayey nature it will answer. I should give the preference to loam where it can be had of a strong, rich character, adding as much sand as will prevent its becoming sour and unsuitable for the roots. Drain the pots well, covering the crocks with a sufficient quantity of fibrous matter to keep the finer particles of the soil from getting washed down amongst them; this is important from the large quantity of water that the plants require. Pot firmly.

SEEDLING PALMS.—Seedlings should be potted off as soon as they are large enough. Young Palms, even of the greenhouse kinds, are better kept in moderate stove heat for the first two years or so, as by this means time will be saved in growing them up to a useful size.

SOWING PALM SEEDS.—The time for sowing the seeds of Palms to a great extent depends upon the time they are obtainable. Where a moderate amount of heat is available, it is best to sow the seeds as soon as they come to hand, as they take a long time to vegetate. Some species are more than a year before they make their appearance. It is better to sow now than wait until spring. The seeds may be put in moderately thickly in large seed-pans or shallow boxes, drained, and filled with fine soil. Cover the seed with some of the soil and keep moderately moist, but not too wet. In a temperature of about 70° the seedlings will appear in due course. The best kinds to grow for general use either when required for furnishing conservatories, greenhouses, or for the decoration of halls, rooms, &c., are the different kinds of Kentia, Phœnix rupicola, P. reclinata, Psychosperma Alexandræ, Corypha australis, Chamærops humilis, and C. Fortunei.

FERNS.—SOWING SPORES.—Some of the commoner kinds of Ferns come readily from self-sown spores when there happens to be a damp surface under or near where the pots are stood. In the case of such, unless where large numbers are required, there is no necessity for making any special provision for raising them. But there are many species, comprising the rarest and most prized kinds, that are very seldom obtainable unless the spores are gathered at the right time and sown. The spores of most Ferns will shortly be mature, and where stock of any particular sort is to be raised it is well to sow as soon as the spores are ready. The best way to proceed is to drain some moderate sized seed-pans and fill them with a mixture of sifted peat, broken sandstone, or crocks, and enough sand to keep the material sweet. Fill the pans moderately full, press the soil down fairly firm, make the surface smooth, and then water it well. The spores may either be shaken out from the fronds, rubbed off, or the fronds may be taken and cut into small pieces and sown with the spores attached to them. In either case sow moderately thickly, and press them gently with the hand on the soil. The pans should then be stood in others that are a size or two larger, and that are watertight, so as to hold a little water. This will be absorbed by the pans in which the spores are sown. By this means the necessity for giving water overhead will be avoided, and in this way there will be no danger of the spores getting washed down into the soil.

SEEDLING FERNS.—Seedlings that have been raised from spores sown at the beginning of the year will now be large enough for putting into small pots. This should always be done before the little plants have become so large as to have made roots of a considerable length, as when this happens they get matted together and suffer proportionately in being separated. Drain the pots and fill them with soil of a like description to that in which the spores were sown. As soon as the potting is completed water freely, so as to settle the soil about the roots. Shade a little during the middle of the day in bright weather, but stand them where they will get plenty of light. The idea that Ferns require to be grown with little light is a mistaken notion that cannot be too soon banished, as with few exceptions they do best with as much light as most things require. An intermediate temperature will assist the growth of the plants, even in the case of kinds that do not when they get bigger need more than greenhouse warmth, as when kept a little warm, with a moderate amount of moisture in the atmosphere, they will grow a deal faster. Seedlings that were potted off last autumn or during the early months of the year will now want a shift. Give pots proportionate to the size the particular species grows to and to the condition the plants happen to be in. Treat them, in the matter of warmth, light, and moisture, as advised for the newly potted seedlings.

FERNS FOR CUTTING.—Ferns that are wanted for cutting, such as Adiantum cuneatum and others, with Pteris of various kinds, including P. serrulata, P. tremula, P. cretica, and the different tasselled forms of the above sorts of Pteris, require to be especially treated with a view to making them hard enough to stand well in water. Without this even the best cutting kinds soon flag and look shabby. To give them the requisite enduring properties, the plants must be grown in houses where they get plenty of light and but little heat, with no more shade than necessary to keep the young fronds from being scorched by the direct effects of the sun. Adiantum cuneatum, which is still more used than all other kinds of Fern put together for bouquets and in other arrangements of cut flowers, is now wanted to be of a pale yellowish green shade, not the dark green colour which is often looked upon as the right condition to aim at. To have this Fern in the best state instead of keeping the plants in dark structures, it should be grown in light houses well up to the glass, with only a thin shade over it in bright weather. Under these conditions less air may be given, by which means the atmosphere is kept a little more moist than that of an ordinary greenhouse, and the temperature is kept warm enough without much use of fire-heat. When a new head of fronds has nearly reached the full size air should be given freely, with still less shade. In this way the pale green colour mentioned will remain, and the fronds will last three times as long as when grown in the manner that Ferns are ordinarily treated.

HERBACEOUS CALCEOLARIAS.—Seed of these Calceolarias should shortly be sown. Those who save their own seed have only to get a good strain, and each year when the plants are in bloom to select and mark those that are of the best colour and form, with a free, robust habit of growth. By selection in this way the quality of the flowers will be kept up; whereas if seeds are gathered promiscuously from the plants the strain will at once deteriorate. Sow the seed in pans or shallow boxes, drained and filled with a mixture of about four parts sifted loam to one of leaf-mould, also sifted, and a good sprinkling of sand. Scatter the seed thinly enough to admit of the plants gaining the requisite size and strength before they are pricked off. When crowded in the seed-pan the growth necessarily becomes weak and drawn, and after being in this condition the plants have much to make up. Press the soil sufficiently to make the surface smooth, and give a gentle watering before sowing the seed. Cover very slightly with a little fine soil. A small pit or frame where there will not be a necessity for opening the light wide will be the best place, as the sun heat will in this way hasten the germination of the seed. Shade the surface of the soil to prevent its drying up too quickly, by which means it will not be necessary to water often before the little plants appear.

PRIMULAS.—Plants raised from seed sown early and that were pricked off in large pans or shallow boxes will shortly be large enough to move into 3-inch or 4-inch pots. A little rotten manure passed through a fine sieve may now be added to the loam as well as some leaf-mould, with a proper proportion of sand. Pot moderately firm, and keep the plants well down so as to have the base of the lower leaves touching the soil. The system that used to be followed in potting both the double and the single varieties of Primulas, with their leaf-stalks as high above the soil as they could be got, was wrong. It was practised with the object of lessening the disposition in the stems to damp, in place of which the high potting encourages damping. The best position for the plants after potting is in cold frames, which should face north. The plants ought to stand on inverted pots that will raise their tops close up to the glass. As soon as the roots take to the new soil give air freely; it will be well to draw the lights off altogether at nights when the weather is not wet; the dew they will thus get and full exposure will keep the leaves close and compact. In a position of this description little, if any, shade will be required. The above remarks apply to both the single and semi-double varieties of Primula. The last-named deserve to be much more generally grown than they have hitherto been.

DOUBLE PRIMULAS.—The white varieties of double Primulas afford suitable material for using in bouquets when other things fail. On this account alone they should be grown wherever there is the means of doing justice to them, that is, where they can be kept warmer in the winter than ordinary greenhouse plants require to be. Young plants that were raised early in spring from cuttings made from offshoots or by division of the crowns must be potted on as they want more room. They need to be more liberally treated in respect to root room than the single varieties, provided they can have the warmth they require; if they cannot, they will be more likely to fail if not restricted in the size of pots. A cold pit with a moderate amount of air and shade from the sun will answer for them during the next six or eight weeks. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

A fine Hydrangea.—I lately saw a splendid specimen of Hydrangea hortensis in a 12-inch pot carrying over 100 heads of bloom, many of the individual heads being as large as those grown on the single-stemmed market plants. The specimen excited great admiration when exhibited at the Chichester show.—H.

The Lattice-leaf plant.—I recently observed this in Sir Trevor Lawrence's garden in splendid condition; the tank was quite full of superb skeleton-like leaves some 18

inches long and 7 inches broad; it was also bearing two flower-spikes, and I observed round it numerous young seedlings, which were self-sown last year. Why is this interesting and beautiful plant so seldom met with?—G.

Brassavola Digbyana.—This being referred to in a recent number of The Garden as a shy blooming species, I may mention that I used to flower it regularly, suspended in a basket close to the glass in a house that in summer had no artificial warmth, and that was kept at about 55° in winter. The plant was not a large one, but it made stout bulbs, and I remember that one year there was a large pod of seed on it. I gave but little water in winter, but plenty in summer, and I fancy that the abundant light was the important factor in its well-being.—J. C. B.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Leucothoe.—A genus of beautiful evergreen shrubs of the Heath family, most of them very old garden plants, and common in collections of American plants. There is a striking family likeness between the common kinds, the best known being L. acuminata, which grows from 1½ feet to 2½ feet high, and has slender, arching stems clothed with long pointed leaves. In early summer the stems are wreathed with a profusion of tiny white bell-shaped flowers, which are extremely pretty. L. axillaris is similar, and so are L. Catesbæi and L. racemosa, all of which are known under the generic name Andromeda. They are all natives of North America, are perfectly hardy and thrive in any light soil, but prefer peat or leaf-mould. They are suitable for planting on the margins of groups of large-growing American plants, for low parts of rock gardens, and are admirably suited for rootwork or for ornamental coverts. A newer and very beautiful species is L. Davisiæ, introduced a few years since from California, and therefore not so common neither so hardy as the others. It makes a neat little evergreen bush about 2 feet or 3 feet high, has small leaves on slender stems, which in May are terminated by dense clusters of small white flowers in short erect spikes. It is one of the choicest of evergreen hardy shrubs, thoroughly deserving of general cultivation, and thrives with Rhododendrons and Azaleas in peat soil. The lovely shrub known as L. speciosa and its variety pulverulenta will be described under their correct genus Zenobia.

Lonicera (Honeysuckles).—Every good garden must have its Honeysuckles, without which it would lose much beauty and fragrance in summer. The twining kinds or true Honeysuckles are all so graceful in growth, beautiful and fragrant in blossom, that every one is worth growing. The common native Woodbine or Honeysuckle (L. Periclymenum) is as beautiful as any, and particularly the fine varieties of it, the Dutch and late Dutch, which are the kinds generally sold in nurseries. Both bear a profusion of yellow and red fragrant blossoms in dense clusters, and both are vigorous ramblers. The late Dutch continues to bloom throughout the autumn; hence, it is preferable to the other. L. Caprifolium, also found wild in England, makes a beautiful garden climber, and is a good deal like the other native form. A very charming climber is L. flexuosa from Japan. It can always be recognised by its dark purple stems and purple-stained, very hairy leaves. The flowers are purplish and yellow and very sweet-scented. L. japonica (called also L. Halleana) is one of the loveliest of all, being so very elegant in growth and so profuse in bloom. It has pale green, broad foliage, and its flowers are first white, then pale yellow, and their scent is delicious. It is an extremely vigorous grower and free bloomer, continuing in flower for several weeks in July and August. L. etrusca has also very sweet-scented flowers of a yellow and purplish hue, and is a strong twiner; and so also is the North American L. flava, whose flowers are a rich yellow, though it must have the warm shelter of a wall on account of its tenderness. The common Honeysuckle one sees everywhere, having the foliage netted with yellow veins (aureo-reticulata), is a variety of L. flexuosa. It is an elegant and effective climber, but is not so desirable a flowering variety as the typical flexuosa. The North American Trumpet Honeysuckle (L. sempervirens), though usually grown as a greenhouse climber, is quite hardy enough for open walls in the south, and a very cheerful climber it is throughout June when covered with an abundant crop of orange-scarlet flower clusters, which are often borne again in September. It must have a light, warm soil, and grows admirably in sandy peat. The commonest variety of it is that called minor, which blooms more freely than the type. A little-known,



Lonicera fragrantissima.

but very elegant Honeysuckle is L. acuminata from the Himalayas. It is a tall, strong-growing shrub with large leaves, and bears its large purple flowers in pairs from the leaf axils throughout July. Besides the twining Honeysuckles, there is a group of Loniceras that do not climb, which are called Bush Honeysuckles. They are numerous, and several are worthy of attention. The winter-flowering L. Standishi and fragrantissima (see illustration) belong to this group. They are strictly non-climbers, but are usually grown against walls or trellises. Their very fragrant white flowers, produced sometimes in midwinter, render them most desirable for the walls of a house or garden where their fragrance may be enjoyed. Both may be grown as bushes in the open shrubbery. L. Ledebouri is a common bush Honeysuckle of strong, wide-spreading growth, bearing in summer an abundance of yellow and red-tinged flowers, and is an admirable lawn or bank shrub, as it rapidly spreads in a graceful mass. L. tatarica and Xylosteum are common shrubs not so important as the foregoing; the first bears pink flowers; the other, a native plant, has white flowers. An extremely graceful shrub is L. tomentella from the Himalayas, but as it is rare in nurseries and its hardiness not beyond a doubt, we shall not include it in a selection.

Lycium (Box Thorn or Tea plant).—A small genus of rambling shrubs, the best known being L. europæum (see illustration), a very common climber, especially on cottage walls and porches. Though not a very showy flowering shrub, it is not without value, as there are few others that are so rapid in growth, so graceful, and so indifferent to the nature of the soil; it will, in fact, grow anywhere, and there is not a better shrub for quickly clothing an ugly steep bank where little else in the way of shrubs would thrive. It is also a capital shrub for covering porches, pergolas, arbours, verandahs, and such like, and in late summer and autumn, when every long, drooping branch is thickly hung with small orange-scarlet berries, it has an extremely pretty appearance. The flowers are small, and in colour purple and white, and the unripe berries are of a similar tint. The description of L. europæum may be taken as that of the various other kinds in gardens, as they are all pretty much alike, though differing more or less widely in a botanical sense. The commonest kinds in gardens are named L. chinense, from China; L. barbarum, from North Asia; L. afrum, from North Africa; L. Trewianum, and L. ruthenicum. They are all of graceful and rapid growth, and therefore suitable for covering high walls, though it must be remembered that all are deciduous. Sometimes hedges are made of Box Thorns, for, as they all throw up numerous suckers, the hedge soon becomes thick. There is a species named L. chilense, growing against one of the walls at Kew, which seems to be more rapid in growth than the rest, but this is not obtainable in nurseries.

Magnolia.—A noble group of flowering trees, some being among the finest our gardens possess. As lawn trees they are unsurpassed, yet they are not commonly met with in modern gardens. The most popular is undoubtedly the beautiful Chinese Yulan (M. conspicua), the earliest of all to flower, and, indeed, one of the harbingers of spring flowers. Winter is hardly past before it puts forth its huge blossoms in profusion, and notwithstanding the absence of foliage the tree is of striking aspect. The blossoms are either snow-white, or have the outside of their petals tinged with purple. The white is the least common, and, of course, the most beautiful. There are several other named varieties, all more or less beautiful, the most noteworthy, perhaps, being Soulangeana, which some regard as a hybrid between M. conspicua and M. obovata, and certainly there are important points of distinction between it and the Yulan. The flowers are generally larger and always deeply stained with purple, like those of M. obovata. Another very fine variety, a supposed form of obovata, is that called Lenné, which has massive and bold flowers of more globular outline, and beautifully tinged with rose-purple on a white ground. A very dark purple form, almost a black-purple, in fact, is Soulangeana nigra. Though every form of the Yulan is very handsome, those named should be selected if the best early sorts are required. The tree is of a regular form when at maturity, but in a young state it is of a straggling habit. It ranges in height between 15 feet and 30 feet in this country, and in the case of the Soulangeana varieties the flowers appear later when the leaves are nearly or quite developed, therefore have not the naked appearance of those of the original Yulan. M. obovata is not important compared with the foregoing; the variety of it named discolor, and often known as M. purpurea, is quite a common tree in gardens, but is not worth consideration now. Another very beautiful early-flowering Magnolia is M. stellata, called M. Halleana, from Japan. It

is more a shrub than a tree, as it is seldom seen here above 6 feet or 8 feet high. It also flowers in early spring before its leaves unfold, but on account of the profusion of its pure white flowers which are much smaller and more star-shaped than those of the Yulan, the nakedness of the leafless branches is not noticed. It is in truth one of the loveliest hardy trees we have and deserves to be planted in every garden, large or small, in town or country. It is perfectly hardy, though if in an exposed position its delicate blossoms are liable to be injured by cold winds. The rest of the hardy Magnolias worth attention are all natives of North America, and are not so remarkable for their flowers as for their handsome growth and foliage, with the exception of the well-known old favourite, M. grandiflora, so common against walls. This cannot be strictly termed a hardy tree, as it is only on warm soils or in favoured localities that it withstands our climate well, though the chief injury it suffers from is from snow, which breaks and mutilates its brittle branches, already laden with heavy masses of evergreen foliage. Of course, in climates like that of Devonshire it may be grown as an open standard on a lawn or elsewhere, but as a general rule its place is against a wall. If it did not bear such huge snow white and delightfully fragrant blossoms it would be a grand tree for its massive leafage alone. There are numerous varieties of it (as many as a dozen being named), but it is well known that the best, because it flowers more freely while the tree is still young, is the variety known as the Exmouth, and this is the sort most generally propagated in nurseries. The perfectly hardy North American species number about half a dozen. M. acuminata, called the Cucumber Tree, on account of its Cucumber-like seed vessels, is a handsome tree, reaching fully 40 feet in height with a symmetrical round head, and is very rapid in growth. The flowers are small and greenish yellow, therefore not showy, neither are those of M. cordata, which may be described as a similar tree. M. glauca is a small tree, rarely more than 15 feet high, and is remarkable for the delicious perfume of its large pure white blossoms produced in July. It is, moreover, an evergreen, though its foliage often becomes much damaged during a hard winter. It is rather a capricious tree, and refuses to grow in some places, hence it is not reliable. The other kinds are chiefly remarkable for their huge leaves, though their flowers are large and handsome. M. Umbrella, called also M. tripetala, has leaves from 12 inches to 20 inches long and very broad, while its flowers are very large and white, produced in June. M. Fraseri (M. auriculata) is another large-leaved species, and is called the long-leaved Cucumber Tree, as its leaves measure a foot or more in length. The large yellowish white flowers are very fragrant and borne in June. The tree reaches, when fully grown, from 30 feet to 40 feet, and, like M. Umbrella, makes a noble lawn tree, but as both are liable to have their foliage injured by high winds, they should be planted in sheltered spots and in moist soil. M. macrophylla, somewhat similar to the two last-named species, is quite as important, as its growth is regular and handsome, and its flowers large, white and very sweet scented. The Magnolias have been so frequently illustrated in The Garden, and quite recently, that it is scarcely necessary to repeat the illustrations of the kinds described above.

Mahonia (Ash Barberry).—The Mahonias are now merged by botanists with the true Barberries in the genus Berberis, but in gardens and nurseries the name is still retained for the evergreen Barberries—a very natural distinction. As flowering shrubs they are of much value, and no one needs to be reminded of the beauty of flower and fruit of the now very common M. Aquifolium and its numerous varieties, all of which have some point of beauty. Those named rotundifolia and Herveyi, gracilis and intermedia are among the best kinds for flower beauty, as they are so free in bloom and all handsome in foliage. M. fascicularis, though not thoroughly hardy everywhere, is an extremely fine shrub when in bloom, as its stems are wreathed with golden clusters for some weeks, while M. hybrida is scarcely less ornamental and certainly hardier. Of not so much value as flowering shrubs are M. repens, M. glumacea, and M. trifoliata, all beautiful Evergreens. In mild parts there is not a finer flowering shrub in spring than M. nepalensis, which has large clusters of yellow bloom and massive foliage. The Japanese M. japonica, or M. Beali, as it is also called, though by no means a satisfactory plant everywhere, is not only a good Evergreen in warm and sheltered places, but an extremely fine flowering shrub.



The Tea Plant (Lycium europæum).



The Chilian Mitre Flower (Mitraria coccinea).



The common or Dutch Medlar (Mespilus germanica).

Menispermum canadense (Canadian Moonseed).—A very handsome deciduous climber, perfectly hardy and of rapid growth. The growth is slender, twining and clothed with large roundish leaves, and bears in summer long feathery clusters of yellowish flowers. It is a capital plant for covering a wall quickly for summer effect, or for arbours, trellises, pergolas, &c. It is suitable for almost any position, thriving equally well in shade as in sun.

Mespilus (Medlar).—The common Medlar with edible fruits, M. germanica (see illustration), though generally relegated to the kitchen garden and orchard, is really a most ornamental tree, and well deserves to be regarded as such and planted on lawns avowedly for ornament. Everyone knows how picturesque an old Medlar tree is, what a wide-spreading umbrageous head it has, how beautiful it is in early summer when studded with its great white flowers amongst the large pale green foliage. It ought to be looked upon as a purely ornamental tree, as well as the Quince and Mulberry, Apple and Pear. The only other species of Mespilus in gardens is M. grandiflora (see illustration, p. 66), also called M. Smithi, an extremely fine tree as regards handsome growth. It makes a perfect lawn tree, as its great rounded head weeps on all sides in a graceful way, and the branches quite sweep the turf. It flowers about the middle of May, and then is very beautiful, the snow-white flowers being large and very numerous. In some nurseries it is called (especially on the Continent) Cratægus lobata and other names under Cratægus. It is a medium-sized tree.

Mitraria coccinea (Mitre Flower).—A bright and charming little shrub from Chili (see illustration), quite hardy in mild districts, but requiring winter protection generally. It is a small evergreen shrub, bearing in summer numerous urn-shaped flowers about 1½ inches long and of a brilliant scarlet. It delights in a moist, sheltered spot, elevated so as to ensure perfect drainage, and the soil it likes is a mixture of sandy peat and loam.

SHORT NOTES.—TREES AND SHRUBS.

Rhododendron punctatum.—I send you a spray of this rather pretty species. It is a very graceful-habited shrub, and valuable as a late bloomer.—T. SMITH.

Aralia edulis is a plant of noble appearance, and very effective as seen at West Dean in a semi-wild position on a rough rock fernery.—H.

The Loquat (Eriobotrya japonica).—This is growing freely in the bishop's garden at Chichester, away from a wall or protection of any kind.

Garrya elliptica.—A fine specimen of the above named shrub is conspicuous on the lawn at the Episcopal Palace, Chichester. It is quite 12 feet high, branched down to the ground, and must be a lovely object when laden with a profuse crop of catkins.

Cornus canadensis.—Some years ago I brought from North America that charming little plant Cornus canadensis, which is so common in the Canadian forests. It increases year by year with me, but does not flower. May I inquire whether any of your correspondents have been more successful with it than I have been, and, if so, under what conditions?—F. W. H.

Escallonia montevidensis.—In THE GARDEN, June 2 (p. 515), Mr. Goldring, writing on "Flowering Trees and Shrubs," mentions several Escallonias, and says that they are, as a rule, very easily propagated. I should be glad if he will say if he includes the above variety among those easily propagated, and if he does, will he kindly favour me by saying what is the best way to do this. I have found it a very difficult subject to strike from cuttings, and it takes a long time to get a good specimen even from a layer. I am afraid my experience with it is that of others as well, or we should see this shrub oftener than we do now.—JOHN C. TALLACK.

Golden variegated Honeysuckle.—There are few more ornamental garden plants than this, for no matter what the weather may be its bright variegation does not suffer. A fault often committed, however, is that of clipping in the strong shoots in spring. This destroys all chance of bloom, and although the flowers are by no means showy, their perfume is very strong. There are indeed few hardy flowers that exhale such a delicious odour. Allowed to ramble at will, it combines great beauty with unusual fragrance.—BYFLEET.

Hardiness of Coprosma Baueriana.—I had no idea that this was so hardy. A friend had two plants given him and used them as centres for small beds in his front garden. He left them out in the autumn, and in the spring they were as free from blemish as if they had been under glass all the winter. The position is fairly sheltered from cold winds. As this plant makes a good edging when pinched back and is otherwise ornamental, it may interest some to know that it is hardy in the southern counties at least.—J. C., *Surrey*.

DESIRABLE SHRUBS.

FABIANA IMBRICATA is beyond question one of the most persistent and free-flowering shrubs with which I am acquainted. It is a small-growing shrub of rarely more than 4 feet in height, as seen in this country, although at Rhianva, on the Menai Straits, in North Wales, not one, but several specimens of nearly double that height, and as much in diameter, may be seen. This pretty Chilian shrub is usually branded with the character of half-hardy, but such, in my own opinion, is hardly the case, for at several places I have visited it grows with unusual luxuriance, and does not seem to have suffered in the least from our somewhat trying winter weather. It is best, however, to plant the Fabiana in the warmest position in our gardens, and as it does well as a wall plant, it may be grown on the southern side of a building in a most satisfactory manner. A peaty loam seems to suit it well, and cuttings root freely a stock is soon obtained. The flowers are pure white, and both they and the foliage remind one forcibly of some members of the Heath family.

GARRYA ELLIPTICA is another shrub of which a specimen should be included in every collection, for it is not only a pretty plant, but one of a most unusual appearance. The pendulous silky catkins, which often hang for half-a-foot in length, and deep green coriaceous leaves, render it a plant of great beauty. As a wall plant, it perhaps looks best; indeed, the finest specimen I have ever seen covered a 16 feet high wall for fully 30 feet in length. It is by no means a miffy plant, for it grows with great freedom when once it has become thoroughly established in a kindly and free maiden loam.

FUCHSIA RICCARTONI can hardly be over-praised as an ornamental and easily managed shrub. Then it is so easily propagated, so non-fastidious about soil, and withal of so easy culture, that it can well be recommended for even the garden of the amateur. For clump-planting it is an invaluable shrub, large masses of say from a dozen to a score of plants in each having a very telling effect during the flowering season, but particularly when the clumps are placed in front of some dense and dark-foliaged shrubs or trees, such as the Yew, Portugal or common Laurel, Arbor-vitæ, or Arbutus. True enough, this Fuchsia cannot in all parts of our country be relied upon as being perfectly hardy, for during severe and long-continued winters the branches are not unfrequently cut back to the ground; but there is an easy remedy for such, as by pruning all dead wood from off the crown numerous shoots are emitted in early spring, and which flower profusely during the same season. Cuttings root freely if they are inserted in sandy soil during August and September.

HYDRANGEA HORTENSIS is a fitting companion for Fuchsia Riccartoni, and being easily managed, it may well be considered as the amateur's plant. For planting in good bold masses alongside drives and walks, and at respectable distances therefrom, it is peculiarly well suited, the bright and long-lasting flowers being objects of much attraction during the summer and autumn months. It prefers a sunny and partially shaded situation, at least so placed the fine trusses of bloom appear to be produced in greatest abundance. Few plants are more readily increased either from cuttings or by root division than the one in question, particularly if these are planted in sandy loam and a partially shady situation.

SPIRÆA DOUGLASI is an excellent all-round shrubby plant, and one that can be recommended for general planting. Few of the good qualities attending the shrubs mentioned in this paper are wanting in the one in question, it being of unusually free growth, of neat habit, and free flowering. Planted at a yard apart the running roots soon spread about, sending up suckers as they proceed, so that in a short space of time the ground becomes well covered with stout shoots or canes. The flowers, which are rosy pink (there is a white-flowered form) and produced in long cylindrical spikes, are borne abundantly, and impart a most interesting feature to the plants during the blooming season. We have used this Spiræa largely for lawn and wood ornamentation, and we may add with very satisfactory results. It wants a sunny, open place, so that the blooms may be abundantly produced.

LEYCESTERIA FORMOSA, in judging from how seldom it is to be met with, does not receive one tithe of the attention that its merits as an ornamental flowering shrub entitle it to. It is a most distinct and interesting plant with deep purple foliaceous bracts, which render it when in full flower very conspicuous and quite out of the line of shrubs in general. Usually it attains to 6 feet or 7 feet in height, is of erect growth, and with hollow deep green stems. It may be relied upon as being perfectly hardy, while for wind-swept and bleak districts it is invaluable, growing and flowering with unusual freedom where fully exposed to the storm and in the poorest of soils. Cuttings of this pretty and desirable hardy shrub root with great freedom if inserted in free sandy soil towards the end of summer. Divisions of the root-stock likewise form good plants.

PIPTANTHUS NEPALENSIS, from the Himalayas, is one of the prettiest large-growing shrubs with which I am acquainted, but unfortunately it does not stand, unless in warm sheltered situations in the northern parts of Great Britain. I have grown it extensively in almost every conceivable position on an estate in the north of England and never found it to suffer in the least from the most severe frosts to which that particular district was subjected. As an ornamental shrub it is certainly well worthy of the attention of planters, the large yellow flowers, which are produced abundantly in terminal racemes, being conspicuous and of great substance, and resembling in no small degree those of the common Laburnum. A stiffish loam would seem to suit this handsome plant, but in respect of soil, it is not at all particular, for I have it doing well and blooming freely in rather poor sandy soil as well as vegetable refuse. Seeds are produced in great abundance and as these germinate freely young plants are readily procured.

ULEX EUROPÆUS FL.-PL. is a most gorgeous flowering shrub, for when seen at a short distance and during the flowering season, it is one mass of golden yellow, hardly a bit of foliage being visible behind the thickly-produced blooms. For cultivation in soils that are too warm and dry for the generality of our hardy shrubs this pretty Furze is well adapted, for be the bank ever so dry and sandy, it grows apace and produces its showy flowers in the richest profusion. I would strongly advise everyone who has a spare yard of worthless ground—I mean ground in which few other shrubby plants could succeed—to plant this pretty native Gorse, and the results obtained will be far from disappointing. Frequent cuttings of the main stem and branches are productive of great good in the way of keeping the plants in shape as well as enhancing in a very marked degree the blooming qualities.

WEIGELA ROSEA, although perhaps already well known, cannot be too often recommended for the ornamentation of our parks and gardens. It is so free in growth and flowers so freely, that no collection of flowering shrubs should be considered complete without at least one specimen. Although a native of China, it is perfectly hardy in any part of these isles, so may be safely introduced to the shrubbery or garden. As is indicated by the name, the flowers are of a rosy hue, and are arranged in terminal clusters, these being set off to advantage by the bright and pleasant green, serrulate leaves. No soil would seem to come amiss to this desirable shrub, for it may be seen growing with the greatest vigour in that of very different descriptions. Cuttings root freely, while by dividing the crowns of stout healthy plants an abundance of stock is easily obtained.

Viburnum Opulus, or the Guelder Rose as it is commonly called, can ill be spared from the shrub garden, for although there is something stiff and formal about the flowers, still this very stiffness and formality have a kind of charm about them that is somewhat pleasing, especially when associated with shrubs of a more easy and pendulous habit. What, I may ask, can be more opposite and yet more pleasing than the great contrast presented by a plant of the Guelder Rose when in full bloom and one of the Piptanthus nepalensis, the easy grace of the one and stiff nature of the other being extremes that meet but rarely in the floral line. The flowers of the Guelder Rose are arranged in globose heads, these being in some instances so heavy as to quite bend down the twigs on which they are produced. Few soils come amiss to this shrub, while it is of free growth, quite hardy, and wonderfully free-flowering. There is a dwarf variety which for small gardens is preferable to the normal form, as it occupies much less space and is at the same time equally as free-flowering.

A. D. Webster.

Propagating.

Schubertia grandiflora.—This beautiful stove climber is very easily increased by cuttings taken during the time that the plant is in a free-growing condition. The best cuttings are furnished by the weaker shoots that show no sign of flowering, and if these are cut off at a joint, the bottom pair of leaves removed and then dibbled into pots of sandy soil, they soon root if kept in a close case. They will need the same treatment as that accorded to the general run of stove plants, such as Crotons, Allamandas, Franciscea, and similar subjects, the principal point being not to keep the soil too wet, otherwise from the rather succulent nature of the cuttings they may decay. This does not refer to the first watering after insertion, for in the case of nearly all cuttings a good watering should at first be given, and the pots then allowed to drain a little while before putting them in the close propagating case; then in the confined atmosphere it will be often some time before they require more moisture.

Pernettyas.—These evergreen shrubs, whose blossoms in midsummer, berries in midwinter, and neat, shining foliage all the year round combine to render them very popular, can be increased in various ways. In the first place, the branches may be layered, which, from the low-growing character of the plant, is easily done, and, at the same time, it matters little at what season this is carried out, though the best time of the year is early in the spring. As a peaty soil suits the Pernettyas best, it is a very good plan when the plants are growing in loam to work a little sandy peat around the buried portion of the layers, as it assists the formation of roots. A modification of layering is frequently to be found in the case of plants that have been buried rather deeply in the soil, as in their case it is often possible to split up a plant into several portions, each with its attendant roots, after the manner of a herbaceous subject. Besides this mode of increase cuttings can be struck, and when this is to be carried out the present is about the most suitable time of the year for the purpose. The cutting should consist of the entire season's shoot taken off cleanly just where it starts from the wood of the preceding year, as roots are produced from this part more readily than from any other. The cuttings should not be taken until the young shoots have become somewhat woody. The cuttings having had their bottom leaves removed for the purposes of insertion must be dibbled firmly into pots of sandy peat and kept close in a frame until rooted. They must be shaded whenever necessary and kept as close as possible, for unless this is done they are liable to shrivel. I recently saw a quantity of Pernettya cuttings that rooted in a very satisfactory manner under different conditions from those above mentioned. The cuttings were put in some peaty compost prepared for them on the shady side of a high hedge, the ordinary soil having been removed to the depth of a few inches for that purpose. The cuttings when put in were covered with some good-sized cloches, such as are so useful in the kitchen garden, and from their position being so shaded, they needed but little attention. With a mat or two thrown over them during the most severe frosts they wintered very well, and on the return of spring commenced to grow. Though the above means of propagation must be resorted to for the increase of any particular variety, the seed ripens freely. The berries should not be gathered till they have lost a good deal of their freshness and are ready to drop. Then they should be rubbed with a little dry sand in order to absorb some of the moisture, when, if laid out in a dry place for two or three days and occasionally stirred about, the seed may be readily separated from the husks of the fruit and other extraneous matter, when it can be at once sown. For this purpose pots or pans of peaty soil may be used, or where there is a considerable quantity a frame may be set apart for the seeds, and 5 inches or 6 inches of soil having been placed therein and levelled over, the seeds may be then sown. From their minute character care must be taken not to cover the seeds too deeply, all that is required being a slight sprinkling of fine sandy peat. The lights may then be put on the frame and kept close and shaded when necessary until germination takes place, when more air must be given and the young plants gradually hardened off. When large enough they must be pricked out into a bed prepared for them either in a frame or some sheltered spot.

Andromeda japonica can be readily increased by means of cuttings treated as recommended for the Pernettya.

Bomarea Carderi.—This beautiful climber cannot be propagated by means of cuttings, and it is but rarely that division can be successfully carried out, yet if the flowers are, when in bloom, fertilised with their own pollen they will generally produce good seed, while the large cluster of fruits is almost as ornamental as the flowers themselves. When the seed is ripe, which will be shown by the pod opening, the latter should be gathered, and if laid by for a few days will open sufficiently to allow of the escape of all the seeds. They should then be sown in some good open soil, consisting of peat, loam, and sand, the seeds being covered for about their own depth with the same material. Then, in the temperature of an intermediate house the young plants will soon make their appearance, at which time they are somewhat liable to the attacks of aphides, which will soon cripple the young and succulent shoots, and besides that a slug will often work great damage amongst them should it by chance find them out. As soon as they are large enough the young plants should be potted off, using the same kind of soil as that in which they are sown.

Carpenteria californica, the flowering of which has attracted a considerable amount of attention, may be struck from cuttings taken at the present time, cut off cleanly at a joint, dibbled into pots of light sandy soil, and kept close and shaded in a frame till rooted.

Trichinium Manglesi.—This singular, but remarkably handsome native of Australia appears difficult to propagate except by seeds, but notwithstanding this it can be readily increased by cuttings of the roots. The best time to carry this out is in the autumn after the flowers fade, when if the plants are turned out of their pots and the soil shaken from them it will be found that some of the stouter roots can be well spared, and when such is the case all that is then necessary is to cut them up into lengths of about an inch and prick them into pans of sandy soil at such a depth that the upper part of the root is just below the surface of the soil. They may then be stood on a shelf in a warm greenhouse, where during the winter care must be taken not to over-water them.

Crinum Moorei.—Besides offsets, which are freely produced, this beautiful Crinum (now in flower) can be readily propagated by means of seeds, as if the flowers are artificially fertilised many of them will ripen seed, which if sown at once will soon germinate and grow away freely.

T.

Orchids.

W. H. Gower.

Paphinias.

A request comes from France for a few words respecting the cultivation of these little gems. The word little, however, refers to the growth, for the flowers are large in comparison. Originally we were told that this genus was nearly allied to Maxillaria, and now that it has been merged with Lycaste, but certainly the flowers appear distinct from those of either, and I shall adhere to the name given them by Lindley. For a long time one species only was known to Orchid growers, and that came to us in fitful starts from the island of Trinidad, where it is said to grow on the trees in the vicinity of the Mud Lake, but apparently preferring those in a partial state of decay. It is also found in similar situations in British Guiana and in the warm parts in the neighbourhood of Demerara. The first introduced kind, P. cristata, never appeared to thrive well or live long under cultivation, and, consequently, always remained scarce, and even at the present time it is by no means plentiful. In the management of the plants belonging to this genus I must change my usual tactics, and recommend strong heat and moisture, but drainage must be well attended to, as it is of vital importance. The plants should be grown in small earthenware pans or wooden baskets; I prefer the former. These should be filled with drainage material, which should consist chiefly of charcoal, on account of its lightness, and to a somewhat large piece of this the plant may be wired and fixed firmly in the pan, for I think this want of a secure basis is one of the causes of failure in the cultivation of these plants. Some may say, why not fasten them on a block and grow them in that way? but under this system the plants require a vast amount of extra attention in the matter of moisture, and to fasten them to a piece of wood in the pans would entail failure through the wood rotting in a very short time, besides injury to the plant by the sour material about its roots. I contend that very little material of any sort is necessary, just a few nodules of rough peat fibre and a little living Sphagnum Moss being all that is necessary, and a sharp look-out kept that nothing about the plant becomes stale or sour. These plants should be grown in the East India house, or in the warmest corner of the Orchid house, and should have as much sun and light as possible without running the risk of burning them. The atmosphere must be well charged with moisture, and an abundant supply given to the roots during the growing season. After growth is finished and through the winter months, Paphinias require careful attention. They may still occupy the warm house and the water supply be reduced, but they must never be allowed to get dry. The chief kinds now in cultivation in English gardens are P. cristata, P. grandis, P. rugosa, P. Randi and P. Sanderiana.

Cypripediums at Burford Lodge.—At no season of the year can a collection of these plants be visited but some members of it can be found in flower, and in the present one some kinds are especially gay; the chief of these just now are some excellent forms of Lawrenceanum, which even when out of bloom is one of the most beautiful. Swanianum was also very full of flower, and this appears to become finer when better known; it must be classed amongst the very finest of the

barbatum group. Dayanum and Harrisianum in variety were also conspicuous, as also was superbiens, better known in gardens by the name of Veitchianum. The rare C. Curtisi was also here. This may be considered as one of the most distinct and beautiful in its set; it appears to be between superbiens and ciliolare, combining the beauties of the two kinds. If this should have been its origin it has been produced naturally, as it comes from the Sunda Islands, and I daresay some of the hybridisers at home will soon set its origin at rest. The rare and beautiful Robelini was also flowering; this comes near to lævigatum, and of the same set are C. Stonei and C. Sanderianum, both now in flower; the latter appears to have become thoroughly established, and we have yet a treat in store to see what a fine thing it will become under cultivation. Other kinds now fine are the beautiful hybrids selligerum, calurum, and Ashburtoniæ expansum, the latter being a great improvement on the original form, whilst in the smaller growing section concolor and the new bellatulum were also displaying their charms. This latter kind was described as now common in one of your recent issues in rather a depreciating manner, but the cause arises from the fact that the plants arrived home in such excellent condition, that nearly everyone who invested in it have had some bloom, which is a great advantage, for it is so beautiful withal that one never tires of beholding it. Contrary to the majority of the set to which it belongs, it is a free grower, and if it proves to be as profuse in flowering as we are led to believe, it will be one of the most superb of all the Slipper Orchids yet known in our gardens. The details of their cultivation have been so frequently told, that it is not necessary to repeat them here, but I observed that several of the kinds have recently been subjected to considerably more shade than has hitherto been thought necessary with very marked signs of improvement, and a slight additional shade has been given to the whole collection, evidently with happy results, for the whole are just now in first-rate condition.—W. H. G.



The large-flowered Medlar (Mespilus grandiflora). For description see p. 64.

Cattleya Gaskelliana superba. — A grand flower of this plant comes from the Studley House collection. This form well deserves the name of superba; in fact, the colours approach in intensity those of the old autumn-flowered labiata. Indeed, I cannot see the difference in this Cattleya and the form known long ago as the summer-flowering labiata. The flower in this variety measures 8 inches across, the petals being very broad and beautifully undulated, and of a deep rosy lilac; lip large and well shaped; the whole front of the lip of a rich deep magenta, upwards of 1 inch in depth, and beautifully ornamented with a light frilled border; mouth of the tube white and the throat orange-yellow, the basal portion being deep rosy lilac within and without. It is a gorgeous variety.

Epidendrum Randi.—This is a species new to me, and if it proves to be a free-blooming kind it will be a decided acquisition. The blooms are as large as those of E. macrochilum, being 2½ inches across; sepals and petals large and spreading, nearly equal in size, and bright green. The lip is three-lobed, the side lobes large and diverging from the column, pure white with a few radiating lines of rosy-crimson, the large flat anterior lobe being rosy-crimson with a broad border of pure white.

Epidendrum Wallisi.—This is another grand species of this genus, which certainly does contain a host of decidedly unornamental kinds. It is one of the slender stemmed kinds, and appears to have a similar habit of blooming to the Palms of the genus Caryota, *i.e.*, it first blooms from the top, and after this raceme is partially over, it commences to flower from the axis of every leaf, progressing downwards in succession, and thus continuing in bloom for months. The flowers are very fragrant, nearly 2 inches over; the sepals and petals golden yellow, freckled with crimson, the flat cuneately shaped lip being white streaked with feathery lines of purplish magenta. I recently noted it blooming in the Burford Lodge collection, where it may be seen flowering at almost all seasons of the year. It well deserves the attention of all growers of cool Orchids.—W. H. G.

Cypripedium Wallisi.—This, the white-flowered form of C. caudatum, is an extremely chaste and beautiful flower. The sepals are scarcely so large as those of caudatum; they are white streaked with light green, the petals at the base being similarly coloured, changing to pale brown as they become narrower. These in the specimen before me are 20 inches long, and I imagine are immature; lip ovate, pointed, creamy-white, profusely spotted all over the inside with crimson, this spotting being perceptible from the outside. The turned-in portion is pure paper-white with a marginal row of crimson spots, outside of which is a yellowish green band.—W. H. G.

Cattleya gigas.—The manner in which this species is coming to the front this season appears to contradict the impression that has got abroad amongst Orchid growers, viz., that it is a shy bloomer, for I meet with it in all sorts of places, from the amateur's small collection to that of the largest grower in the country. The fact is the plant appears to have been longer in becoming acclimatised than many of its congeners. Some of the finest forms which I have ever seen I recently noted with Messrs. Seegar and Tropp, with flowers fully 9 inches across, the lip being slightly over 9 inches in diameter and very rich in colour.—W. H. G.

SHORT NOTES.—ORCHIDS.

Disas at Dangstein.—These promise to be equally as good this year as in previous years. The secret of their successful culture has been thoroughly mastered, and leads to the highest results.

Restrepias.—These are plants much despised by the majority of Orchid growers, but some species are nearly always in flower in the Burford Lodge collection, R. antennifera and elegans being in bloom on a recent visit, also a very large-flowered form of Stelis called muscifera.—W.

Sobralia macrantha with upwards of a dozen expanded flowers is a grand sight, and this I recently saw in Messrs. Seegar and Tropp's nursery at East Dulwich, and it promised to remain in bloom for some weeks. It is to be hoped that these gorgeous flowered plants will again come into favour. S. Cattleya was growing strongly in the same house and promises to flower shortly.—W. H. G.

Angræcum sesquipedale.—It occurred to me the other day when looking over a recently imported batch of these plants in Messrs. Seegar and Tropp's

establishment that we have never yet seen this plant at its best under cultivation, for I observed flower-spikes pushing up from the base of all the leaves, four and six spikes from a single stem. It is very questionable if these will live, but six spikes upon a plant bearing three or four of its large ivory white fragrant flowers would indeed be a noble sight.—W. H. G.

Calanthe Textori and veratrifolia.—Both these belong to the evergreen section of this genus, bearing large deep green plaited leaves and tall, erect many-flowered racemes of bloom. The flowers of the first-named are creamy white, tinged with lilac. They are splendid plants for house decoration, and last many weeks in full beauty, while they also produce a grand effect on the exhibition table, but for this purpose require very careful packing, or the blooms turn black. They require the heat of the East India house and to be kept growing all the year round.

Thunia sulphurea.—I have from time to time seen two forms of Thunia in various collections, and recently some fine examples in the establishment of Mr. Williams, of Holloway, and recently I observed the inferior of the two under the name of sulphurea in the Cambridge Lodge collection, the colour being paler than in that of Marshall's plant. It is a very pretty kind, and I only use the term inferior in comparison. Plants like these are easily increased, and it is very wise to have a portion of the plants flowering just now when flowers are comparatively scarce in Orchid houses.—W. H. G.

Sobralia leucoxantha.—This is a handsome and rare species, which should materially assist in re-establishing this genus in public favour. It is of medium growth, the reed-like stems being about 18 inches high. The flowers are some 5 inches across, and the sepals and petals are stout and of the purest white; the large lip is rolled over the column, where it is also white, as is the prettily frilled broad border; the whole of the remaining portion and the throat are deep rich golden yellow—truly a charming species. I recently noted this in the establishment of Messrs. Seegar and Tropp, East Dulwich.—W. H. G.

Cattleya crispa.—Does this require different treament from such kinds as Mendeli, Mossiæ and Trianæ? I have two plants which grow about 2 inches, then stand still. After a few months they push away again, then stop growing, and slowly die back to old growths. For two years they have been doing this; they are grown with the above which do well. The roots die in the same way.—L. E. R.

*** I cannot quite understand the condition of your plant, unless you check it when it should be growing. This plant should soon be flowering in the ordinary course of things, and after its blooms are past it will begin to grow, and continues to do so through the winter months, after the manner of Lælia purpurata, so that it does require a somewhat different treatment to Cattleya Mendeli and Mossiæ.—W. H. G.

Books.

THE ORCHID ALBUM.*

The June number just to hand completes the seventh volume of this work, and brings the number of plant portraits up to 336, rendered in Mr. J. N. Fitch's best style. It contains figures of

Cattleya Harrisoniæ violacea, which has long been an inhabitant of our gardens, but still maintains its high position, even amongst the many new forms which have been introduced during the past few years. It thrives at the coolest end of the intermediate house and flowers twice in the year. The illustration represents a charming variety which flowered with Mr. Tautz, Studley House, Shepherd's Bush.

Odontoglossum Vuylstekeanum.—This is a very distinct form, with flowers in the way of those of O. luteo-purpureum, but they are of a charming pale and nankeen-yellow. It bloomed with Mr. Measures in his rich collection at The Woodlands, Streatham.

Schomburgkia undulata.—An excellent portrait of an old species which flowered with Mr. Lloyd at Loughton. The genus is not a large one, but the various members of it are in much demand just now. The flowers are purplish red in the sepals and petals, which are very crisp and wavy, giving rise to its name, whilst the lip is rosy purple. It blooms during the spring months.

Dendrobium Fytchianum roseum.—A charming rose-coloured variety of the typical plant, which was discovered in Burmah by Major-General Berkeley about two years since, and sent by him to Mr. Williams. It differs from the species only in having its flowers of a delicate rose instead of white. It flowered in the Victoria Nursery in the months of February and March.

* "The Orchid Album." B. S. Williams, Victoria Nursery Upper Holloway.

CHOICE BRITISH FERNS.*

The merits of the many beautiful forms into which our native species of Ferns have sported during the present century have been much overlooked by the botanist, and during the past twenty years the interest taken in them by the amateur has waned considerably. Some thirty years ago these plants were eagerly sought after, but latterly they have been under a cloud. If proof were wanted, however, that a change has come over the amateur plant grower, the appearance of the present work is a sufficient indication of their increasing popularity. It is written in language perfectly intelligible to growers of these plants, and is quite free from botanical terms that can be explained in other words. There are chapters on "Fern Foes, and How to Fight Them;" "On the Variation of Ferns Generally;" "Ferns and Fern Hunting, Where to Seek and How to Know Them;" "The Wonders of the Spore;" "Fern Culture and Propagation;" "Fern Pots and Contrivances, Rockwork, &c.;" "Ferneries and Wardian Cases," all charmingly written. There are also descriptions of upwards of 300 kinds, and elegant little cuts of over 120 of the prettiest kinds, truthfully rendered and easily distinguishable. We consider it to be the best popular work on British Ferns and their varieties that has come under our notice, and as such would unhesitatingly recommend it to lovers of Ferns.

THE AMARYLLIDEÆ †

This is a clear and simple work of some 216 pages, in which Mr. Baker has condensed and digested much that is known botanically of an order of plants remarkable for their beauty in our gardens. The number of genera included is sixty-one, and of species admitted there are about 670, and of these a large proportion have actually passed through the author's hands at Kew in a living state during the past twenty-three years. That the book is, indeed, the result of a gradual growth rather than a mere compilation adds much to its value, and with it in his library the intelligent amateur or gardener will find but little, if any, difficulty in determining the various species belonging to this group. Thus there is a concise key or synopsis to the genera in the beginning of the book, after which the species of each genus are clearly described therein. In describing the individual species the name and the earliest post-Linnean authority are given, while there are frequent references to figures and the specimens. Then comes a condensed description followed by short notes as to the native habitats, time of flowering, and other historical details connected with the plant.

To Narcissus lovers this work will be very welcome, since it contains Mr. Baker's latest botanical views anent these hardy flowers of spring, as also concerning Snowdrops (Galanthus), Snowflakes (Leucojum), Zephyr Flowers (Zephyranthes), Alstrœmerias, and other well-known hardy genera. So also the cultivators of hot-house or greenhouse bulbs will here find careful reviews of such popular genera as Eucharis, Crinum, Pancratium, Hippeastrum, Nerine, Vallota, Hæmanthus, Hymenocallis, Bomarea, Agave, and many other scarcely less well known inmates of our glasshouse gardens. In this hand-book we find clearly focussed for the first time an amount of information relating to the Amaryllideæ before quite unattainable except at the trouble and expense of wading through books many and varied, and not always easy to procure. Indeed, in glancing through these pages one can but regret that such cheap and useful guides are as yet so rare, and we trust the success attending this venture may lead to our soon possessing similar handbooks on the Liliaceæ and Iridaceæ.

To Mr. Baker the thanks of horticulturists are especially due, not only for the present handbook, but for having at all times done his best to throw light on the irritating difficulties arising from the defective naming or identification of garden plants.

F. W. Burbidge.

* "Choice British Ferns: their varieties and culture." By Charles T. Druery, F.L.S. L. Upcott Gill, 170, Strand, W.C.

† "Handbook of the Amaryllideæ, including the Alstrœmerieæ and Agaveæ." By J. G. Baker, F.R.S., F.L.S., &c. London: Bell and Sons, York Street, Covent Garden. 1888

Destroyers.

LILIES DISEASED.

I have sent a stem of Lilium candidum to find out, if possible, the disease that attacks it. The plants make a good start in spring and grow away vigorously till the flower-buds begin to form; then the disease attacks them on the lower leaves first in spots which spread all over and ascend leaf by leaf till it finally reaches the buds, although it does not always affect them. Some of the flowers open as well as if the foliage were not hurt. Some of the plants are growing in borders of made soil on the chalk, and others in the kitchen garden in natural sandy loam, and all are affected in the same way.—E. Tyler, *Guildford.*

—— Could you kindly inform me what the enclosed growths of Lilium candidum and auratum are affected with? I have a great number in pots of both varieties; also of L. lancifolium, all being affected in the same way, L. candidum more so than the others. I notice that the Liliums in the outside border are also affected.—J. Smith, *Chichester.*

—— I send you some stems of white Lilies, and should be glad if you can suggest a remedy for the disease, or whatever it is they are attacked with. When I first saw these Lilies about six years ago they were then in the most healthy state and formed the grandest clumps I had ever seen, and had most likely been in the position they occupied for a great number of years, but three years ago they were first attacked like the stems sent. The attack commences about the time the bloom buds are appearing, and gradually becomes worse until all the foliage has decayed. Some of the blooms manage to expand, and the bulbs start again the following year, only to be again attacked in the same way. The owner of the garden is very unhappy about it, as they were once the feature of his garden and his great pride. If you can help me in any way I should feel obliged.—A. B, *Redditch.*

—— Will you kindly say what you think is the cause of Lilium candidum going off so badly this season? My plants are growing in heavy loam, leaf mould and manure being added.—A. B., *Bansted Wood, Surrey.*

*** In answer to all the above, the Lilies are badly attacked by a fungus which has been named Ovularia elliptica; it is an ally of the Potato fungus and causes rapid putrescence. This fungus has been extremely prevalent and destructive on Lilies this season. The only known palliative is the destruction by fire of affected plants.—W. G. S.

Growth on Azalea stem.—I send you a piece of Azalea for inspection, as I am losing by degrees a whole bed of rather good ones by a growth close to the roots. Please let me know the cause and prevention for such disease.—F. D.

*** In reply to the above, the growth on your Azalea stems is evidently canker; probably the roots have got into some soil that does not suit them.—G.S.S.

Pine shoots destroyed by caterpillars.—I have sent you a small box containing some young shoots of Pinus insignis which I find to be attacked by a worm. As I have never observed such a thing before on these Pines, I thought it better to let you see them, and if you can give me any information on the subject I shall feel very thankful. It is very vexing to see all these fine young trees quite disfigured; as yet I have only seen it on the Pinus insignis. In the same plantation I have Pinus

austriaca and Bolandieri, but they are not attacked. —JOHN L. MANSELL, *Guernsey*.

P.S.—Since writing the above, I find on closer examination that Pinus austriaca and P. Bolandieri are attacked with the same worm.

*** The worms(?) which you find in the Pine shoots are the caterpillars of a small moth, one of the Tortrices, probably Retinia buoliana, but more than one member of this genus attacks Pine shoots. If the trees be small enough, they should be gone over and the caterpillars destroyed. If the trees are too large, I do not know what to recommend. Beating the trees might bring some down.—G. S. S.

Gardenia roots diseased.—I enclose some roots of Gardenias, and shall feel obliged if you will investigate the cause of the tuberous excrescences. The pot was reeking with white fluffy fungus, ramifying the soil and roots in all directions. The enlargements are very similar to the diseased Melon roots, but I cannot detect the eel-like worms.—S.W.S.

*** The tuberous excrescences on your Gardenia roots are evidently caused by a fungus. The fungus appears to affect the roots much in the same way as the finger-and-toe fungus does those of Cabbages, &c., namely, by causing an enormous increase in the size of the cells of the roots, which, of course, makes the roots at that part become swollen. The only real cure is to burn the plants and every particle of the soil in which they are growing; if this be too drastic a measure, shake out the plants, remove as much soil as possible from the roots, cut off all the diseased ones, and repot in untainted soil; burn or bury deeply the foul earth, and do not let any lie about on the potting bench, as some might get into the pots of other plants.—G. S. S.

Fungus with offensive smell.—Will anyone kindly inform me the name of a fungus common in sandy districts in Sussex? When first it comes through the ground it resembles one of the puff balls. It grows about 4 inches high, and when full grown emits a powerful and most objectionable odour, similar to that of decaying animal matter. The presence of a specimen is detected many yards away. I recently visited a garden where so many grow that a man is obliged to go around every morning, find, and bury them, otherwise the garden would be intolerable. This is a newly-made garden on a soil of sand and peat. The fungi are much frequented by the large flies.—A.

*** In answer to the above, the fungus mentioned is the Pole-cat, or Wood Witch (Phallus impudicus). The men in the garden have taken the surest means of propagating it, viz, by gathering and burying the examples, as by so doing the spores (analogous of seeds) have been carefully preserved. The fungi should be put on a fire. The odour is peculiar to the fungus in the same way as another odour (of a different class) is peculiar to the Rose. —W. G. S.

SOCIETIES.

ROYAL HORTICULTURAL.

Fruit and Vegetable Committee.

A MEETING of this committee was held at Chiswick on July 9. Present: Mr. T. F. Rivers in the chair; Messrs. Lee, Wright, Burnett, Willard, Howe, Smith, Crowley, Cheal, Saltmarsh, and Warren. The collection of autumn sown Cabbages, numbering forty, was inspected, first-class certificates being awarded to Express, from Vilmorin and Co., an early selected form of the Early Etampes; and to Ellam's Dwarf Early (Veitch and Sons); Myatt's Early Market (Watkins and Simpson); Early Rainham; Heartwell and Cocoa-nut were approved as good stocks. Strawberries were next inspected, and first-class certificates awarded to King of the Earlies (Laxton), Noble (Laxton), Countess, and Lucas. Dr. Morère was approved as a large handsome sort, also Sir Harry, Souvenir de Kieff, and Waterloo. Early Peas were inspected, the earliest types being Carter's Lightning and Veitch's Selected Early, closely followed by Horsford's Free Trade and Canary Bird; selected forms of Kentish Invicta, William I, and Dr. Hogg, of the same earliness, were much approved; and Gradus (Laxton), certificated last year, well maintained its reputation as a large, early, and extremely handsome variety.

Scientific Committee.

Plague of caterpillars, &c.—A further discussion took place on this subject, in the course of which Mr. O'Brien alluded to the abundance of earwigs (Forficula) this season. Mr. Wilson drew attention to the local distribution of the caterpillars. In one garden in his neighbourhood none of the pests were found, while in others there was scarcely a leaf left on the trees. At Wisley, Mr. Wilson had found that exposure to east wind was associated with the presence of the insects; thus the trees in one line of Plums, fully exposed, were stripped of their foliage, while in another line of the same variety close by, on the same description of soil, but where the trees were sheltered by a Furze fence, not a leaf was injured.

Fungi on Cucumbers and on Poppies.—Mr. W. G. Smith exhibited leaves of Cucumbers affected with the rare Didymium dædaleum; and also Poppies attacked by the Peronospora arborescens, in consequence of which the flower-stalks were lengthened and spirally twisted.

Lælia Eyermanni.—Mr. O'Brien made some remarks relating to this plant, which is remarkable for the presence of well-developed leafy bracts (not membranous sheaths), at the base of the flower-stems. By some the plant is considered to be a hybrid between L. autumnalis and L. majalis. As there were some doubts expressed as to whether the existence of leafy bracts might not be accidental, it was suggested that the plant be exhibited again another year.

Odontoglossum Eugenes.—A plant of this was shown and was considered to be a form of O. excellens, and possibly of hybrid origin, O. Pescatorei being one of the parents.

Anthurium Rothschildianum. — From Messrs. James Veitch and Sons came a plant with two spathes from the same stock. One of the two was much more densely spotted than the other.

Epidendrum vitellinum.—From Messrs. Sander came flowers of this species, in which, although the flowers were not fertilised, the ovary beneath the flower was enlarged, its colour glaucous green, with six prominent orange-coloured ribs. Subsequent examination showed that the pollen-masses had not been removed, and that, although the ovary was swollen, the ovules in the interior were imperfectly developed.

Dioecious Strawberries.—Mr. Morris forwarded a letter from Mr. Colebrook on the subject of the well-known tendency towards the separation of the sexes in Strawberries, especially in the United States.

Tomato disease.—From the editor of the *Journal of Horticulture* came a letter written by a Guernsey grower detailing the course of this too well-known, or rather these two well-known diseases. The writer's plants were in a span-roofed house, 60 × 25 feet, and were affected last year, when sulphur was applied without effect; the leaves were speedily affected, but not the fruits. After the removal of the crop the grower took the precaution to have the walls washed with lime, to renew the soil, and adopted every known means to secure healthy growth, but this year the disease is worse than before. One grower was mentioned as having seven houses, each 350 × 45 feet, decimated with the disease and not a pound's-worth of saleable fruit. Mr. W. G. Smith referred to the full description and illustration of the several fungi known to attack the Tomato given in the *Gardeners' Chronicle* in 1881, November 12, and in 1887, August 6, October 1 and 29, by Mr. C. Plowright and himself. Dr. Masters suggested the trial of sulphate of copper in fine powder, mixed with precipitated lime, and dusted over the foliage, as used in the French vineyards.

Summer show at People's Palace.—We are asked to mention that the summer flower show advertised to be held here on the 6th and 7th of August will not be held.

THE GARDENERS' ORPHAN FUND.

ANNUAL GENERAL MEETING AND DINNER.

THE annual general meeting of the members of the above fund took place at the Cannon Street Hotel, E.C., on Friday, the 13th inst., Mr. George Deal, the chairman of the executive committee, presiding, there being a good attendance of subscribers, including several from the country. The hon. secretary, Mr. A. F. Barron, having read the notice convening the meeting, proceeded to read the report of the executive committee of the Gardeners' Orphan Fund. The following is a short abridgment:—

Considering the short lapse of time since the movement was originated, the committee point with gladness to the results achieved. In the establishment of institutions, initiatory expenses are necessarily incurred that are essentially of a special nature, and which are not called for in subsequent management. The fact that these expenses have been met, and provision made for electing six children the first year, is, if not unprecedented, certainly most gratifying, and sincere thanks are tendered to all who have contributed to this most satisfactory result.

The executive committee desire to recognise the valuable and effective co-operation of the several local secretaries, now numbering ninety, who bring the claims of the charity to the notice of gardeners and their friends in their several districts, and reliance is placed on their further aid and continued efforts. The incentive to this is an ever-increasing number of applicants for the benefit of the fund, and this fact demonstrates the necessity for its existence.

The committee also desire to acknowledge their indebtedness to the council of the Royal Horticultural Society for permitting their gardens at Chiswick to be the head-quarters of the fund; to the Duke of Bedford for the facilities afforded for the Covent Garden Fête, and for his handsome donation; to the proprietors and editors of the gardening journals for the great interest they have shown in the charity, which has been strengthened by the aid thus rendered; and to the auditors, Mr. W. Sharp and Mr. C. H. Sharman, the latter of whom kindly acted on this occasion for Mr. John Fraser.

To all organisations designed to meet the necessities of gardeners after their term of labour is over, or who are temporarily incapacitated, the executive committee of the Gardeners' Orphan Fund wish unbounded success, and for their own charity they bespeak practical sympathy—help for the helpless. Of these, unfortunately, there is no lack, for, to cite the words of our president in his address last year, "every one is liable to sickness, and now and then the head of the family is removed, and the children are left to battle with an eager and greedy world." Let us help them in the unequal contest.

In moving the adoption of the report, the chairman briefly congratulated the subscribers upon the success which had attended the establishment of the fund, and specially alluded to the important help rendered by the local secretaries. This was seconded by Mr. H. J. Veitch, who, in speaking of the success attending their efforts, said that the Gardeners' Benevolent Institution the first year of its existence was able to put but one pensioner upon its funds, but the Gardeners' Orphan Fund was in a position to give six children its benefits, which he thought a matter for hearty congratulation. Mr. Veitch also thought the fact that the accounts had been audited by a chartered accountant was one calculated to inspire confidence in the management of the fund. The report was carried unanimously. Mr. T. B. Haywood was re-elected treasurer; Messrs. J. Fraser and Wm. Sharp auditors, and the following were elected upon the executive committee in the place of those retiring by rotation, viz., Messrs. G. W. Cummins, C. Howe, C. Penny, C. H. Sharman, H. Turner, H. Williams, and J. Walker. The meeting was then adjourned until 4 p.m. The scrutineers had a very busy time of it during the two hours the poll was open, a great many papers being handed in. At 4 p.m. they made the following report to the adjourned meeting.

The votes recorded were as follows:—

Emily Mabel Hyde	245
Alfred Swanborough	171
Albert Lacey	166
Emily Smith	153
Ralph Joseph Gardiner	131
Victor Spyers	88

The above six being elected.

The following were not elected:—

Albert Edward Best ...	80
William Samuel Stannard	75
Ethel Staples	29
George Smith	21

The chairman, therefore, declared the first six duly elected.

Thanks were voted to the auditors for auditing the accounts; to the executive committee for their services during the year; to the scrutineers; to the chairman of the committee, Mr. Geo. Deal; and to the hon. secretary, Mr. A. F. Barron. A subscriber having expressed a desire that the four unsuccessful candidates should also be placed on the fund, the committee retired for a short time to consider the matter, and on their return the chairman said that, having regard to the great success which had attended the establishment of the fund, the committee had unanimously resolved to recommend the general meeting to place the four unsuccessful candidates on the fund. It was thereupon moved by Mr. H. Turner, seconded by Mr. H. Cannell, and carried by acclamation, "That the recommendation of the committee be adopted." Thus, the whole of the ten candidates participate in the benefit of the fund.

Meanwhile, active sub-committees had been busy in decorating the hall for the dinner, very generous supplies of plants, fruit, and flowers having been sent in for the purpose. At five o'clock, when all was completed and the hall lit up, the effect was charming in the extreme, bold spreading Palms being employed with great taste, while bright-coloured flowers and fruit were bountifully displayed on the tables. Sir Julian Goldsmid, Bt., M.P., the president of the fund, was in the chair, the company numbering about 200, including many gardeners from the country. Nothing occurred to mar in any way the enjoyable and decorous character of the proceedings throughout. The company broke up at 10 p.m., and everyone appeared to express himself in the most hearty manner as thoroughly satisfied with the proceedings attendant upon the first anniversary festival of the Gardeners' Orphan Fund.

NOTES OF THE WEEK.

Moving Hollies and Yews.—Mr. Anthony Waterer, taking advantage of the extraordinary season, has been moving large Hollies and Yews by the thousand during the past few weeks.

Twin Cucumbers.—I have forwarded you a perfect brace of Cucumbers—twins. The variety is Telegraph. It is quite certain that Cucumbers very seldom come double.—G. B.

*** Excellent specimens of a twin Cucumber.—ED.

Royal Horticultural Society.—The next meeting in the Drill Hall will be held in conjunction with that of the National Carnation and Picotee Society on the 24th inst. The exhibits will also comprise Ferns, Selaginellas, Ivy-leaved and zonal Pelargoniums, &c.

Early-flowering Gladioli come to us from Messrs. Hubert and Mauger, Guernsey. The spikes show a strong growth, and the varieties sent were especially bright. They comprise Sarnian Gem, bright scarlet; Delicatissima, white, with brilliant crimson blotches; Cardinalis elegans, very rich red; Duke of Albany, crimson; Ardens, scarlet; and Rosea maculata, similar in hue.

Convolvulus lineatus is just now opening its lovely blossoms. It is perfectly hardy in the open, and we find it an excellent rock plant; the lance-shaped leaves are hoary white, and the flowers freely produced, flesh-coloured, reddish on the outside, very handsome in bud. Its very dwarf, neat, compact habit adds to its value as a rock garden subject.

Blue Rock Bindweed (Convolvulus mauritanicus) is smothered with its large flowers that are about the size of those of C. minor, and of a lovely shade of violet-blue. This creeping North African plant was very fine (July 18) on a border at Kew, and we may also occasionally see it used in hanging baskets, in which its twining leafy stems have a graceful effect, especially when brightened by the handsome flowers.

Erythræa diffusa is delightful in the alpine house at Kew, where it is seen to the best advantage in pots, and for this purpose it seems of the highest value, as the growth is extremely neat and the flowers of a brilliant rose colour. They are produced in the greatest profusion, and about the size of a halfpenny individually. This Western European Erythræa is also a most charming rock plant.

Two new Chironias may now be seen in bloom in the Cape house at Kew and both are pretty and elegant plants. One named C. tetragona linearis grows about 1 foot high, has erect stems, short narrow leaves, and numerous starry flowers about 1 inch across, and of a soft rosy pink colour. The other, C. peduncularis, is a more robust grower, has longer and broader leaves and larger flowers, but they are not so numerous, or of such a pleasing shade of pink as those of the other. Both are South African plants, and were among those brought home last year by Mr. Watson, the assistant curator.

Romneya Coulteri is an exceedingly beautiful flower, of which the coloured plate in THE GARDEN for November 8, 1884, gives an excellent idea. It is one of the choicest introductions from California, and is found by the margins of streams, where its large, white, and delicately beautiful flowers that are several inches across must have a lovely effect thus seen in their native home. Its Magnolia-like fragrance is another point of merit in this handsome Californian Poppy. A plant was flowering two or three days ago at Kew.

The Carbonell collection of Ferns in the Royal Gardens, Kew, is worth a visit just now by those who are interested in hardy Ferns. The importance of this contribution to the gardens is undoubted. The Ferns not only comprise many exceedingly lovely varieties, but are represented by large clumps, so that one can obtain at once an excellent idea of their characteristics. Next year, of course, they will be well established, as they have not yet become thoroughly at home in their new quarters. For the guidance of those who wish to see the collection, we may mention that they are planted on the old rockery, and not far from the Cumberland Gate entrance.

Gomphia decorans (known also as G. olivæformis) is now one of the attractive stove plants at Kew. It is a small-growing evergreen shrub, with large deep green leaves, and produces its flowers in long, compact, and branching spikes from the tips of the shoots. The flowers, each about the size of a shilling, are yellow, and particularly rich and bright. Though introduced from Brazil over twenty years ago, it is not much known, but is quite worthy of being included in a list of select stove plants. In a wild state it grows into a large tall shrub, but as a pot plant it may be kept under 2 feet high and induced to flower freely.

Fallugia paradoxa.—This very uncommon shrub, introduced from New Mexico, is in flower against one of the walls at Kew. It is pretty and most interesting to lovers of rare plants. It belongs to the Rose family, is a very twiggy shrub about a yard high (at Kew), has elegantly cut deep green leaves, and bears large white flowers about the size of a crown-piece. Judging from the country it comes from, it is not hardy enough to grow as an open bush, but makes a pretty wall shrub. It continues to bloom for a long time.

The conference of fruit growers, to be held at the Crystal Palace on September 7 and 8, promises to prove a decided success. A meeting of the executive committee was held at the Crystal Palace a few days since, Mr. T. Francis Rivers, of Sawbridgeworth, being in the chair. The honorary secretaries stated that not only had about sixty of the leading fruit growers in the United Kingdom expressed their readiness to serve on the committee, but they had received numerous offers of assistance in the form of papers and representative collections of profitable fruits. The committee decided that the conference should extend over two days, and that on each day the meeting should commence at 3 p.m. It was arranged that the influence of land tenure upon the cultivation of fruit, the most profitable fruits for market, and the packing, carriage, and sale of fruit should be discussed on the first day, and that the questions for discussion on the second day should be the economic importance of fruit in the household, evaporating and drying fruit, and bottling and preserving. To allow sufficient time for the discussion of the several questions, it was considered advisable to limit each paper to fifteen or twenty minutes.

The great white Funkia (F. grandiflora) is often seen as a common border plant, but unless growing under very favourable conditions of shelter and warmth, it rarely produces its tall spikes of large, white, and deliciously scented flowers. It is therefore advisable to grow it in pots in a greenhouse where at this time of the year there are few lovelier or more fragrant plants. The great heart-shaped leaves of a very pale green harmonise charmingly with the long trumpet-shaped flowers, and as the spikes are long and the buds open in succession, the plant is in bloom for several weeks. A noble group of this Funkia in the greenhouse (No. 4) at Kew has been a great attraction, and very few visitors recognise it as a hardy plant.

Veronica Traversi is exceedingly beautiful at Kew this week, as the bushes of it here and there in the gardens are in the fullest flower. This dense, bushy, and comparatively dwarf, shrubby plant might be used in many places with the most excellent effect. It blooms in July, just at a time when we require something bright to give colour to the outdoor garden, and this its profusion of white flowers supplies most effectually. It does not seem to be at all difficult to grow, and is quite hardy, though in the severest winters it suffers somewhat. As an isolated specimen for the lawn, we could find few better things, as it not only flowers in the month of July when scarcely a shrub is in bloom, but is ornamental at all seasons. There is a Veronica called V. Devoniensis in commerce, but this is only a synonym, as we can see no difference between the two.

The late Mr. Charles Pitman.—The death of this well-known nursery foreman recently took place at Fulham at the age of over 80 years. He was for over fifty years the ground or outside foreman at the nurseries of Messrs. Osborn and Sons at Fulham, and he was generally regarded in the trade as one of the best men in that capacity, having a thoroughly reliable knowledge of trees and shrubs, and especially of those of a rare and less known character. He was a good knifeman, a first-class cultivator of fruit and ornamental trees and shrubs, and a very successful propagator of the same. Under his charge the Fulham Nurseries were famous for the fine collection of fruit and ornamental trees and shrubs grown there, and they were always regarded as an excellent school for young beginners. Mr. Pitman was pensioned off just before the break up of the firm, and it is gratifying to know the closing days of his life were spent in quiet.

Names of plants.—*Quercus.*—1, Anchusa officinalis; 2, Clematis erecta; 3, Campanula barbata; 4, Amorpha fruticosa; 5, Lysimachia punctata; 6, Baptisia australis; 7, Valeriana alliariæfolia; 8, Boykinia major; 9, Cephalaria tatarica; 10, Senecio speciosus.——*W. M.*—1, Cupressus Lawsoniana var.; 2, C. nutkaensis; 3, Libocedrus decurrens; 4, Thuja gigantea; 5, Cupressus Lawsoniana erecta viridis; 6, C. Lawsoniana ——*M. S. B.*—1, Dictamnus albus; 2, Gilia tricolor; 3, Omphalodes linifolia; 4, Phacelia Whitlavia. ——*A. D. S.*—1, Vellozia elegans; 2, Jacobinia magnifica; 3, Erigeron speciosus; 4, Valeriana alliariæfolia.——*A. Walker.*—3, Begonia Dregei; 4, Escallonia macrantha; 6, Papaver nudicaule; others next week.——*J. L. L.*—Mackaya bella. ——*M. Miln.*—1, Inula glandulosa; 2, shrivelled; 3, Lychnis vespertina; please send better specimens another time.——*W. T. P.*—Odontoglossum is apparently a poor form of O. Alexandræ; the Dendrobium is D. chrysanthum.——*F. Field.*—Cannot name Pea; 1, Nephrodium exaltatum; 2, Pteris serrulata; 3, Pteris serrulata cristata; 5, Doodia lunulata; 6, Asplenium bulbiferum; 7, Lady Fern; 8, Pteris tremula. ——*McNab.*—1, Acrides Lobbi; 2, A. Fieldingi; 3, A. expansum; 4, A. virens Dayi.——*G. H. J.*—1, Vanda Roxburghi; 2, V. Dawsoniana.——*F. W.*—1, Acineta Barkeri; 2, Masdevallia ionocharis; 3, Epidendrum erubescens; 4, Masdevallia simula.——*Rosa.*—1, Adiantum bellum; 2, A. Pacotti; 3, Cheilanthes farinosa; 4, Selaginella uncinata.——*Trent Valley.*—1, Epidendrum raniferum; 2, Calanthe Textori; 3, Cœlogyne speciosa; 4, Odontoglossum hastilabium.——*J. G.*—1, Masdevallia Benedicta; 2, M. infracta; 3, Aspasia lunata. ——*Erskine Beveridge.*—1, Myosotis palustris; 2, Borage; 3, Anchusa italica; 4, Hieracium aurantiacum; 5, Asphodelus ramosus.——*R. J. Jones.*—1, Phlomis fruticosa; 2, Erigeron aurantiacus.——*Silsm Rhodes.*—W. A. Richardson Rose apparently: any nurserymen would supply a tree. ——*J. B.*—Specimen insufficient.——*A. R.*—The original Provence Rose.

WOODS & FORESTS.

THE FORESTS OF EUROPE.

I SEE in THE GARDEN, July 7 (p. 20), an interesting article issued by the French Ministry of Agriculture giving statistics of the area of ground occupied by forests in the different countries of Europe, and such a statement cannot be otherwise than instructive and interesting to all who take an interest in the cultivation of the soil. From this paper it appears that Russia in Europe and Sweden stand at the top of the list, the former with 37 per cent. of its whole area and the latter with 39 per cent. in forest land. Although we seldom hear much about the forest lands of Austria, yet it is by far the best wooded country in Europe, and in order to show this, I cull the following from an article before me:—

One of Austria's great sources of wealth is wood, and perhaps no country can boast of such an amount of forests when compared to its area. The principal wood-producing provinces are Croatia, Slavonia, and the former military frontier. In these provinces the woods occupy 3,387,234 acres, of which 20 per cent. is younger growth and 80 per cent. timber forest; 69 per cent. of this quantity is in the hands of the Government or of large landowners, 24 per cent. belongs to the parishes, 5½ per cent. is in the possession of the clergy, and 1½ per cent. is owned by single peasants. Were the ground covered by forests divided among all the inhabitants the portion falling to the lot of each would be 1¾ acres. The cubic measurement of this mass of wood is 1,055,966,340 cubic feet, which, reckoned at nine-tenths of a penny per cubic foot, give a total of £39,707,200. The yearly increase of wood is 133,849,914 cubic feet, which calculated at the value as given above amounts to upwards of £500,000.

When we contrast this with the area of ground under wood in Great Britain and Ireland, where it is computed that there is something less than one-tenth of an acre to each inhabitant, the difference is very remarkable, and at first sight one would be apt to think that we either did not require much timber or that we had no land capable of growing it to a useful size. As both theories are wrong, the question naturally arises as to what can be the cause and how are we to apply a remedy. It is a well-known fact that Great Britain is one of the largest exporters of foreign timber, and our exports are not confined to wood of large dimensions, as vast quantities of small size are used for mining purposes. As this can be grown upon poor land incapable of being reclaimed for tillage purposes, and of which we have many millions of acres lying waste, surely there must be something wrong in the management, otherwise these vast tracts of waste land would be planted and turned to account. In England the great drawback to planting seems to be the amount of capital required at the outset, as well as the time the planter has to wait before he gets a return for the money thus spent; but in Scotland, as well as some parts of England, where the ground consists of Heather moor and is only capable of producing a crop of mining timber, the expense of the formation is not so heavy after all. I have recently examined some thousands of acres of this class of plantations which I planted some thirty years ago at an average rate of about 30s. per acre, and although much of the soil is of a poor, thin quality and the site exposed, yet a great many of the trees have attained a suitable size for pit wood and other purposes, and as there is always a demand for this class of timber and a fair price to be realised for clean-grown material, the results are highly encouraging. In round numbers, some of these plantations contain about 1000 trees per acre, chiefly Scotch Fir and Larch, and as these trees average from 2 to 3 cubic feet of timber, they are at least worth 8d. each, which is by no means an extravagant estimate. As this represents £33 6s. 8d. as the value of one acre after thirty years' growth, it can be seen at a glance that the yearly rent for the ground after paying for the formation is a fraction over £1 per acre. As this ground in its natural state never was of the least use, the advantage of having it planted must be patent to all; and as many of the trees are in a rapid state of growth, and probably will continue so for a series of years, the advantage in favour of the proprietor will even reach a higher standard than that indicated. One of the great barriers to planting waste land in Ireland is the non-residence of many of the proprietors; and then, again, when a tenant improved his holding by draining, trenching, fencing, and planting trees the landlord generally raised his rent, and whatever trees he planted to shelter his fields if they were not registered, the landlord claimed them as fixtures, and prohibited him from cutting them without his permission. This system has not only been the means of retarding improvements of every kind, but has also laid the foundation for much ill-will and bad feeling between landlord and tenant. In Ireland labour is plentiful and cheap, and immense tracts of land unsuitable for tillage might be planted with advantage to all concerned; yet under existing circumstances no one will do it; landlords cannot spare the capital, and tenants do not like the idea of planting on another man's property. Irish farmers have their houses to build and keep in repair at their own expense, and as the farms are not generally of a large size, large quantities of timber are wanted and are being used in all parts of the country, the chief supply of which comes from Norway and consists principally of Spruce Fir. A good deal is imported in the round state with the bark on, and is used as spars for ladders, scaffolding, &c., while the larger sizes are cut up into boarding, planking, joists, &c. The Spruce thrives best upon peaty soil, and vast tracts of such soil are lying waste in Ireland, yet no one thinks of planting them, although by so doing a deal of money might be profitably realised. J. B. WEBSTER.

IMPROVEMENT OF PARK SCENERY.

SUFFICIENT attention is not directed to park planting, with a view to render the landscape scenery picturesque and varied, when marginal masses, young plantations, clumps, or groups are being formed in new parks; it is also necessary from time to time to fill up blanks in park plantations occasioned by high winds or the decay of trees, if a succession of healthy growing timber be desired throughout the country. Before selecting the subjects to form the principal masses, it is essential to have some knowledge of the trees most suitable to the various conditions of soil, geological formation, and climate. As a general rule, it is the safest and perhaps the wisest plan to plant the park belts, marginal masses, and the larger clumps and groups with those trees that are found to thrive best and to develop into the finest timber in the locality where the planting is intended to be carried out. Trees suitable for forming the principal masses in the park may be divided into two classes, thus: Oak, Elm, Lime, Horse and Sweet Chestnut trees, for rich loam and clay soils and somewhat sheltered sites; Beech, Sycamore, Norway Maple, and Birch trees for thin poor soils and in exposed sites. Among Conifers (though not strictly park trees) the Wellingtonia, Silver Firs in variety, Douglas and Menzies Spruces, and Pinus austriaca, Laricio, Benthamiana, Jeffreyi, ponderosa, macrocarpa, and many other hardy and tall-growing varieties may be planted on the declivities of hills in groups amongst the marginal masses to give variety, contrast, and shelter; they can also be planted in groups to form a background to deciduous trees or prominent hills in the distance to break the hard, level, sky outline. The best and at the same time most pleasing and picturesque effect in park planting may be produced by grouping with distinct species bold, sweeping masses of different sizes and irregular shapes, to avoid giving similarity in size and form of groups of each distinct kind of park tree, and by planting smaller groups of the newer and more beautiful varieties of each species in front of the common sorts, distributing these latter at wide and irregular distances apart from tree to tree, so as not to add a stiff and clump-like appearance to the larger masses. By a judicious arrangement of groups of ornamental trees and dwarf tree forms, they should exhibit a different outline to the eye on every side; and although they should be planted at wide distances apart to allow every tree sufficient room to develop its special features of habit and foliage to the fullest extent, yet still these, when viewed at a distance, should blend into one group. Clumps of park trees are generally round or oval in shape, and mostly planted on prominent knolls. They should be composed of one distinct variety or species. Groups of dwarf trees may be advantageously used to soften down abrupt outlines of clumps. Mixed groups of fine-foliaged and flowering trees, of silvery and dark foliage, of rich autumn-tinted and the more quiet coloured, and the round-headed with the fastigiated forms, the weeping with the irregular or oblong forms, should be tastefully distributed throughout the park, advantage being taken of the undulating surface by planting the groups on the rising ground, leaving the hollows or valleys to form grassy glades. These latter may occasionally be broken when too great a breadth of Grass is visible by planting groups of dwarf trees in the foreground. Thorns and other dwarf trees should also be planted near carriage drives, and on each side of sharp curves of park roads and drives in scattered groups of various sizes from three to a score or more. These dwarf tree forms, when planted judiciously, give variety without abruptness and a more natural appearance generally to the planting. Single specimen trees of distinct and marked features should be planted on well-chosen spots, but care must be taken not to plant too many so as to give a speckled or chessboard-like appearance to the park. The leading features to be aimed at in park planting should be variety, with distinctiveness, and system of arrangement without formality. Conifers are only suited for park adornment at a distance from the mansion, on the sides of hills, or prominent high-lying outskirts; when planted in the foreground or in the low-lying sites of parks, either in clumps, groups, single specimens, or to form avenues, they are altogether out of character with true English park landscape planting. The only exception to this rule is the Cedar of Lebanon, which may be tolerated near a mansion, but even this only when the style of architecture is Elizabethan, Tudor, Jacobean, or some other allied type. OLD FORESTER.

Oak plants with knots.—Some months ago a complaint was made to me that all Oak cut on a certain portion of my land was twisted in the grain and full of knots inside, although outwardly smooth and perfectly straight. I had the butt of a tree about 150 years old and 14 inches square cleft in order to examine this. The cause is very clear. These trees, which form a clump of about 20 acres in extent, had evidently been trimmed by knife and saw when the lateral branches were about 1 inch in diameter, the stumps being left from 1 inch to 2 inches long. These stumps remain in the heart of the tree, the bark and wood gradually growing over them. The stumps have not decayed, neither have they united with the growth, but remain, causing a hole in each plank and a distortion of the grain, until in process of time they have been entirely covered. The sap then resumed its straight course, and gradually the grain was restored to its proper direction, but the tree deteriorated in value. Had these small branches been cut close and smooth up to the bark, the mischief would have been avoided. Small branches are generally cut off at a short distance from the stem, but the statement here made is, to my mind, conclusive against the practice and well worth consideration.—J. T. LEVETT.

No. 871. SATURDAY, July 28, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

NEW ROSES AT THE EXHIBITIONS.

A GOOD many of the more recent Roses have been seen to considerable advantage at some of the earlier Rose shows this season, and there is no doubt that the quality of the novelties is considerably above the average. Not a few seedlings and sports of good promise have also been seen, including some fine crimsons and reds from Cheshunt and a striking white Tea from Oxford.

SOUVENIR DE S. A. PRINCE is a pure white sport from Souvenir d'un Ami, which has been fixed by Mr. George Prince, of Oxford, and should prove a most valuable acquisition. The flowers are as white as those of Niphetos, for which at a distance it might easily be mistaken, but a closer inspection quickly shows that the flowers have not only the form and substance of Souvenir d'un Ami, but that the sport has also the magnificent glossy foliage of the type. The chief objections to Niphetos as a garden plant are its somewhat weak habit and decidedly sparse foliage, but Souvenir d'un Ami is one of the hardiest and handsomest plants among the Tea-scented Roses, the growth strong and clothed with an abundance of splendid dark green foliage, so that such a plant with flowers as white as those of Niphetos can hardly fail to be invaluable. A first-class certificate was deservedly awarded at the Alexandra Palace, and also at Bagshot, where some of the blooms staged were of exceptional beauty, and Mr. Prince may be congratulated on the possession of a novelty so well worthy of his great reputation as a grower of Tea Roses.

VISCOUNTESS FOLKESTONE (Bennett, 1886) has been magnificently shown this year, especially by Mr. Prince. The numerous blooms of it staged by him at Bagshot were simply exquisite, and were the objects of universal admiration. The variety is not a pure Tea, bearing considerable resemblance both in habit and colour to Cannes la Coquette, which, however, it excels in size, and its great creamy white petals deepen to a more glowing flesh-tinted centre than in the seedling from La France. As a general rule, light Roses are spoiled by wet weather and fail to expand, but Viscountess Folkestone appears to rise superior to dripping skies and the absence of sunshine, for so far every bud has developed into a beautiful blossom, the great substance of the petals probably enabling them to resist the damaging effects of rain. Vigorous, free-blooming, perpetual, and very beautiful in form and colour, this Rose is unquestionably one which everybody should make a point of cultivating.

HER MAJESTY (Bennett, 1885) was represented by some magnificent blooms at the early shows, although, of course, the general fine display of this variety which might have been reasonably anticipated has so far been precluded by the continued wet. So full and slowly opening a Rose cannot be expected to develop in perfection in the absence of sunshine, and the total number of blooms exhibited during the season will probably not be a tithe of what the admirers of this royal Rose had hoped to see. Nevertheless, the bloom of it that was staged at Bagshot, and which far excelled any that were exhibited at the Crystal Palace, was alone sufficient to convince all who saw it that it is unsurpassed in its line of colour, if not among Hybrid Perpetuals. It is a most unhappy thing that the reputation of this splendid Rose should have been prejudiced by the state in which it was exhibited in the first instance, and more particularly during the early part of last season, when the flowers staged were almost without exception too fully developed, and a charge of coarseness was consequently with some show of reason preferred; whereas, when cut at the proper stage there is no Rose of its class more beautiful in form, outline of petal, and colour.

MRS. JOHN LAING (Bennett, 1887) has been very generally exhibited, and is very beautiful in form and most easy to bloom in perfection. This constancy of quality is characteristic of all the Roses that Mr. Bennett has sent out during the last five years, and is one of their most valuable distinguishing traits. Mrs. John Laing is perhaps the least novel in colour of all the Shepperton seedlings, being, as has been previously pointed out, of almost the same tint as Monsieur Noman; but where Monsieur Noman will furnish one perfect flower Mrs. John Laing will afford twenty, and while the gentleman's complexion is tarnished by a single shower, the lady keeps appearing in all directions as bright and fresh as possible in spite of the interminable succession of wet days.

PRINCESS BEATRICE (Bennett, 1887) is a very lovely Tea Rose, carrying on perhaps more than any other the race of Princess of Wales and Comtesse de Nadaillac. It was very finely exhibited by the raiser at one of the meetings of the Royal Horticultural Society early in the season, and has since flowered with great freedom and in great beauty in many localities. Perfect in form and of a pleasing shade of yellow, deepening towards orange at the base, it is a most refined and lovely flower, destined probably to be as popular with those who grow Roses only to supply cut flowers for the house as with exhibitors, to whom the lasting powers of Princess Beatrice will render it especially valuable.

THE BRIDE (May, 1885) has not been seen in the abundance that at one time seemed almost certain, but some of the flowers exhibited have been most exquisite. Of course, in such weather as has been lately experienced, delicately tinted flowers can hardly escape disfigurement, but where fresh and unstained nothing can exceed the grace and refinement of The Bride—not an absolutely white flower, it is true, but with just that tinge of pale lemon which characterises a good lemon-water ice. The plant seems more free-flowering than the type, and that, unlike most sports, without any diminution of quality.

MADAME HENRI PEREIRE (Vilin, 1886) is the only French Rose of the season that has hitherto appeared at all prominently, but this variety has been consistently well shown by Messrs. Paul and Son, of Cheshunt, at almost every exhibition. The flowers are large, with broad velvety petals of a rich crimson colour, shaded with deeper shades of crimson and purple, and if, as appears probable, the variety maintains its distinct character, it will no doubt prove a decided acquisition.

It is a significant fact that the majority of the most conspicuous novelties at present are of English (or Irish) origin. Not a few of the French raisers each send out every year more new Roses than all the English raisers put together, but yet of the Hybrid Perpetuals raised since 1880 that have already been admitted to be of the first rank, the French varieties are in a minority of one to two. The Frenchmen still maintain a lead in the number of Teas, no doubt because the seed of the Tea-scented Roses will not ripen out of doors in this country; but that is but a slight disadvantage which may be and in some cases has already been overcome. Unless France looks to the quality of her produce, she will have to admit not only (as has always been acknowledged) that the Rose blooms grown in England are the finest that the world produces, but that England, and no longer France, is the country in which the most perfect and beautiful varieties of Roses are raised.

Rosa Brunonis is now, July 21, flowering in great beauty, its enormous trusses of pure white gold-centred flowers being this year most unusually late. The effect produced by the great masses of snowy blossom amongst the blue-grey foliage is very beautiful and distinct, and although not absolutely hardy, this species is one of the most valuable climbers, not only among single Roses, but amongst Roses generally.

New Rose, Jeannie Dickson.—Under this name come from Messrs. Alexander Dickson, of Newtownards, Ireland, handsome blooms of a new Hybrid Perpetual, in colour full rose, with silvery margins to the large deep petals which have a remarkably satiny texture. The variety appears to follow the race of Victor Verdier, the stems being stout and the flowers carried perfectly erect. Rose colours are the most difficult of all to judge accurately after a journey, but this variety appears to be both distinct and decidedly promising.

Rose Gloire Lyonnaise.—Many Roses which in a hot season are too thin have this year been exceptionally fine, notably the very pretty lemon-tinted Hybrid Tea, Gloire Lyonnaise, which is always a good garden Rose, and has this season in the cool weather been able to stand successfully the ordeal of exhibition. Some beautiful blooms, too, have been seen of Garden Favourite, an excellent very bright pink variety of constant merit, though not always so well available for exhibition as in the recent chilly weather.

Old-fashioned Roses suffer neglect because they are "old," but more often than not they possess striking characters the newer kinds lack. We noticed in the Waltham Cross Nursery recently a fine specimen of the all-but-forgotten Blairi No. 2, a delicately tinted flower, as free and beautiful as one could wish. There were also the carmine-crimson Paul Ricaut, the double white and indescribably beautiful Mme. Plantier, and the brilliant rose-coloured and full, massive-flowered Charles Lawson.

Bedding Roses.—It is certainly hard to account for the predilection by many for standard Roses. It is scarcely the fault of the system itself, but the selection of improper varieties which will never, however much encouragement may be given, make a good vigorous head of bloom. The standards of Mme. Plantier, a lovely double white fragrant Rose, in the Waltham Cross Nursery are pictures of luxuriant growth and a mass of bloom, but every show Rose will not make a standard, and while amateurs will alone have what is seen on the exhibition table, so long will scraggy standards disgrace our gardens. In the same nursery we made a few notes of some Hybrid Perpetual varieties, dwarf plants on their own roots, and in full health and flower. There were such favourites as Victor Verdier and Captain Christy, a delicate flesh-coloured flower, deepening in the centre of the massive bloom; it was in perfection. Another well-known kind and excellent on its own roots is Dr. Andry; it makes a splendid bed. Souvenir de la Malmaison, Marquise de Castellane, and Crown Prince may be mentioned with the above. The last of the three is a vigorous garden Rose, the colour purple, shaded with a telling crimson in the centre. Those who have seen this dark Rose, and admire this class, will like the variety Crown Prince. The Duke of Edinburgh variety, which has appeared in such beauty this season, was thriving exceedingly well here on its own roots; it

is still one of the best, although raised by Mr. Paul twenty-seven years ago; Mme. Prosper Laugier, a Rose of fine build, is an excellent bedder, so also is Eugène Furst, Alphonse Soupert, and the beautiful variety Florence Paul; there were several half-standards of this also; it is crimson with rose shading, the form full, of excellent finish, and the growth vigorous; Baroness Rothschild and A. K. Williams may be included amongst the bedding Roses. These are only a few varieties that do well in this way; there are many others, and we wish that it were more the practice to grow the greatest of hardy flowers in beds. There are a few at Kew, and certainly far more charming than the ugly standards near the tropical Water Lily house.

Brown's Rose (Rosa Brunonis) is one of the open-air flowers of the week. A more charming single Rose does not exist, and to see a great mass of it with every drooping branch profusely covered with pure white blooms of delicious fragrance is one of the prettiest sights one can have in a garden at this season. In such perfection it may be now seen at Kew, just outside the tropical fernery and Cactus house. The long trailing shoots quite smother a large mass of trees and shrubs, and the perfume of the flowers and the hum of the bees about them attract everyone's attention. We could wish that such a shrub were more commonly planted in private gardens, and we are sure that it would be if it were more easily obtainable than it is. There is always a great stir made about every novelty among Roses, yet here is a beautiful Rose thoroughly hardy, always a profuse bloomer, and flourishing almost anywhere, neglected. Introduced over half a century ago from Nepaul, it is still a new plant to many.

SHORT NOTES.—ROSES.

Eclair (Lacharme) is much better suited by a cool season. The flowers still lack size, but the colour is most brilliant, and the hollow centre is far better concealed than usual.

Pride of Waltham is, as usual, sporting back to its parent, Comtesse d'Oxford, this year in several instances. One plant, with a good flower of each colour on the same shoot, produces a very odd and bizarre effect.

The single Rosa Pissardi was blooming freely the other day at Waltham Cross. It has a flower much like that of our common Dog Rose, and with the same delicate perfume.

Inigo Jones is a fine dark crimson Rose that we expect will make its way to the front. It has a large well finished globular flower, and as seen at Waltham Cross is excellent as a dwarf standard.

Comtesse de Casteja (Margottin, 1882) is another good crimson, somewhat similar in colour to Prosper Laugier, but distinct in form. The very handsome and substantial flowers have an additional value in being produced late.

Madame Crozy (Levet, 1881).—For a garden Rose where a great standard or bush is wanted, this variety might be well employed. The growth is most vigorous and the cheerful rose-coloured flowers are produced in profusion.

Rivolli Charles is a French Tea variety rarely seen in England. The flowers are very pretty, of globular shape, and in colour a suffusion of peach on a lighter ground, deepening in the centre of the flower to a tender rose.

Comtesse de Mailly-Nesle (Lévêque, 1882) is a very pretty rose-coloured variety, grows well and flowers most freely and continuously. The flowers open better in bad weather than most varieties of its type of colour, and it consequently makes an attractive group in the garden.

Marchioness of Lorne is a promising self rose-coloured variety of massive build, full, handsome, and showy. We shall possibly see more of this Rose, as from the plants of it in Messrs. Wm. Paul's Waltham Cross Nursery, it possesses a desirable and distinctive character.

Prosper Laugier (E. Verdier, 1883), like most of the dark Roses, is well suited by the cool season, and is flowering in great beauty this year. It is a deep-built flower of a rich brown-crimson colour, and should prove a valuable variety in the north.

Rose Madame G Bruant.—We have tried this in the open border and find it does well. The flowers are semi-double only, but the long-pointed white buds are very pretty. If this Rose will grow into a bush as large as that of R. rugosa it will be a great acquisition.

Marquise de Vivens is a lovely variety of medium size, but exquisite in the bud state. The buds are long and pointed, the outside of the petals is pale rose, the colour deepening on the inner surface. A bud half expanded, showing the warm rosy tips of all the petals, is really beautiful.

Malmaison Rose.—A Rose that opens well in this wretched season is a good Rose indeed. In the usual season Souvenir de la Malmaison is best as an autumn Rose, but this year from the first until now it has been in bloom, and promises to go on flowering for months to come. It should stand high on the list as a decorative garden Rose.

Duchess of Bedford Rose has excellent foliage, brilliant crimson flowers of globular shape, and vigorous growth—three strong recommendations. Its colour is exceedingly rich, especially so as the bloom is so full and finished. The plants of it in the Waltham Cross Nursery show its merits.

Rose Princess Beatrice.—The experience of "J. V., Cornwall," in regard to the colour of Princess Beatrice (Tea) will probably be general this year. All the Tea-scented Roses vary considerably in colour in different seasons, and it is a common thing for the Teas of deep tawny yellow or orange shades to be suffused or bordered in very hot weather with pale rose or pink colour. The most typical example of this is perhaps Jean Ducher, and last summer in the great heat many blooms of this variety appeared with quite a pink tinge, and Princess Beatrice, which is in somewhat the same line of colour, followed suit. In the present cooler weather, however, the yellow shades are in all these Roses entirely predominant.—T. W. G.

PRUNING TEA-SCENTED ROSES.

"T. W. G.," referring to the pruning of Tea-scented Roses in THE GARDEN for July 7 (p. 1), makes use of the following words: "If left entirely unpruned after a moderate winter like the past, will furnish early blooms, which, if not so fine as those developed later, are very acceptable at the time." Now, seeing what a difference of opinion there is amongst growers of Tea Roses respecting the question of pruning, I was glad to find that such an authority as Mr. Girdlestone agrees at any rate with what I have long ago advocated, that if early blooms are wanted, whether under glass or in the open air, the plants should not be pruned in the autumn or winter. If the plants require to be cut back to keep them within bounds, it should be done as soon as the first lot of flowers is over in the summer, and then the growth made after that if left unpruned will flower much earlier than that which is cut back during the winter or early spring. This is the practice that I have followed for many years with plants under glass as well as with those against a south wall. Under this treatment such large-flowered sorts as Niphetos and Souvenir d'un Ami have given us some splendid blooms at the end of April without any fire heat; but when I pruned hard they were always much later. The same remark applies to those on open walls. Such sorts as Marie Van Houtte, Madame Falcot, and Madame Lambard produce a splendid lot of early blooms if they are not pruned. I had good proof of this a few days ago when walking round the garden of Mr. John Marshall, Belmont, Taunton, where I saw some standard plants of that well-known Tea Rose Homère, that had never been regularly pruned. Mr. Lucas, the gardener, told me that he occasionally shortened back a shoot or two, but the plants were never cut hard back. The result was that the plants have formed large, spreading heads, which had nearly a hundred flowers and buds upon them at the time of my visit, and from the vigorous health of the plants, they would keep flowering more or less all the summer. In another garden, The Grange, Kingston, I saw early in the summer a fine plant of President, another fairly hardy Tea Rose, that had been in flower since the beginning of May. The plant is trained to the south front of the house in a sheltered position, which no doubt accounts for its flowering so early, but it is not hard pruned, as the condition of the growth plainly showed. Had it been it could not have made sufficient growth to flower so early, as the first blooms are always produced on the small spray growth of the previous year. But this growth the advocate for severe pruning is careful to cut away, and by so doing he ruins his chance of an early crop of flowers.

J. C. C.

Miniature Roses.—It is a matter of surprise that "J. C. C." (p. 34) should recommend pumila alba as of stronger growth than Paquerette or Mignonette, since, both on the light land of Berks and on the loam of Herts, where all the miniature Roses mentioned by "J. C. C.," together with a good many others, are grown side by side, the exact contrary has been found to be the case. In fact, so weak and poor has the growth of pumila alba proved on light and heavy land, and so comparatively sparing of its easily soiled flowers, that it has been marked to be discarded. Little Pet and its crimson counterpart sent out this year, Red Pet, are charming miniature Roses, of immense freedom and vigour, but should not be planted amongst the dwarf Polyanthas, as they are Chinas, and their taller and more spreading habit is liable to overwhelm the sturdy, but dwarf Polyanthas.—T. W. G.

NOTES FROM THE ISLE OF WIGHT.

YOUR correspondent "G.," in THE GARDEN, July 14 (p. 25), is right in supposing that Abelia floribunda would do very well here in the open border. It stood last winter without any protection at all, and is in full beauty now. I do not quite agree with you that the Albucas are worthless, one only being excepted. I have grown Albuca polyphylla for many years, and I should be sorry to be without it. I must try and get hold of Albuca Nelsoni, which you recommend so highly. I have only quite lately returned to my parish and my garden after the absence of a year, and I can assure you I am glad to be back again in old familiar quarters. About the former of these two I will not trouble you with any remarks; but about the latter I may perhaps have a word to say in your columns, if you think it worth while. It was with palpitating anxiety that I made the first round through my well-known borders after my return home. What should I find in good condition and ready to greet me once more? and what should I *not* find over which I had lavished tender care in days gone by? Strange to say, the great gaps and vacancies occurred for the most part—but not altogether—with strong-growing, vigorous creatures, and tender and precious things, which I had fancied could never do without me at all, were in good health and vigour. This is an inversion of what often takes place in a garden, but it has been strictly the case with me. If I had been asked to name one plant in my possession which could well stand the blazing summer of 1887, I should have said a Brazilian Groundsel ought to be unscathed; but a very fine specimen of Senecio pulcher was smitten to its very heart, and went down before the torrent of fiery heat with which this island was visited. Another great favourite which succumbed was Saxifraga purpurascens. It was burnt up, though it was strong and well-doing when I saw it last. Another was Dryas octopetala, and so on. But still a few things were left after that scorching summer. Bulbs had a good time of it on the whole; and when I see alpines such as Silene Elizabethæ splendidly in blossom just now; Omphalodes Luciliæ in rude health and vigour; Phyteuma comosum, very quaint and attractive; Campanula Allioni and C. Raineri never better in their lives; Lithospermum petræum a kind of hillock of blue; Ruta patavina a sheet of yellow blossom all over the border; Dianthus neglectus beyond all praise with its pleasant, cheerful appearance, and D. cinnabarinus, which is of quite a new colour, doing well; Hypericum reptans spreading on all sides; Edelweiss as good as can be found on any mountain in Switzerland; Poppies everywhere where they should be, and everywhere also where they should not be, the conclusion at which I have arrived is the following: I need not be half so solicitous about their comfort as I used to be. They all seem to look me in the face and say, "Take a lesson from this. What we do dislike beyond everything else is fussy care. Leave us alone, we beseech you, beyond everything else; we can take care of ourselves quite well if you will only let us do it." I can only think if they perish in the future it

will be their fault and not mine, for I shall take them at their word. Still, for all that, I have been missed, and I do mourn some things which might have been alive now if I had been at hand to attend to them. My beautiful Iris paradoxa, so soft and velvety—on which my heart was set in a wonderful degree—is conspicuous by its absence. I went to look after it at once, but no trace of it could I find. My gardener, with the most excellent intentions, and thinking, no doubt, to do me the greatest possible service and to benefit this precious Iris to the uttermost, moved it away from the spot where it had been placed by me, and where it had tripled itself in size, to another border where he thought it would do better and be the cynosure of the garden, and where I should find it growing gloriously on my return. Alas! that he did it. Was ever deed so rash? He took it from ordinary commonplace loam to highly prepared leafmould and sand, and I know not what else, and the Iris felt the change at once. It was about as wise as to try to make a child live upon sweetmeats. My favourite soon languished and died.

But I must not worry you with my losses and crosses. Counterbalancing fortune in great abundance is given to me. I could hardly believe my eyes when I beheld an Eremurus which was more than 12 feet high. Only a short time before I had greatly admired a specimen of Eremurus robustus in Colonel Stuart-Wortley's garden at St. John's Wood which was, I think, 7 feet or 8 feet high. I know I told him I had never seen anything like it before in my life, and I should be pleased if I had anything which could at all approach its dimensions in my own garden at Ryde. But my Eremurus was head and shoulders over his. If it goes on at this rate I shall soon have to use regarding it the superlative degree, and some two or three expletives to boot. Eremurus robustus gives but a very feeble description of my friend. I cut it down after I had gazed admiringly on it for a few days, and when it had begun to go to seed, for I thought it best that its little strength should not be dissipated in that sort of way, and it is lying still in the path like some prostrate giant. Shall I ever see its equal again? Eremurus Bungei has been as noticeable in its own way as its congener was in a different fashion. A more graceful and altogether beautiful flower one seldom sees. The colour is of the clearest possible yellow. What Eremurus robustus is in point of forceful vigour, that Eremurus Bungei is in dainty attractiveness. I was walking round my garden with a learned dignitary of the church, and one to whom I look up immensely, but not about flowers, just at the time when Eremurus Bungei was at its best and was courting admiration from all beholders, and I shall not soon forget how he started when he caught sight of its beauty. The jerky way in which he said, "What's that?" made me almost think that he did not know that it was a flower at all, but that he rather took it for some celestial visitant for which he was not prepared and which he could not make out. But he very soon settled down into the only proper conviction, and his praise was in exact proportion to the surprise he had shown. Eremurus Olgæ and E. himalaicus do not disgrace the sisterhood at all; the only one which I cannot admire is E. spectabilis. I suppose it was a consciousness of inferiority which made it feel that some self-assertion was required. I am thankful to be able to tell you that Rosa berberifolia is in perfectly good health and is blossoming well. This Rose has been pronounced intractable, and hard things have been said of it, but I am sure it does not deserve the blame it has received. Like a great many other plants and shrubs, it has some two or three very simple requirements; if these are fulfilled it is satisfied at once, but nothing in the world can compensate with it for their loss; its revenge is very speedy, for it dies. I believe that in this country at any rate it cannot stand many degrees of frost. I know that in its own native home it is more or less indifferent to cold, but that would not prove that it will be the same here where other conditions differ. Herr Max Leichtlin told me that he lost a very fine bush in a hard winter, and I would not expose my precious Rose to the rigours of January or February for anything.

Another point which must be attended to according to the above named great authority, is that it must have facility for root extension; but, given only a proper temperature for the Rose to live in, and plenty of room for rambling *ad libitum* all over the place, and Rosa berberifolia is not that heartbreaking, troublesome creature which Dr. Lindley supposed it to be. It is very handsome with the crimson stain upon the bright yellow petals, but I do not see that it much surpasses Rosa berberifolia Hardyi, which is common enough. I have been rather pleased with growing it now, for my kind friend and neighbour, Sir George Hutt, who has done a great deal of campaigning all over the world, has been looking out for this particular Rose for several years, and he has been looking in vain. At Kew he found it not, and he has had the same measure of ill-success wheresoever he has searched for it. At last he has come across it under his nose—literally, on the other side of the road—and he tells me it reminds him of days gone by, when he was on service in Persia, or took a trip whilst on furlough to visit Babylon in its forlorn desolation.

I must not omit to mention, after a year's absence from home, the very satisfactory growth which that finest of all flowering shrubs, Fremontia californica, has made. It has been doing well ever since it was planted, and now it has attained a breadth of 20 feet from one side to the other, and a height of about 10 feet, which completely overtops the wall against which it is growing. Indeed, if the wall were higher, the shrub would be higher, for it is decapitated every winter by the wind, and it has to recover from the loss which it sustains as best it can. My idea is that Fremontia californica does not like being cut either by the wind or the knife. It goes to work in these parts with a sort of irrepressible vigour, and it would very soon resent any limitations of any kind. It puts up with the wind here just because it knows that this cannot be helped, and also because it has gained in breadth what it loses in height. I take good care to let nothing interfere with its sideways progress, and with this compensation it is more or less content. What a thrice-beautiful object it is at this season of the year. A space against my wall, and a little above it of 20 feet by 10 feet is now covered for the most part with glossy green leaves, and the leaves themselves are in many parts hidden by the golden starry-shaped blossoms, which are produced so abundantly. At a little distance it looks as though the wall were covered with armour of the brightest hue imaginable. Carpenteria californica must not be offended if I do not rave over it in this place. It is worthy of the highest eulogy, but I must ask you to take its rare merits for granted, and so also must it be with Pterostyrax hispida. Let anyone who has a garden in the southern counties of England never be content till he has these two in their glory. I must just note the sorrowful fact that Embothrium coccineum went down before the blaze of last year. It was not properly established, and the scorching rays of the sun were too much for it in its rather defenceless condition. Its place has been filled up with another and better specimen than the last, and this dripping summer suits it while it is young. I know from what I have seen in the Royal Gardens at Osborne that it will be all right, and will brave both frost and sun when it has really got hold of the ground. Phormium tenax variegatum, which came to me from a greenhouse in the Botanic Garden at Birmingham, has grown to a great size in the open ground, and is now in blossom for the first time. Several other kinds of Phormium keep it company, though they have not blossomed as yet. I like them all, for they have a kind of exotic look about them which is very interesting indeed. Mandevilla suaveolens will soon be in full blossom against the southern wall of my house. But I must soon stop, or you will be wearied with a kind of inventory of what I found here on my return home. Of bulbs there are many throwing up bloom at this time, *e.g.*, Watsonia humilis, which was very kindly given to me at Kew and is in perfection just now and very pretty indeed; Herbertia pulchella, which grows by its side and loves the Isle of Wight; Bravoa geminiflora, which is in strict accordance with its name; Brodiæas, which are waving by the hundred in the wind; Ornithogalum arabicum, which was benefited by the great heat of 1887; Crinum capense, of great size and strength; and beyond everything else in the bulbous way, Calochorti, which require no attention at all in the open ground, and which are of rainbow hues and defying the brush of any artist to do full justice to them, are all in their glory this month, and with other things of the same sort give a kind of chorus of welcome and repay one for all the attentions of the past. Lilies also add their voice in no feeble manner, and L. giganteum and L. Parryi are at this present moment in full blossom and in view from the window where I write. Cistuses must put up with the affront of silence on my part, though they do not deserve it at all, far—very far—from it, and I must only just say a word in favour of Dietes tricolor, which is painted most beautifully, and which I do not think is common. I got it from Herr Max Leichtlin, and I never shall be able to confess my obligation to him enough for this and other things. Mitraria coccinea, Littonia modesta, Philesia buxifolia, Bomaria Carderi, Sparaxis pulcherrima, Isopyrum thalictroides I would specially mention as doing well. Is it wonderful, then, that I like to be in my garden once more? If Adam and Eve were rather doleful when the flaming sword kept them from the treasures they had lost, so, I am sure, was I when strong educational reasons for my children and other things sent me into exile for a year. But the year has soon gone by, and if any other gardener has to go into banishment in a similar way for a long time, I advise him not to despair. The term will soon run out, and the chances are he will find more things prospering than failing on his return. No doubt he will miss some well-known and much cherished appearances, and he will sigh over the losses he has sustained, but let him look at the others which remain to him. A year adds wonderfully to the beauty of a garden which has made any way at all, and as with the parish so with the garden, the recognition of well-known and familiar faces after a term of absence makes up for enforced separation for a time. I am always bound to my flowers, as though they were living, sentient feeling, grateful creatures which care for me,

and I have never been more bound up with them than I am now on my return to them.

H. EWBANK.

NOTES OF THE WEEK.

Pelargonium Gloire Lyonnaise.—This is a zonal kind which, as seen at Maresfield, appears to be of exceptional merit. The trusses are of enormous size, the flowers large, and in colour a soft cerise-red.

Rubus deliciosus.—Let any reader who orders this beautiful Rocky Mountain shrub see that he gets it. It is the custom in some nurseries (whether intentional or otherwise I know not) to sell one of the American Blackberries under this name. My attention has been drawn to this by a gentleman who ordered the Rubus deliciosus and got the Blackberry.—G.

Aleppo Bladder Senna (Colutea haleppica).—This showy shrub, with Pea-like flowers of a rich tint or orange-red, is still in bloom at Kew, where since the early part of June it has been in flower. It is a pretty and most useful shrub, as it will flourish in almost any kind of soil, and seems to delight in poor sandy soil or a hot dry bank. Its continuous blooming is one of its best features.

Ornithogalum aureum.—We have much pleasure in enclosing you a flower of Ornithogalum aureum from MM. de Graaff, Leyden, Holland.—P. BARR & SONS.

*** A very bright-flowered Ornithogalum, of a rich orange colour, the flowers from the specimen before us being five together, and similar in shape, though smaller, than those of O. arabicum.

Linaria triornithophora makes an extremely beautiful border plant when taken care of and planted out early in the season. It is just now one mass of its large purple, yellow-lipped blossoms, and the effect is nothing less than wonderful; the leaves are somewhat lance-shaped in whorls of four, the stems rarely less than 2 feet in height. It is a very doubtful hardy plant, but cuttings struck in autumn winter well in a cold frame, and may be ready for planting out the following spring.

New white Torenia.—We saw this novelty for the first time in flower at Messrs. Cannell's nursery at Swanley, where it is considered a good thing. It is a pure white form of the well-known purple and white T. asiatica, and differs in no way from it except in the absence of colour. Some so-called white flowers are of questionable whiteness, but the flowers of this are totally white. It is robust in growth and free flowering, and must be regarded as a valuable addition to stove or warm greenhouse plants.

The Australian Violet (Erpetion reniforme) did not prove quite hardy with us in the open air last year, and although a few plants lived, they have not grown so well as those in pans in a cold frame. As a ground plant for corridors, &c., we find it excellent, and now it is quite a mass of lovely blue and white Violet-like flowers, almost hiding the foliage. It is so easily propagated from the creeping stems, however, that the trouble of keeping a few pots or clumps through the winter and planting them out again in spring is very small, and repaid a hundredfold by the result.—K.

Vanda teres.—I send a variety of the old Vanda teres, still one of the most beautiful of Orchids. This variety was named Vanda teres candida by Professor Reichenbach on account of the large white under sepals. To flower the plant well, it requires, unlike most other Orchids, plenty of light at all times, with the heat and moisture of the East India house. Grown under these conditions, it never fails to flower with me.—W. WHITAKER, *Crewe Hall Gardens, Crewe.*

*** A good variety of this beautiful Orchid; the flowers are of average shape, the sepals pure white, the other portion of the flower rosy magenta. It was first flowered by Mr. Whitaker, who kindly sent the present bloom.—ED.

Solanum Wendlandi.—In this new greenhouse climber we have a very beautiful plant, one that is sure to be generally cultivated when it becomes better known to nurserymen. It is unquestionably one of the handsomest of the ornamental Solanums, vigorous in growth, and extremely graceful. Its leaves are large, deeply lobed or with leaflets, and its flower clusters, which terminate the drooping shoots, are long and crowded with flowers each over 2 inches across and of a bright lilac-blue or purple. It is now in bloom in the Cactus house at Kew, and as it hangs from the rafter has a pretty appearance. It comes from Costa Rica, whence it was introduced a few years ago.

A hedge robed in scarlet.—A few yards of Arbor-vitæ hedge in The Woodlands Nursery at Maresfield now present a gorgeous aspect. The hedge is 10 feet high, and along its surface trail naturally long shoots of Tropæolum speciosum, wreathing and festooning it in brilliant scarlet. It is a happy combination of graceful foliage and brilliant flower, enhanced in beauty and heightened in effect by reason of the cool, moist season.

Phalænopsis Kimballiana.—This is a plant which I saw in bloom for the first time last week. It appears to belong to the Luddemanniana section, but is distinctly barred on a light ground. I must confess I was not enraptured with the plant, imagining from its name it was a better species; perhaps, however, it was a poor variety. Can any of my readers give me any information upon this plant? The one I saw reminded me of a bad form of P. sumatrana.—W. H. G.

Saccolabium cœleste.—What a charming species this is, and one that would lead us to hope we have many new forms of this genus. It is of free growth with fleshy, carinate, dark green leaves. The flower-scape is erect, and attains to upwards of 1 foot in length; the flowers are numerous, sepals and petals white, tipped with pale blue, lip wholly blue, which renders it both conspicuous and attractive. It was awarded a first-class certificate on Tuesday last by the Royal Horticultural Society.

A new Poppy.—A very remarkable variety of the great oriental Poppy has for some time past been in bloom at Mr. Ware's nursery at Tottenham. It does not appear to differ from the typical Papaver orientale, except in colour, which instead of being a fiery scarlet is a delicate blush pink, with a heavy blotch of black at the base of each petal. There has never before appeared such a distinct variety of this Poppy, and as it is so beautiful it must be looked upon as an important new hardy plant. Some flowers of it were shown on Tuesday at the Royal Horticultural Society's meeting, but when cut, the flowers look nothing compared with those on the plant, and especially in the dull light of the exhibition hall. Its name is Papaver orientale Pink Beauty.

Ixias and Babianas.—Messrs. de Graaff Bros., Leyden, Holland, send us, through Messrs. Barr and Son, Covent Garden, the following flowers: Babiana, a new Cape species, at present flowering in their nursery. Babiana rubro-cyanea is at present a beautiful sight, a large mass of it flowering freely in an open cold pit. Ixia alba, pure white. This is interesting, as there is no other Ixia which has not two or more colours in the flower. This is flowering freely in the open ground.

*** The Babiana has a lemon-yellow flower, the extreme base of a dull crimson; a distinct and handsome species. B. rubro-cyanea is vivid blue, the basal half rich crimson. The Ixia alba justifies its name; it is quite white.—ED.

Mariposa or Tulip Lilies, as the Calochorti are popularly called, have not had a particularly happy season this year. The coldness of the summer and heavy rains have bruised the delicate flowers and hindered them from developing so splendidly as in 1887. In the nursery of Mr. T. S. Ware at Tottenham they are excellent considering the weather, and succeed well in a light, very sandy soil and sunny, but dry situation. If between hedges or other light protection so much the better. A thin mulch in the winter will help to keep them from harm. In the southern counties the Calochorti do well, but in the north will require more protection than a mere mulch. C. venustus is the finest of all; it is a charming flower, large, white, yellowish, spotted and stained with crimson. The variety roseus is also white, rose-coloured at the base, and with a large brownish spot in the centre of the segments, which have a pinky tip. A lovely Californian species, introduced about 1868, is C. lilacinus, the globular-shaped flowers lilac in colour; C. luteus, yellow, the inner surface bordered with purplish hairs; and C. (Cyclobothra) pulchellus, have flowered exceedingly well this season.

Flowers from Cork.—Herewith I send you a few blooms of some useful autumnal flowering plants. The Gaillardias are, I consider, good for seedlings, and owing to the weather have produced quantities of flowering shoots. The flowers are very useful for decorations, as they last for a considerable time in water. The Helenium herewith is a very showy plant for a mixed herbaceous border, producing, as it does, such a profusion of its golden-coloured flowers. Herbaceous Phloxes are just now at their best, and I send a small spray of one of the best of the white-flowered varieties. White Rockets are blooming for the second time this season.—W. H. BLAIR, *Cork.*

*** An excellent selection of useful flowers, the Gaillardias representing a good strain.—ED.

Crinum Mooreanum.—The great beauty of this bulbous plant cannot be generally known, otherwise we should meet with it oftener in private gardens than we do. To call it the loveliest of all the Crinums is saying no more than the plant deserves. No other has so large and beautifully formed flowers of such a pleasing soft shade of rose-pink. Each blossom measures nearly 6 inches across the outspread petals and as many as a dozen flowers and buds are borne on one stem, which is always stout and erect, and from 2 feet to even 4 feet high. The perfume, too, is not the least among the plant's merits. The bulb is large and long, the leaves from 2 feet to 3 feet long and very broad. Being a native of Natal, it does not require, as most other Crinums do, a stove temperature, but succeeds best with greenhouse culture. It lasts in bloom for several weeks and usually flowers in early summer and again in autumn. Some very fine flowering specimens of it may now be seen in the greenhouse (No. 4) at Kew. It is known also under the names of C. ornatum and Makoyanum.

Spiræa ariæfolia has been one of the shrubs of the past week, and a very beautiful object it has been on many a lawn and shrubbery. To say it is one of the best of the Spiræas is but scant praise, it would not be too much to say that it is among the choicest of flowering shrubs. Its extremely graceful growth and the showiness of its great white plume-like flower clusters combine to render it so beautiful. The flowers are described in some books as dirty white, which perhaps expresses in an apt way the appearance of the flower clusters just as they are fading, but the artistic eye enjoys the dirty whiteness far more than the cold whiteness of such a shrub as, for instance, the Guelder Rose. I saw last week in a Surrey garden a specimen of Spiræa ariæfolia whose height was 12 feet and spread of branches 16 feet, and the whole was a mass of foam-like blossom. A more striking or more graceful shrub for an open lawn could not be named, and I should like to meet with such fine examples more often. But to get them so fine they must have liberal treatment and proper attention as to pruning.—W. G.

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CARPENTERIA CALIFORNICA.

This noble shrub has now fully established its reputation for excellence both indoors and out. The photograph from which the engraving was done was taken from a plant growing against the back wall of a greenhouse, the flowers being at their best in the third week in April. Bushes in the open air have been in flower from the beginning of July till the present time, the middle of the month. It is quite hardy in the south of England. The flowers are pure white, 3 inches across, with a bold group of stamens of a lively yellow. The foliage is also handsome, with a particularly bright and clean appearance. A coloured plate of this appeared in The Garden, January 29, 1887 (p. 100). G. J.

NOTES FROM OAKWOOD.

To the Editor of The Garden.

Sir,—I send a few notes of observations lately made at our experimental garden at Oakwood, Wisley. The late weather so objectionable to mortals and so bad for the hay, has thoroughly suited some plants. We have never before had Meconopsis Wallichi nearly in such beauty as it is in this year, both the blue and purple varieties. Having learnt at Kew that this requires a damper situation than M. nepalensis, we gave it this in some instances, and the cloudy damp weather seems to be just what it likes. The flowers of Iris Kæmpferi also last longer than they do in the sunny weather, which usually prevails when they are out. I have always believed that it was important the seed of this and other Irises should be sown as soon as ripe, that the roots should not be in the water, and that the clumps should not be disturbed. Unsuitable weather, my being busy, and other matters prevented the seed, which ought to have been in the ground last autumn, being sown till this May; to my surprise, it came up thickly in about a month. I should mention that the seed was kept in the pods, but many of them had opened. A few plants which I tried with the roots in water look healthy and are blooming well, and a visitor to our garden tells me that he has seen a sketch taken in Japan where the plants were quite in the water. Some of my oldest clumps being rather bare in the middle, I broke a few up in May into six or seven pieces and planted them quite near the undivided ones; the pieces are blooming the best. I think these unexpected results may be worth recording. George F. Wilson.



Carpenteria californica, growing on back wall of greenhouse. Engraved for The Garden.

KITCHEN GARDEN.

SEED SAVING.

Former generations of gardeners bestowed much thoughtful care upon saving seeds, whereas few now-a-days think of saving any. It is quite possible to err either way, as it is certain that very many kinds or varieties may be bought more cheaply, or, at any rate, more true to name than they can be saved, while, on the other hand, many do well to save the required number of certain varieties which cannot always be purchased. As a rule, home-saved seeds, if kept in a dry place, rarely fail to germinate more surely and strongly than do those supplied by the seedsmen, the latter not always being in a position to send out new or well-ripened seed. In dull, wet seasons it is almost impossible to properly harvest the seeds of various vegetables, and the private grower ought, when there is every prospect of the seed crops in the fields being very late and of doubtful quality, to save as many for himself as possible. Take Peas, for instance. The bulk of those for seed are grown in the open fields and without any stakes, and when lying a long time on the ground in dull, wet weather proper ripening is almost out of the question. In private gardens, however, it is possible to ripen seed even in the dullest summer yet experienced, provided always the attempt is not made very late in the season. We have two varieties, one dwarf and early, the other tall and late, both of which are much valued, and neither can be bought. A small breadth of the former is grown each year especially for seed, and this invariably ripens well. A sowing of the late variety is made in February or early in March, the row at the present time being in full bearing, but all or nearly all will be kept for seed, and I have no doubt about its ripening properly. Where the rows are gathered from as long as the most presentable pods are available, the refuse or small malformed pods ought not to be expected to produce good seed. In order to improve rather than impair the quality of the stock, the small pods and weakly seed ought to be rejected and only the best and first formed saved. The latter properly harvested and stored in bags in a dry room will, under ordinarily fair treatment, germinate quickly next season, and any not sown will be available for the following season. Many will scout the idea of preserving the produce of a whole row for seed, but I do not advise anyone to save much more seed of a favourite variety than they really need. If a whole row or even half a row is too much, then leave one-third or less untouched, this being a far better plan than attempting to save seed from the latest formed pods.

The seed of Kidney and Runner Beans often proves disappointing, as when either old or badly ripened it is liable to perish wholesale in cold heavy soils. In any case, quite new and well-ripened seeds germinate the most strongly, the plants apparently possessing a better constitution than do most of those obtained by sowing inferior seed. We always save several quarts of seed of the early Kidney Beans, notably Ne Plus Ultra, this being principally intended for sowing in pots during the winter and spring months, and find it answers better than any bought in. The plants to produce this seed are grown on a warm border, and are gathered from for a short time only, or until the later sowings are in full bearing. There is no necessity to leave many plants on a warm border especially for seed-producing, as the crops are rarely kept very closely gathered, and the pods quickly become too old. At the same time, the plants remain longer in a productive state when the pods are kept closely picked, and unless seed is wanted, none should be left on the plants to mature. Canadian Wonder, Negro Longpod, and other stronger growers ought to be lightly staked, and if a few plants are left

untouched these will ripen abundance of fine seed, which may be finally harvested by hanging the plants with crops intact against a dry, sunny wall. Many private growers save a few quarts of Runner Beans, but all do not take proper advantage of their chance to obtain better ripened seed than those who grow the seed for sale. A short row or a few plants ought to be grown especially for the production of seed, all the best and earliest formed pods on these being saved. As a rule, the seed is obtained from any pods that may have been missed by those who serve the kitchen, and it often happens that not many are overlooked till rather late in the season, the consequence being a supply of badly ripened seed. The production of seed greatly weakens a plant, and, therefore, it is unwise to leave many early formed pods all along the rows. It is certainly of importance that the seed should be formed early, but plants ought either to be reserved for producing it, or else the number of pods should be much limited in number. If a stock of any extra long-podded Bean is required, save only the very longest and straightest pods, and thereby improve the strain. Much that has been written concerning Runner Beans is also applicable to Broad Beans.

Some of the very best stocks of Broccoli are in private growers' hands, the seed being saved from a few selected plants each season. One or two plants properly staked and protected from rough winds will perfect quite a large packet of seed, this being cut early and thoroughly ripened in the pods on paper under glass. Autumn Cauliflowers and very early Broccoli can be saved from plants lifted and placed under glass, and this is also the best method of saving seed of any extra good early white Celery. If there is any wild Celery in the neighbourhood, it is very unwise to save seed of any late Celery, as I have seen one great failure owing to the stock of home-saved seed being impregnated by the pollen from wild Celery. Those who wish to save seed of any extra good stock of Cabbage must see that no other variety is grown in the neighbourhood, or otherwise a much mixed strain will be the result. One noted variety is kept pure with the greatest difficulty, the grower living in a neighbourhood where there are many small gardens. Cottagers are rather fond of saving Cabbage seed, and the grower just alluded to has to supply all in his immediate district with seed, in order to prevent them growing any other variety but his. Any extra good or selected heads should be duly cut once, or a second time if necessary, the seed produced by the old plants being kept through the winter. Most seedsmen supply a good strain of Paris White Cos Lettuce, but there is often much variableness in the character of the Black-seeded Brown Cos, and if a good stock of the latter is once obtained seed of it should annually be saved. For several years past I have saved more than enough seed of the valuable Early Paris Market Cabbage Lettuce and the strain has improved rather than otherwise. All that is necessary is to save a few good early plants, these being duly staked and eventually pulled up and the tops laid on paper under glass to ripen. Some of the best Onions grown for exhibition are from home-saved seeds. A process of selecting the finest and most perfectly formed bulbs and saving seed the following year from these gradually improves the stock, and even if there is no improvement effected, it is yet a gain to have new and well ripened seeds to commence with. If the attempt to save seeds of Onions and nearly every other vegetable is made, it should be carried out systematically, and particular regard should be paid to staking up the heads as well as sheltering them as much as possible from winds and rain. Home-saved strains of Parsley are not always so finely curled as those distributed by seedsmen, but they are often hardier, and that I hold to be of primary importance. Seakale and Asparagus seed are easily saved, and that of the latter can be cleaned readily after being hung up in a dry place for some time. One or two good fruits of Tomatoes will give all the seed required in one season, but Cucumber seed is not so easily obtained. Chance fruit or any left in a haphazard fashion to ripen will rarely yield seed. Well-formed young fruit on a healthy and not heavily cropped plant should be selected, and when both male and female flowers are quite dry the latter should be carefully fertilised with the pollen of the former. It sometimes happens that one good fruit will contain enough seed to meet all the wants of a garden for several years.

If comparatively few save seed of the generality of vegetables, Potatoes for planting are very extensively stored, but not so intelligently as they merit. Either they are selected and placed in heaps and not prevented from sprouting prematurely, or else are mixed with the ware or those intended for consumption. Others take good care of their seed Potatoes, but err greatly in selecting only the smaller ones, or those that however well they may be treated will yet fail to form strong haulm. It is the medium-sized tubers that should be principally saved for planting, these being stored thinly in airy sheds or outhouses and prevented from becoming weakened by sprouting much too early. W. I.

KITCHEN GARDEN NOTES.

Endive.

The value of a good supply of Endive during the autumn and winter, or until the earliest Lettuce is available, is scarcely appreciated so generally as should be the case. Not only is well-blanched Endive invaluable for salads, but where a great variety of vegetables is in demand it forms a good dish, and is especially serviceable when winter Spinach fails. Some kind of protection is certainly needed during the winter, but seeing that large quantities can be kept in frames, pits, fruit houses generally, and sheds, this cannot well be rightly urged as an excuse for not growing a sufficiency. Then, again, it is a quick-growing crop, it being possible to sow or plant the main and late crops in succession to early Peas, Potatoes, Cauliflowers, and Beans, the Endive being cleared off in time for the ground to be again well prepared for early crops of various vegetables next season. The aim, therefore, should be to grow abundance of Endive, and if there is more than can be used no harm will be done. Supposing seed was sown late in June, the plants, if preserved from slugs, ought now to be large enough to put out, as previously advised on page 609. In our case the most serviceable lot of plants is obtained by sowing seed late in July or not later than the first week in August, the whole of the plants thus raised being lifted and stored for winter use. More seed is sown about three weeks later, and as the plants resulting rarely attain a great size, these are more hardy and are left in the open ground. A very severe frost will kill most of them, but, as a rule, these small plants prove very useful in the spring. In either case it is the simplest plan to sow the seed where the plants are to grow, and the best varieties are the Green Curled and Improved Broad-leaved Batavian, the last-named being the hardiest and also the best. This season, owing to the moist state of the ground, but little preparation for Endive is needed, and heavy land especially is better not dug. We are content to clear the ground of rubbish and well stir the surface. Drills are then drawn 12 inches apart, moistened if at all dry, and the seed sown thinly and covered with fine soil. Directly the seedlings show through the ground they are well dusted over with soot and lime, and more of this is applied as often as necessary, or otherwise slugs will soon clear them off. The plants are at first only lightly thinned out, and finally to a distance of not less than 9 inches apart, blanks being made good with the thinnings transplanted with a trowel.

Lettuce.

Sowings made now often give good results, especially if there are no early and rather severe frosts. The ground is prepared for them and the seed sown much as advised in the case of Endive, though the drills may be drawn somewhat more closely together. Any of the Cos varieties may be sown, as well as Early Paris Market, All the Year Round, and Perfect Gem Cabbage Lettuces. The Paris Market is the quickest to heart in, but is scarcely so hardy as All the Year Round. The Cos varieties do not blanch well late in the season, but they are crisp and sweet, and mixed with Endive lay the foundation of a good salad. There will be no scarcity of Lettuces this summer; in fact, the supply is much in excess of the demand. The old Black-seeded Brown Cos proves one of the best either in a wet or dry season, but it ought always to be tied up, or otherwise the hearts will not blanch so well as they should do. Veitch's Perfect Gem is by far the best Cabbage Lettuce during the summer, no other variety we have tried forming such solid, crisp, and well-blanched hearts.

Garlic and Shallots.

These are late in ripening, but in warm districts ought now to be sufficiently matured for drawing and harvesting. When left on the ground after the leaves commence to become brown, the bulbs are liable to decay prematurely. We invariably plant or sow Parsley between the Shallots and Garlic, and after these are cleared off and placed in a dry position to harvest, the ground is hoed over and is soon covered by the Parsley. Small Onions suitable for pickling will be scarce this season, and the small Shallots will be in great demand in consequence. Shallots also keep longer than the spring-sown Onions, and are a good substitute for the latter. We shall have two or three bushels of Shallots, and in all probability there will not be one too many.

Vegetable Marrows.

Those planted on large heaps of decaying manure and rubbish are growing very vigorously, and as a consequence are rather shy bearing. It is advisable to thin out the haulm so as to let the light and air reach both the growth left and the roots. Subsequent breaks may prove more fruitful, and the female flowers will certainly set better when not smothered up by foliage. We, in our comparatively warm district, prefer to grow the Marrows on well-manured, deeply-dug ground, and they never fail either in a dry or wet season. This summer without much trouble they are surprisingly productive, the Pen-y-Bydd being perhaps even better than we have had it previously. In dry districts the Marrows in the open ground ought to be mulched with strawy manure, and they pay for occasional soakings of liquid manure or clear, soft water. A mulching also keeps the fruit much cleaner. Where they threaten to over-run each other it is advisable to pinch out the points of the leading growths, and timely stoppings also do away with the necessity for severe thinning out at a later date. Many err in leaving the Marrows too long on the plant. To have them in perfection the long ones ought to be cut when no more than 6 inches long and about 7 inches in circumference. These when cooked and served without being cut in any way are rightly designated Vegetable Marrow. Leaving a number to grow to huge proportions has a most weakening effect on the plants and impairs their further usefulness. Ridge Cucumbers are not thriving, but these also are in the healthiest state where planted in the open ground and sheltered. Many of those rooting in decaying matter have perished.

Various.

As yet the dreaded Potato disease (Peronospora)

has not become apparent, but many plants have curled, unhealthy foliage, and all want sunshine badly. The American varieties present a better appearance, and are cropping more heavily than previous experience in a showery season led us to expect, but the quality of the earliest, including Beauty of Hebron and the white form, Early Puritan, is anything but good. The Ashleaved varieties, however, are, all things considered, surprisingly good in every respect, and amateurs, as well as many professional gardeners, cannot be too often advised to save as many of these as possible for planting purposes. These can always be relied upon, whereas the American and many English-raised varieties are of good quality in favourable seasons only. Carrots and Onions are forming far too much top, and unless the latter especially are thinned out rather more than usual, they may fail to bulb and ripen off properly. Better have a thin crop of well-matured bulbs than double the number that are "bull-necked," and which will not ripen and keep well. Twisting down the tops of the Tripolis favours the growth of the bulbs and hastens maturation, but it is too early to treat the spring-sown similarly. The Carrots may be thinned out as fast as the roots are wanted for use, or a few bundles may be drawn for use in the stables. Turnip-rooted Beet is now fit for use, and ought not to be kept for the winter, as when overgrown it is of very poor quality. Runner Beans are growing very strongly, and it is advisable to pinch back many of the side shoots as well as the leaders when the top of the stakes is reached. This prevents crowding and encourages the growth of strong spikes of bloom followed by great clusters of pods. Kidney Beans set badly at first, but will soon be plentiful. Moulding up is not sufficient this season, and the rows ought to be given short stakes, or otherwise the crop will be thin and the pods very dirty. Kept upright and the rows well clear of each other, they are much more profitable than when they lie on the ground and smother each other. Peas in some instances are growing too strongly; in others they refuse to grow at all. Thrips and other insects are very plentiful among them, and quite cripple the young points. Ours are more sheltered than usual and are doing remarkably well. We commenced gathering from Criterion on July 11, and this generally excellent variety is especially good this season. As a rule it is later than Telephone, but this year it was the earliest by a week. The latter and Gladiator are now very plentiful, and Ne Plus Ultra promises to be most prolific. Where Peas are forming more haulm than usual they ought either to be topped or given a few taller stakes. Our rows being a good distance apart, or not less than 6 feet, we prefer to add taller stakes, and a longer succession of pods will result. It is worthy of mention that the tall growers are again the most productive, their stronger constitution carrying them through either a very wet or dry season. During the wet weather late sown seed rotted in the ground wholesale, and we are now sowing early and second early varieties, as these only will have time to produce crops before frosts intervene. Dickson's Favourite, Hair's Dwarf Mammoth, William I., Chelsea Gem, and American Wonder are all suitable for very late sowing. Cauliflowers are very good this season, and with us not much later than usual. The small early or forcing varieties, of which Snowball is a good type, have been very serviceable, and the hearts were quite large enough. Large or strongly rooted plants of Erfurt Mammoth, Pearl, Magnum Bonum, King of the Cauliflowers, Eclipse, and Autumn Giant, if given an occasional soaking of liquid manure, will form extra fine heads, and if the leaves are tied closely over these they will keep fresh and white much longer than when this precaution is not taken. There have been and are many blind plants among late Cauliflowers, and these as soon as detected ought to be pulled up and perfect plants set in their place. Weeds are everywhere abundant. The largest ought to be wheeled to the rubbish heap or burnt, the smaller ones being kept closely hoed up. W. I. M.

Asparagus (Male *v.* Female Plants).—In a report to the Horticultural Society of France M. Beurdeley lays before the gardening world the results of comparative trials made by him with male and female Asparagus plants, from which it would appear that the male plants are more productive than the female ones. From the 12 female plants which were selected for the experiment, 76 heads of Asparagus were gathered, or an average of about 6½ heads per plant, while from 20 male plants 244 heads were gathered, or an average of about 12 heads per plant. This experiment was only made in one year, and it would be well if similar trials were undertaken to demonstrate the truth or otherwise of the alleged difference—a matter of some importance to gardeners.—*Revue Horticole.*

Second early Peas.—As far as my experience goes this year, I find Telephone to be the best large podding second early Pea. It is really several days earlier than many others sown at the same time, so that market growers who have sown it early will find that Telephone is a capital successor to the first early varieties. This season there has been an appreciable break between the early and second early varieties, because the latter have been so slow to fill. Telephone has rather long haulm even on the ground, and is somewhat difficult for pickers to handle carefully unless trouble be taken; indeed, the inevitable injury done to tall Peas at the first picking tends to check sowing them, because later gatherings are so poor. For ordinary field work Peas from 2½ feet to 3 feet high are the best.—A. D.

MARKET GARDEN NOTES.

Seldom have market gardens and fruit orchards presented such a luxurious wealth of foliage as at the present date, for dull, showery weather has prevailed for weeks; consequently, growth has been extremely rapid—in fact, too much so for many crops that need sunshine to turn their sappy growth to useful account. Although our soil being porous is capable of carrying off any amount of water, yet we are anxiously looking for the long-deferred sunshine to bring crops to perfection. Work is abundant, for ground is at this time of the year cleared of a crop in the morning and another sown or planted before night, every day now being worth three later in the season.

Cabbages are being cleared off in large quantities and of excellent quality, and are as tender now as they were in May. Prices, however, have become low, as they generally do when Peas and Beans come in. Planting of spring-sown Cabbage is now being pushed on, and sowing the main crop for next season is being done under very favourable conditions, the soil being moist, so that growth is rapid enough to carry the young plants through the critical stages of early life.

Potatoes of the early kinds, such as Ashleaf and Myatt's Prolific Kidney, as well as the more prolific Beauty of Hebron and Early Rose, are now being lifted in quantity, as the space is required for other crops. The yield, however, is not equal to the promise of the abundant top growth, which monopolises the energy of the plant to the loss of root formation. Those that can wait will probably get a heavy yield. Foreign Potatoes have been plentiful, but of poor quality, and will be a drug on the market now that home-grown samples are plentiful and cheap.

Tomatoes do not promise so well as last year either under glass or in the open, for they are such sun-loving subjects that the last month of dismal weather has caused the bloom to drop, while the leaf growth is out of all proportion to the fruit production. The growths are being thinned out and the plants securely tied to protect them against the gales of wind that have been very trying of late, and in the hope that a fine autumn may ripen off a better crop than is now anticipated.

Cauliflowers, Broccoli, and winter green crops of all descriptions are being put out under very favourable conditions. No fresh manure is used at this time of year, but the soil is ploughed over and the plants put in between the furrows and a good dressing of soot is applied, which not only acts as a preventive against the attacks of slugs, snails, &c., but also as a manure.

Turnips are now in splendid condition for market, the damp weather just suiting them. Sowing the main crop for winter is now being done, and any land that Beans or Peas is cleared from is lightly broken up and the seed sown at once. The white-fleshed varieties are the ones universally grown for market.

Bush fruits have been greatly benefited by heavy rains, and are now clean and healthy, but the Strawberry crop has been very much injured by such excessive downpours. Fruit trees are lightly cropped, but the storms have cleared them of a good deal of the insect pests, and they are generally looking well in foliage. Young specimens are carrying far better crops than old-established trees. J. G.

Hants.

STORING RAIN WATER.

Although the drought of last year may be reckoned as one of the things of the past, its effects are still plainly visible, and we should be extremely negligent if we allowed the lessons so plainly written for us to pass entirely unheeded and take no steps to more effectually cope with future visitations of drought. I am well aware of the many things that check improvement, for the majority of tenants have too precarious an interest in the land they cultivate to sink much capital in such enterprises as store tanks, preferring rather to trust that Nature will be propitious in granting good seasons. Owners of property cannot plead such an excuse, and if they set the example others will only be too ready to follow suit, or, at all events, to pay a good interest in so necessary an outlay as that which saves the superabundant rainfall of one season for use when drought prevails. Taking a general survey of large gardens, I am confident that a month or six weeks of drought will bring a water famine, as far as stored-up rain water is concerned, although many have a good supply in ponds or ornamental lakes, while in the populous districts, where water companies run their pipes, all other contrivances are soon superseded by the saving of labour through the water being applied direct from the pipes by a hose. But when we come to study the effect on the plants we shall find that the difference is all in favour of the rain water.

Now the question comes, How are we to improve? for there can be no doubt but that if the water tanks are to be left to ordinary hothouse builders they will go on supplying, as they have done in times past, a tank for each house that will be full with about an hour's heavy rain, and empty after a few days' sunshine. It would be difficult to give any scheme that would be applicable to all sorts of places, but there can be no doubt but that which is done successfully at one place can be done in others. Those who were the greatest sufferers by the drought of 1887 will be the first to acknowledge that having a reserve of rain water always ready for an emergency is worth serious attention. Looking round the garden of Eaglehurst Castle, Fawley, Hants, a short time ago, I was greatly struck with the excellent supply of tanks which Mr. Watson, who has been gardener for a good many years, has by degrees had introduced into the houses in the place of the little makeshift ones he found in use when taking charge, for on the dry soil of the south coast he soon found that it was useless trying to grow succulent crops in summer without plenty of water. Even these large tanks that run the entire length of some of the houses are only a fraction of the supply stored for any special emergency, as on descending a flight of steps beneath the oldest portion of the castle, I came upon such an array of soft-water tanks as I had never seen before, and I was informed that they had all originally been cellars, stores, and living rooms, but a former owner of the estate had so great a dread of fire, that he converted the whole of them into water-tight tanks, with pipes leading from every building on the premises, so that every drop that is usually running to waste was here carefully stored for use. Each tank was numbered, and its holding capacity was marked in plain figures; a fire-engine pumped the water up and distributed it wherever it was

needed. Certainly the supply of salad and green vegetables that I saw at the end of a very dry summer convinced me that the water supply of gardens where only the ordinary means are adopted is one of the weakest points in English gardens.

Bricks, mortar, and cement are not very expensive, and the tanks once constructed are permanent improvements and not liable to wear out or need much repair. The evils of allowing drought to affect our fruit trees are very clearly pointed out by some of the highest authorities on the subject in the land. The temporary effect of drought in the shape of dried-up lawns and vegetables and salads that are hardly edible are but transient evils compared to the effects on fruit trees, as there can be no doubt that the deficient fruit crops of the present season and the extraordinary prevalence of insect pests are due in a great measure to the effects of drought. Nothing short of a radical change in the mode of storing our wasted supplies of rain water will overcome the difficulty. We are at present getting weather quite opposite to that of 1887, being cold, wet, and cheerless for July. But we must not wait for the next drought to come upon us before we begin to prepare to combat it, and they will be the likeliest to be successful who take time by the forelock and commence by storing the superabundant rainfall of to-day for the needs that are sure to come for it in time. J. Groom.

Gosport.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Myrica (Sweet Gale).—The Myricas, like the Sweet Fern Bush (Comptonia asplenifolia), though not strictly flowering shrubs, are so desirable for the garden on account of their sweet-scented foliage, that they cannot be left out of our list. The common native Sweet Gale



The Californian Osoberry tree (Nuttallia cerasiformis).

(M. Gale) should be in every garden where sweet-smelling plants are cared for. Though a native, it is not common or generally known. It is a thin growing bush, 2 feet or 3 feet high, with fragrant leaves with toothed margins. It likes a moist spot best, such as a bog, where it will spread by underground shoots and make a large mass. Even less common are the North American species, M. cerifera, or Wax Myrtle or Bayberry, M. pennsylvanica and M. californica, the latter a desirable evergreen, of dense growth with handsome fragrant leaves that keep green through the winter. It is a vigorous growing plant, especially in light soils, and is quite



The common Myrtle (Myrtus communis).

hardy, but, unfortunately, it is scarcely known outside botanical collections. The Wax Myrtle is met with in old gardens, having been planted for the sake of its spicy foliage.

Myricaria germanica (German Tamarisk).—A most elegant shrub, hardly differing from the common Tamarisk of our sea coasts. It has similar feathery foliage and bears long plume-like clusters of small pink flowers in great abundance. It grows 6 feet or 8 feet high in light, warm, sandy soils, and, like the true Tamarisks, is a capital shrub for planting on dry banks where little in the way of shrubs would flourish.

Myrtus (Myrtle).—In southern and coast counties the Myrtle (see illustration) is hardy enough to be planted as a bush in the open, for if its shoots become killed by frosts the bush recovers the following season. But as a wall shrub the common Myrtle is most generally grown, and house walls could not have a denser or more beautiful covering, especially if some showy flowered creeper like Clematis or Honeysuckle be allowed to ramble among the Myrtles. There are many varieties of the common Myrtle, every one with beautiful sweet-smelling foliage, and all with white flowers, produced more or less abundantly. The chief kinds are the Dutch, Italian, Roman, Rosemary or Thyme-leaved, Nutmeg, Box-leaved, and Andalusian. Besides these there are some with variegated foliage, the leaves being striped with gold or silver, or spotted and blotched. In planting a Myrtle against a wall choice should always, if possible, be given to a space protected from northerly and easterly winds which injure the tender foliage so much in early spring. The Myrtle is often grown in tubs or pots in old gardens for placing on lawns or terraces in summer and put under protection during winter.

Neillia opulifolia (Nine Bark).—This is the common shrub generally known in gardens under the name of Spiræa opulifolia. It is usually seen about the height of from 3 feet to 5 feet, but in good soils and sheltered places it makes a bush 8 feet or 10 feet high and as much through. It blooms about midsummer, the flowers being small and white in dense feathery clusters. A more important shrub for ornamental planting is the variety with golden leaves, named aurea. The yellow tinge of the foliage is extremely bright, and at a distance looks like a glowing mass of yellow bloom. It is a hardy and vigorous shrub suitable for planting anywhere.

Nuttallia cerasiformis (Osoberry). — A Californian deciduous shrub (see illustration) worthy of attention on account of its being one of the earliest shrubs to flower. Hardly before winter is past its abundant drooping racemes of white flowers are produced, and usually before



The Flowering Ash (Ornus europæa).



Flower sprays of Periploca græca.

the new leaves. When in bloom it bears a resemblance to the Flowering Currant (Ribes sanguineum) and is sometimes popularly called the early white Flowering Currant. Fully grown it makes a dense round-headed bush from 6 feet to 12 feet in height, and as it grows anywhere, in almost any kind of soil, and is thoroughly hardy, it is a desirable shrub for a garden.

Olearia.—A small genus of Australian and New Zealand shrubs, mostly evergreen, some of which are quite hardy in England without protection. The most valuable is O. Haasti, because it is the hardiest, the most beautiful in flower, and blooms in early autumn, when most other shrubs are flowerless. Fully grown, it is a dense compact bush from 2 feet to 4 feet high, has small round leaves, very thick and pale green, and not unlike those of the large-leaved Box. Its flowers are small, white, Daisy-like, very abundant, and borne in broad flat clusters, and generally the whole bush is covered with bloom. It begins to flower in the early part of August, and continues in bloom for a month or longer. It is of quick growth and flourishes everywhere in light well-drained soils, and makes a beautiful lawn shrub. A very effective group can be made by planting several together, intermixed with the scarlet Gladiolus brenchleyensis, which flowers at the same time. The other Olearias now in gardens, though not hardy enough for planting in the open, make capital wall shrubs. O. Gunniana (called also Eurybia Gunniana) is an Evergreen, producing a profusion of white flowers in early autumn. Other varieties are O. ramulosa, flowers small, white, very abundant; O. Forsteri and O. dentata, both excellent for warm walls, which they adorn with white blossoms in autumn. In the southern counties and warm coast districts all the half-hardy Olearias may be planted out in the open, and only require some slight winter protection.

Ornus europæa (Flowering Ash).—A handsome flowering tree (see illustration) of medium growth, suitable for small lawns or grouping with larger trees. It makes a dense round-headed tree, generally not exceeding 30 feet in



The Himalayan Flowering Ash (Ornus floribunda).

height. Its foliage resembles that of the common Ash, and the tree produces in early summer, usually about the end of May, large plume-like clusters of tiny flowers of a yellowish white. It should always be planted in an open spot, and if possible in moist soil, though it flourishes well in light, dry soil. It is a South European tree and is perfectly hardy, although its young foliage is sometimes injured by late frosts. There are various so-called species of Ornus (now placed in the genus Fraxinus) which do not differ materially from the common O. europæa. O. floribunda, an illustration of



The shrubby Jerusalem Sage (Phlomis fruticosa).

which is here given, is a native of the Himalayas, though more tender than the European species, and flourishes well in southern districts. It is named floribunda because of the profusion of its feathery blossom. The names found in catalogues, such as O. argentea, O. rotundifolia, and O. globifera, &c., apply to Flowering Ashes similar to, if not identical with those described.

Ozothamnus rosmarinifolius.—A neat little evergreen Composite shrub from Tasmania, quite hardy without protection in the south and coast districts. It is of slender and neat growth, has small Rosemary-like leaves, and bears a profusion of small white flowers in dense clusters about the end of summer. It flourishes in any light soil, and should be planted in an open sunny spot.

Paulownia imperialis.—A noble-flowering tree (see illustration) from Japan, but hardly suitable for our English climate, though in a few favoured places it succeeds well and numerous fine specimens have reached a considerable age. Its chief defect is that it comes into flower and leaf so early that the buds and often young leaves are injured by late frosts. This happens if the winter has been mild and the spring late, but if the reverse is the case, a



Paulownia imperialis.

glorious display of bloom is the result. It is noble in foliage as well as in bloom, for the leaves measure a foot in length, and have been known to exceed 20 inches. They are of a dull green and are generally lobed. The flowers are produced in erect spikes, and resemble in form those of a Bignonia, their colour being a delicate mauve-purple blotched inside with a deeper tint. At maturity the Paulownia assumes a dense, rounded head, but rarely exceeds 30 feet in height. In some south coast gardens, however, there are specimens nearly 40 feet in height. If the shoots of young plants of it are cut back annually, as those of the Ailanthus and Catalpa often are, the Paulownia makes strong growths bearing enormous foliage, and is then of sub-tropical aspect. The finest Paulownias are generally found growing on a light, but deep loam, and rarely succeed in very sandy or excessively stiff soils.

Periploca græca.—A very rapid-growing shrubby climber, excellent for walls, arbours, trellises, and the like, but on account of the somewhat unpleasant odour of its flowers it is not advisable to plant it against the walls of a

dwelling house. Its long, slender stems and branches form a dense mass, and at midsummer are covered with a profusion of brownish red flowers, which have a velvety appearance. It is deciduous, therefore not suitable for a screen in winter. Though a native of Southern Europe, it is perfectly hardy, and has been grown in English gardens for nearly three centuries.

Pernettya mucronata.—A beautiful little dwarf Evergreen of the Heath family from South America, hardy enough for every English garden and deserving of being planted everywhere where suitable soil exists. Its chief beauty beyond its evergreen foliage is its berries, which are produced in autumn after an abundant crop of small white blossoms. The berries are the size of small Cherries, and in the original form are in colour a dull purple, but now there are varieties with the berries white, rose, pink, crimson, purple-black, with every intermediate shade of tint. There are few more charming dwarf shrubs than these Pernettyas, and they should be planted in every garden where the soil is peaty, sandy, or of light loam, and even a heavy soil may be made suitable for them by a large addition of decayed leaf-mould and sand. For autumn and winter beds on a lawn near the house they are excellent, as they have a cheerful aspect throughout the winter.

Phlomis fruticosa (Jerusalem Sage).—Not an important shrub, but an interesting one and handsome when in flower. It is a twiggy bush about a yard high when fully grown, with Sage-like leaves covered with a yellowish white, woolly substance. Its flowers (see illustration) are large, of a rich yellow, and crowded in whorls at intervals on the stems. It blooms in summer, and is attractive for two or three weeks. A native of South Europe, but hardy in all light soils in the southern counties.

Piptanthus nepalensis (Nepaul Laburnum).—A very handsome shrub from the Himalayan region, hardy enough for walls, which it covers with a growth of large deep green leaves similar in shape to those of the common Laburnum. The Piptanthus has evergreen foliage, and in early summer bears long, dense clusters of large, bright yellow flowers similar to, but larger than, those of the Laburnum. It succeeds best in light soils, and in southern and warm localities withstands our winters without wall protection, but it is only to be recommended for walls.

Potentilla fruticosa (Shrubby Cinquefoil).—A pretty native shrub well worthy of a place in a garden. It is a neat-growing bush from 2 feet to 4 feet high, bearing in summer showy golden yellow flowers in clusters. A capital shrub for rock garden, dry bank, or other dry places.

Lonicera acuminata.—We do not remember having seen this Honeysuckle elsewhere than at Kew, where against the herbaceous ground wall there is a fine specimen of it which covers a large space and is now in full flower. The stems and branches are slender, the latter drooping in a graceful way, and the leaves, as the name suggests, are pointed. The flowers are large and purple, borne in pairs from the leaf axils along the young shoots. As every new Honeysuckle is a gain, this will interest those who are partial to these beautiful climbers. It comes from the Himalayas, and seems to be perfectly hardy with wall protection at Kew.—G.

Veronica Traversi is now in perfection of bloom, and is among the most attractive shrubs just now. Its bloom is unusually abundant this year, owing, no doubt, to the last year's heat and drought which ripened its growth thoroughly. Some huge bushes of it on the lawns at Kew, 4 feet and 5 feet across, making a perfectly symmetrical rounded mass, are covered with delicate mauve bloom. The special merits of this shrub are that it grows in almost any soil very rapidly, and is one of the best of all Evergreens for a chalk soil and exposed position. No amount of wind seems to affect it. It is decidedly one of the best of the New Zealand shrubby Veronicas now so numerous in our gardens.—W. G.

HARDY APRICOTS.

Two hardy Apricots are now in bloom in the Arnold Arboretum—a wild form of Prunus armeniaca, the original of the cultivated Apricot found by Dr. Bretschneider on the mountains near Pekin, and common in Northern China and Mongolia—a handsome erect shrub, 3 feet or 4 feet high, of which there are two specimens in the Arboretum, one with pale pink, the other with nearly pure white flowers, which precede the rounded, sub-cordate, abruptly acuminate, serrate leaves, and small yellow or red, thin-fleshed edible fruit. The second is the Siberian Apricot, which botanists now consider a geographical variety of the last. It is a taller plant, sometimes 20 feet in height, with a much lighter coloured bark and stouter branches, which are covered with pure white or pale pink flowers, preceding the ovate-acuminate leaves, and small, scarcely edible fruit. It is a common Siberian tree, extending through Northern China to Manchuria. It is very hardy here, and exceedingly ornamental when in bloom. Another Prunus from the mountains near Pekin is now in flower in the Arboretum for the first time. Dr. Bretschneider considered this the wild single-flowered form of the well-known flowering Almond, Prunus (Amygdalopsis) triloba, so common in gardens, and one of the most beautiful of all early spring flowering shrubs. The Pekin plant produces in great profusion large pink solitary single flowers on its naked branches, and, apart from its great botanical interest, is a handsome and very hardy shrub, well worth cultivation. Its habit, its bark and foliage appear to be identical with those of the double-flowered plant.

Prunus Simoni, which Maximowicz, in his monograph of the species of the genus Prunus of Eastern Asia, considers the wild type of the Nectarine (Prunus persica nectarina), is in flower. It is a dwarf tree, with erect branches covered, as well as the stem, with light grey warty bark. The leaves are oval, elliptical, denticulate, and borne on short petioles; they are preceded by small white flowers. The fruit has the grooved stone of a Peach and the smooth skin of a Plum. It is a brick-red colour, depressed-globular, and with a depression in the upper and lower sides. The flesh, which adheres to the stone, is yellow, rather juicy, although austere. It is not large, hardly exceeding 1 inch or 1½ inches in diameter, but doubtless might be greatly improved by cultivation. Prunus Simoni is a native of China, where, as well as in Japan, it is often found in gardens. Here it forms a small and perfectly hardy tree, with a strict pyramidal habit. Its resemblance to the cultivated Nectarine is interesting, and might be taken advantage of by pomologists to establish a new race of hardy Nectarines capable of supporting the extremes of our northern climate.—*Garden and Forest.*

SHORT NOTES.—TREES AND SHRUBS.

Lonicera flava nova is an excellent Honeysuckle with yellow tubular flowers. A specimen at Waltham Cross shows its merits.

The golden-leaved Quercus concordia is an exceedingly ornamental tree, and one of the best things of its kind amongst the golden leaved trees at Waltham Cross.

Golden-leaved Catalpa has noble foliage of a rich golden colour. An example of it in the Waltham Cross Nursery was most striking surrounded with green-leaved trees.

Picea Parryana glauca is a beautiful ornamental Conifer. It is most conspicuous in the central walk in the Waltham Cross Nursery, where there are medium-sized healthy specimens, the glaucous tips to the branches giving just the colour that is needed in a garden. It is not of a washy hue, but bright and decided.

A curious result of budding is seen in Messrs. Wm. Paul's nursery at Waltham Cross. A specimen of the common Horse Chestnut was budded with the showy variegated variety, appreciated by many for the distinctive colour and brightness of its foliage. Although this bud perished, the stock produced entirely variegated leaves, not only above where the bud was inserted, but even on the sprigs that issue from the base of the stem. This occurred in more than one instance. In short, the fact of inserting the bud, although this never grew, altered the character of the tree from a green-leaved to a variegated. Such cases are interesting and noteworthy.

Desfontainea spinosa.—This beautiful South American shrub, which bears a great resemblance to a Holly in foliage, is now in bloom. The flowers are tube-shaped, about 2 inches in length, the upper part of the tube being bright scarlet, and the lower yellow. This shrub, for which we are indebted to William Lobb, is too tender for most parts of England, as unless it be in an especially favoured spot, a healthy specimen is rarely seen; still, from the beauty of its blossoms it well repays the protection of a greenhouse. It can be increased by means of cuttings put in at this season and kept close until rooted. They often remain a considerable time before they strike, but if good cuttings are obtained they seldom decay.—H. P.

PROPAGATING.

Chrysanthemums.—On page 25 "A. D." records a very curious incident in striking cuttings of Chrysanthemums—curious, as being exactly the opposite of not only my own experience, but also that of my friends whom I have spoken to on the subject, for, like "A. D.," I put in a quantity of Chrysanthemum cuttings a few weeks ago and was obliged to pot some of them off directly they were rooted. In every case I found those around the edges of the pots were in a more advanced state as far as roots were concerned than the centre ones, for in many cases the whole of the outside ones were rooted, while of those within the circle scarcely one was struck. That immediate contact with the side of the pot greatly accelerates the action of rooting is well known to all propagators, and for that very reason pots 4 inches or 5 inches in diameter are generally used instead of larger ones. Another peculiarity that I have noticed in the case of many of the tenderest hard-wooded subjects such as Heaths, Epacris, and so on is, that while the usual, and indeed the most successful method is to cover the cuttings with a bell-glass, it often happens that a few of the outside cuttings are caught by the edge of the glass when putting it on after removal and bent down. Now those cuttings that are kept flattened down by the edge of the bell-glass are generally the very first to root, though they have been subjected to what one would consider as very injudicious treatment. This experience is not the result of one or two pots of cuttings, but is based on the practice of years.

Golden Drop (Onosma taurica).—This plant can be readily propagated by cuttings, or rather slips, put in at this season in an open border, and just covered with a hand-glass till rooted. For propagating purposes the young shoots (which are usually pushed out freely at this season from the lower part of the plant) should be stripped off when they have reached a length of 3 inches to 5 inches, and then dibbled into the soil which has been previously lightened by a liberal admixture of sand. When finished and a good watering given, very little more attention will be needed, except to shade from sunshine till they are rooted. After trying both methods, I prefer to strip off the shoots as cuttings rather than to remove them with a knife.

Hardy Heaths.—A ready means of increasing many of our hardy Heaths, that is to say, the low-growing forms, is to select those that have been planted rather deeply, and split them up after the manner of many herbaceous subjects, when they may be again planted in a somewhat sheltered position if possible. This operation is best carried out in early spring, whereas when it is desired to

propagate them by cuttings, which must be done in the case of the Tree Heaths, and is also available for all the others, the present season is the most suitable for the purpose. The treatment accorded to the cuttings of the hardy Heaths is much the same as that required by the greenhouse varieties, viz, select as cuttings the young shoots, and after stripping off the bottom leaves, dibble them into pots of sandy peat. A length of 1½ inches to 2½ inches is a very suitable one for the cuttings, and in preparing them for insertion the leaves should be stripped from nearly one-half of the lower portion. The pots should be well drained and filled with very sandy peat, leaving just enough space for a layer of sand on the top. The sand having been slightly watered through a fine rose, the pots are ready for the reception of the cuttings, which should be dibbled in firmly, and with as little delay as possible after being separated from the parent plant. From the delicate nature of the cuttings they will need to be kept as close as possible till rooted, and from this circumstance they may be covered with bell-glasses and then sheltered within a frame, but if there are no bell-glasses available for the purpose, as air-tight a frame as possible should be chosen. As cleanliness is a very important point in striking the more delicate cuttings, the interior of the frame should have a thorough whitewashing before the cuttings are placed therein, and care must be taken to shade them during sunshine. As shading is so necessary, a very good plan is to place the frame in a shady position. Seeds of many of the hardy Heaths are readily obtained, and may be sown in pots or pans of sandy peat, and slightly covered with a very fine sprinkling of silver sand. Then after being watered a pane of glass should be placed over the top and allowed to remain till germination takes place. When the young plants are large enough to handle, they should be pricked off, as they will grow more quickly than if allowed to stand too long in their seed-pans.

Hardy trees and shrubs.—Though the budding of Roses is in a general way well understood, it is not commonly known that many other subjects can be propagated in the same manner, notably among others the Hollies, Acers, Hibiscus syriacus, Plums, Apples, Pears, Peaches, Almonds, Laburnums, &c. The great points to bear in mind are to see in the first place that the bark is in a suitable condition for the purpose, and also that it is young, clean, and healthy.

Pomegranates.—These can be increased in various ways, for in the first place the single forms may be raised from seeds, and the double-flowered varieties grafted on to young seedling plants, while all of them can be struck from cuttings. The grafting is very simple, for it matters little what method is followed, provided as perfect a union as possible is effected and the after treatment suitable. In the case of young seedling plants that are established in small pots, the best time to graft them is when the stems are about the thickness of a straw to that of a pencil, as the union is then more perfect than if larger stocks are used. A very good plan is to head back the stock somewhat if it is rather tall, and having selected as a scion a good clean shoot from 4 inches to 6 inches long, graft it in the side manner as near the ground as possible. Side-grafting such as this is effected by making an incision in the stock just clear of the soil. In doing this the knife is held in a horizontal direction, and when done the knife is again inserted at 1½ inches to 2 inches above the other cut and brought down to it, thus removing a piece of the stem from the plant intended as a stock. With a sloping cut the scion is then fashioned in such a manner that it fits exactly in the place of that which has been removed from the stock, and must be then tied securely in its place. The plants should then be put in a very close frame, hand-light or bell-glass, and be well shaded from the sun till a union is complete, when air must be given by degrees. Under similar conditions cuttings formed of the current season's shoots will root if dibbled into pots of sandy soil, but in their case the action of rooting is hastened if the cuttings, after standing for two or three weeks in the cold frame, are introduced into a little more heat. This is the best time to put in the cuttings, as the shoots are now in a suitable stage for the purpose. T.

Stove and Greenhouse.

T. BAINES.

WORK IN PLANT HOUSES.

Chrysanthemums.—There is a wide difference between the aims of those who grow these popular flowering plants for exhibition and of those who require them for the purposes of general decoration, and the production of flowers for ordinary use when cut. On this account the treatment of the plants requires to be somewhat different. The huge flat-trained specimens, than which no greater monstrosities were ever introduced into gardening, are not the shape which those who have to provide for the decoration of greenhouses and conservatories can adopt with advantage, alike for their unnatural formality and the large space which a very few fill. The best shape is an erect bush, consisting of from five to seven stems to each plant in the large varieties, allowing a few additional branches to the Pompons. Where stopping, as already advised, has been attended to, the plants will consist of something like the number of shoots named; these should now be tied out to sticks, so as to keep the centres sufficiently open for the light to reach the inner leaves, without which the lower ones cannot be expected to keep green and healthy up to the time when the plants flower. One of the chief essentials in order to enable the plants to retain the vitality of the oldest leaves up to the last is that they be well sustained by liquid stimulants applied early enough. These, as I have always urged, should be given as soon as the roots have made fair progress in the soil given them at the final potting, in place of waiting until later on in the season when the buds are set in the way that used to be looked on as the correct treatment. Chrysanthemums are amongst the quickest rooters of all cultivated plants, and when from the striking of the cuttings onwards they have been well attended to, the roots will reach the sides of the pots in very little time after the last potting; it is then time to begin with manure water. It may be applied twice a week; at first give it weaker than will be necessary later on, when the roots have used up most of the fertile elements in the soil, and are in a great measure dependent on the liquid manure. My own practice has always been to plunge in coal ashes after the plants were in the pots in which they are to bloom, standing them in a place where they will be sheltered sufficiently from strong winds, but fully exposed to sun and air, allowing enough room between them to prevent the growth being drawn. Syringe overhead freely every afternoon; if this is done effectually insects will not give much trouble.

Araucarias.—A. excelsa has an elegant yet symmetrical habit that fits the plant for use in the form of miniature examples in 6-inch or 8-inch pots up to large specimens 15 feet or 20 feet high, where the house in which it is located is sufficiently lofty. When the plant has attained a large size it has a telling appearance in the centre of a group, whilst smaller examples are alike attractive where large ones are inadmissible. When the plants are properly managed they do not get so soon too large for the space they occupy, but as the object is rather to retard than to accelerate growth, no more root room must be given than necessary to prevent their having a starved, sickly appearance. Large shifts must be avoided, as when the roots are restricted the top growth is alike influenced. The plants increase easily from cuttings; consequently there is little difficulty in providing young plants to take the place of those that get too large and have to be made away with. As soon after the present time as young shoots that have got their wood moderately firm are to be had, cuttings should be put in; the points of the shoots about 6 inches in length make the best cuttings. Several may be put together in 6-inch pots, which nearly fill with a mixture of sand and loam, putting an inch of sand alone on the top. Give them a greenhouse temperature and cover with propagating glasses, keep the material moderately moist, and shade from the sun. Treated in this way the cuttings will callus during the autumn and winter and form roots early in spring, when they must be moved singly into 4-inch or 5-inch pots. Afterwards give them ordinary greenhouse treatment. Plants of medium size that appear to be suffering for want of room may now be moved into pots two sizes larger than those they have occupied. In the case of specimens that are likely to be too tall for the house in which they are kept, it is not well to wait until they have attained the full height that is available, as it is better to cut away about 3 feet of the top. This will cause the formation of several shoots which must be reduced to one. This species bears treating in this way very well, the young growth will scarcely show the effects of heading back, whilst the removal of the top will throw more vigour into the side branches, enabling them to keep longer in good condition. A. Rulei is a very distinct looking plant, which can be used in the same way as A. excelsa. It requires to be similarly treated.

Hard-wooded greenhouse plants.—There are many kinds of hard-wooded flowering plants that need to be exposed in the open air for some weeks during the latter part of summer, as if treated in this way they are less liable to the attacks of mildew in winter.

Boronias.—The different species of Boronia, except B. serrulata, require to be so treated, especially the lovely B. pinnata. The plants will now have made most of their growth; with the aid of artificial manure applied two or three times during the time the young growth is being made the season's shoots will reach 15 inches or 18 inches in length. In the course of the next eight or ten days the plants should be put outside. Syringe them overhead in the evenings, and see that they are free from green-fly, though these plants are not much troubled with it. When the insects are detected syringe with tobacco water or fumigate.

Aphelexis.—All the old flowers, if not already removed, should be taken off at once. They should be removed along with the whole of the stem that has produced them, as the stems that have borne flowers rarely push growth, and if retained they crowd the plants unnecessarily. In the case of large specimens that have much young growth springing from the base any long straggling branches may be cut out, by which means the plants will have a better appearance. Brown scale sometimes gets a footing on Aphelexis, but it does not flourish on the hard stems and leaves, so that it is easily kept under by going over the plants once or twice a year. A sponge is the best thing to remove the insects with. Syringe the plants slightly in the evenings; it will help the growth.

Hedaromas.—The best species, H. tulipifera, requires to be placed out of doors, without which its leaves, and also the flower-buds, are liable to become a prey to mildew during the winter. But it differs so far from other things that require a period of open-air treatment in summer, inasmuch that it must not be turned out until the bloom buds are set. If stood out before this stage is reached it rarely happens that the flowers set at all; consequently the formation of the buds must be looked for, and as soon as the ends of the shoots turn downwards in the way peculiar to the Hedaromas the plants should be stood outdoors. H. fuchsioides should now also be turned out.

Adenandras.—To keep these free and profuse-flowering plants in a sufficiently compact condition it is necessary that they should be cut in after blooming. This will have been done and the year's growth should by this time have extended an inch or two. The plants should now be put outside. Treat them in the matter of syringing similarly to the Boronias, as they not only like moisture overhead, but it is requisite to keep them free from red spider. Any young plants that were not potted in spring, and that appear too much confined at the roots, may now have a shift, but in the case of these it will be better to keep

them indoors. They must be shaded from the sun, and have the atmosphere kept a little closer about them than usual for a few weeks after potting.

ERIOSTEMONS.—Individually the comparatively small flowers of these plants are not so conspicuous as those of things that bear larger and higher coloured blooms; yet when well grown and densely covered with their star-shaped blossoms, they have a telling effect. To induce the plants to set a full crop of flowers it is necessary that they should be in the open air during the latter part of summer. When the wood is well ripened in this way scarcely a shoot will be made that will not bloom from the base of every leaf. They are little subject to insects; still it will be an advantage to syringe them freely every evening when the weather is dry. All the kinds will take more water at the roots than some hard-wooded things. They are amongst the most easily grown of hard-wooded subjects. E. neriifolia and E. intermedia are the best kinds, and are amongst the most telling of white-flowered greenhouse plants. They can also be forced easily.

POLYGALAS.—The distinct purple colour of the flowers of these plants, combined with their easy culture and the freedom with which they bloom, are sufficient reasons for their cultivation. The plants, after having bloomed and had their last season's shoots shortened back to within about 6 inches of where they spring from, will have pushed new growth and be better outside than kept under glass. They are not by any means delicate subjects liable to get out of condition, provided the syringe is kept freely in use from the time they start into growth until the cool autumn weather comes on. All the plants named should, when first moved out of doors, be put for a few days where they will be shaded from the sun except in the mornings and evenings. If this precaution is not taken the leaves are likely to suffer. When the foliage has got inured to the change the plants may be stood in the sun. In all cases a piece of mat or something of a like description should be fixed round the pots to prevent the sun coming in force upon them, as the heat striking through does much harm to the young roots, which in healthy specimens will be closely packed round the inside. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Climbers for Orchid house.—Will some of your correspondents recommend me a climber to train lightly over a lean-to roof of Cattleya house, also one for back wall of same house? The blooms must be useful for cutting, travel, and keep well.—L. E. R.

*** Bignonia venusta and Bougainvillea glabra or spectabilis for back wall. For winter on roof Ipomæa Horsfalliæ, and Stephanotis floribunda in summer on roof.—W. H. G.

Anthurium Rothschildianum.—A fine variety of this is in the Chelsea nursery of Messrs. Veitch. The spathes are richly speckled with scarlet over a white ground, and the yellow spadix further enriches the bright colouring.

Thunbergia fragrans.—This plant, which is not fragrant in spite of its name, is just now very fine on the rafters of a stove at Oakfield, Wimbledon, its pure white flowers backed by its dark green leaves being very effective, the system adopted by Mr. Luff, who has charge of this garden, being to cut it right down every season.—W. H. G.

Exacum macranthum.—This plant is simply exquisite in Sir Trevor Lawrence's garden just now; the vivid violet-blue of its flowers renders it conspicuous all over the house, and should conduce to its more extended cultivation. Those who have no idea of the lovely character of this plant will find it figured in THE GARDEN, Nov. 11, 1882 (p. 422).—W. H. G.

Ardisia mamillata is chiefly of value for its brilliant scarlet berries, but it is also interesting by reason of its hairy, rich green, ovate leaves. Plants of it are flowering with the Messrs. Veitch, but its flowers are white and inconspicuous, the berries that follow giving the value to the plant. It is of free growth, and useful for a stove.

Ruellia macrantha.—This noble Acanthaceous plant, which was figured in THE GARDEN (p. 604), I recently noted growing in quantity in the nursery of Messrs. Seegar and Tropp, who hope to flower it freely in winter and thus give a fresh impetus to the cultivation of this class of plants, many of which are really invaluable for winter decoration. The plant here named is one of the largest-flowered kinds, producing blooms of a charming rosy crimson hue.—W. H. G.

Ipomæa Thomsoniana (*E. W.*).—This appears to be the name of the flowers sent. By some it is looked upon as a white variety of I. Horsfalliæ; the flowers are produced in clusters, are large individually, and are pure white. It is an excellent stove climber, but it is not a new plant to cultivation, as you will find by referring to the trade catalogues.—W. H. G.

Nepenthes cincta.—This is a rare Pitcher plant, introduced from Borneo by the Messrs. Veitch with N. Northiana. It has been thought probable that it is a natural hybrid between this Nepenthes and N. albo-marginata, and in N. cincta we can trace the characters of both Pitcher plants. The pitcher is very straight, long, and blotched and spotted with deep crimson on a green ground. It is certainly a handsome addition to an interesting class of plants.

Four good Mesembryanthemums are M. micans, rich crimson; M. polyanthos, bright magenta; falciforme, with rose-coloured flowers as large as a halfpenny; and violaceum, violet-purple, very free. We wish that more interest were taken in the Mesembryanthemums, but no doubt they will receive a share of the attention they deserve. They are, as a rule, of easy culture, and bright ornaments for the greenhouse. The four kinds mentioned were in the group from the Royal Gardens, Kew, at the recent meeting of the Royal Horticultural Society.

White Swainsonia.—An old-fashioned plant neglected now-a-days, perhaps because unknown. It is worthy the attention of every gardener who has a continuous demand for white flowers. It is most elegant in growth, the leaves being long and the leaflets small and numerous, while the racemes of bloom, borne on long stalks, are crowded with large pea-shaped flowers of snowy whiteness. It is shrubby in growth and has a tendency to climb, so that it may be either trained to a pillar or rafter in the greenhouse or kept as a bushy plant in a pot. It flowers throughout the summer, affording a continuous supply of cut bloom. I saw it this week at Messrs. Cannell's at Swanley, where it is grown under the name of S. galegiflora alba, but its right name is albiflora.—W. G.

Fuchsia triphylla.—Among the flowers of special interest in Messrs. Cannell's Swanley Nurseries this extremely handsome little Fuchsia is one of the most remarkable. We have noted it several times before, but we have never seen it so well grown. There is a plant at Swanley with quite a dozen large trusses of bloom upon it, and the effect of such a glowing mass of the most vivid scarlet is very striking among the less brilliant tints of the ordinary Fuchsias. The plants are about a foot high, with slender shoots gracefully recurved on all sides, each terminated by a drooping flower cluster. The flowers are about 1½ inches long, and the sepals and petals are alike in colour. The leaves are of a dark metallic green, and on the upper parts of the branches are arranged in whorls of three; hence the name triphylla. It is by no means a common plant, and only recently has it been brought into prominent notice.—W. G.

Anigosanthus coccineus.—From Dr. Paterson, of the Bridge of Allan, come flowers of this beautiful plant, a member of the Blood-root family, which are natives of Australia, principally in the Swan River district, where their roots are sometimes eaten when cooked, but when raw are biting and hot to the taste. Anigosanthus contains several beautiful species, which, however, are now but rarely seen outside of botanic gardens, having been suppressed by the fashion for those plants which make the finest display. Anigosanthuses are nearly related to the Amaryllis family, and may be grown in a greenhouse the temperature of which does not fall below 40° to 45° in winter. The pots should be well drained, and the soil they thrive in is friable peat with about one part of sandy loam added. The following are the names of a few members of this genus which are well deserving the attention of the genuine lover of plants: Coccineus, dull crimson tipped with green; tyrianthinus, purple; Manglesi, green and crimson; rufa, yellow and red; pulcherrimus, scarlet and yellow; fuliginosus, black and yellow; and flavidus, brownish yellow and green, the last-named kind being the least desirable.

Trachelium cæruleum.—This is a curious member of the Campanula family, which lives and flowers with us in the open border saving in exceptional winters, but it does not reach that degree of excellence which it attains under glass. The above named species I recently noted on the rockery of a house devoted to miscellaneous plants in Mr. Schwann's garden, Oakfield, Wimbledon Park, bearing numerous large corymbs of flowers which are of a charming violet-blue. This plant is a native of Italy, and, as before remarked, is far more beautiful when grown under glass, although it does bloom in the herbaceous border, and for this reason I have seen it both grown and shown amongst stove and greenhouse plants, and its charming colour usually tempts the judges to pass it by without objection. This practice, however, of drawing the line too fine is not wise on the part of exhibitors, as it is liable to end in discomfiture; but by all means grow the plant, both indoors and outdoors, for its rich beauty, but do not place it on the public exhibition table as a greenhouse plant.—W. H. G.

GARDEN FLORA.

PLATE 659.

HIBBERTIAS.

(WITH A COLOURED ILLUSTRATION OF HIBBERTIA DENTATA.*)

THE plant here figured belongs to the natural order of Dilleniads. The genus is a large one and is principally confined to the Australian continent and Tasmania, but although so plentiful in these places, I am not aware that any member of the genus, or indeed any other member of the order, has been found in New Zealand. Hibbertias are either trailers, like the plant here represented, or they are shrubby plants. The whole of their flowers are of some shade of yellow, and as these are produced in great profusion, they are extremely showy, but they should be seen at a distance, for upon close contact they will be found to yield a very offensive odour, although it is not sufficiently strong to be observable at a little distance. As before remarked, they are extremely ornamental plants in a greenhouse, and are readily increased by cuttings. They should be potted in a compost composed of about equal parts of light loam and peat made tolerably sandy.

H. VOLUBILIS was introduced nearly a hundred years ago. It is the strongest grower of them all, and produces the largest flowers, and it is also the most disagreeably scented. It has obovate lanceolate leaves, which are downy beneath, and sessile pale yellow flowers some 2 inches across. These are produced in the months of March and April.

H. GROSSULARIÆFOLIA was introduced some time in the year 1803. It is also a climbing kind, the stems being tinged with red, and bearing foliage much like that of the Gooseberry. It is a profuse bloomer, and the yellow flowers are produced in the spring months. It may be also used with good effect as a basket plant.

H. DENTATA, the subject of our illustration, first came to this country in 1816, and it forms a pretty object when trained on a rafter, the flowers being very numerous, and certainly among the least objectionable in the family for their odour. It blooms in March.

H. CUNNINGHAMI and the succeeding species both came to this country in 1823. This is an elegant plant of a somewhat distinct aspect. It is a twining plant, and produces its yellow flowers in the month of June after the majority of the kinds are past.

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. G. Moon, March 6, 1888. Lithographed and printed by Guillaume Severeyns.



H. PEDUNCULATA is also a June-flowering plant, and is distinguished from its congeners by the long leaf-stalks; it is, however, now seldom to be met with.

H. PERFOLIATA is another distinct plant, producing its yellow flowers in May, so that the greenhouse can be furnished with various shades of yellow with Hibbertias alone for four months in the year. It was introduced in 1842.

H. BAUDOUINI.—This is the most beautiful kind with which I am acquainted. It is an outlying species, having been discovered in New Caledonia about 1870. It is of shrubby habit, with alternate leaves, which are for the most part crowded together near the ends of the branches. The leaves are narrow with a pale mid-rib nearly a foot long, green on the upper side, paler and somewhat glaucous beneath. It produces erect spikes with the blooms all arranged one way. Each of the spikes bears about a dozen flowers, which are bright yellow and nearly 2 inches across. In my estimation this species is the noblest in the genus.

W. H. G.

FRUIT GARDEN.

W. COLEMAN.

THE STRAWBERRY GARDEN.

IF coming events cast their shadows before them, from the numerous notes which within the past three months have appeared in print, it is already evident the formation of new Strawberry plantations this autumn will be extensive and general. For some years past we have been jogging along in a happy-go-lucky sort of way by planting a new bed and destroying an old one as opportunity served; but in how many gardens, it might be interesting to learn, have a great number, myself included, been inclined to leave well alone, fondly believing that old friends, especially late varieties on borders facing the north, would go on for ever. If we would have railway reform, the now rather old adage says, "kill a director." If we would brush up Strawberry culture, we need not injure anyone, as running the gauntlet of a hot, dry summer, backed up by a water famine, will answer our purpose much better. Old beds last year gave very fair crops of fruit, but so great was the demand for water that in nine places out of ten the hose was withdrawn as soon as the last parboiled Strawberry was gathered. Rain in due course fell, but it came too late and too light to be of any use; consequently the majority of the crowns were too weak to form flower-scapes, and those which did had nothing in the way of active roots to force them forward, much less to support the strain of setting and swelling. The best old beds I have seen this year are those over which the runners and foliage had been allowed to extend prior to the advent of drought and heat, and the worst, although much younger, *i.e.*, containing the greatest number of blind plants, are the broad allied flats suddenly exposed by the removal of the runners and some of the old foliage. From these remarks, it must not be inferred that I approve of allowing Strawberries to run wild, much as I believe that the fruit and roots enjoy the shade provided by Nature; but, on the other hand, I wish it to be understood that the loss of half their vital force should be softened down by heavy mulching and abundant supplies of water. Many, I am afraid, went through the first half of the programme, but mulching being scarce and the springs low, they could not perform the second. In this opinion I am strengthened by the fact that one of my largest beds, now rising two years and planted as well as a bed could be planted, contains the greatest number of blind, but gross-foliaged plants, whilst others planted fourteen months ago upon Lovell's system are as fruitful as any man need wish to have them. This being so, the question arises, how are we to avoid this disappointing uncertainty in the future? The answer, I think, lies in a nutshell—never allow old beds to stand over three years; let the space chopped up be equalled by the space planted; prepare the ground well by deep trenching and manuring or marling according to its texture; grow upon it a half-fallowing pulverising crop, than which there is nothing to beat early Potatoes, and put out vigorous maidens in August or April. I am not going to weary readers of THE GARDEN with matters of detail, as many of them know quite as well as I do how the work should be performed, but rather I wish to remind them that no time should be lost in getting to work, as hundreds of acres of old beds will be destroyed so soon as the crop is off, and under these circumstances good runners should be secured for planting in August, or, straining a point, as late as September. If the ground cannot be got ready by the latter date, why then it may be wise to put the rooted runners into nursery beds and defer permanent planting until a dry tilth offers in the spring. In the selection of

PLANTS, it is hardly necessary to say, they should be taken from fresh, young vigorous parents, free from mildew and spider, and, notwithstanding the recently advanced theory that blind parents produce fertile runners, I would say, give preference to stocks known to be fruitful. It is all very well for the fatalist to drive within an inch of the precipice, but the prudent man, until the Royal Horticultural Society or the Crystal Palace Conference, composed of practical growers, has settled the point, will hug the safe side by layering from selected plants put out specially for propagating from. This is easily managed by planting single or double rows of runners every year a foot or so apart and denuding them of every flower-scape early in the spring. Those who have not made this provision and are likely to run short of plants should secure a supply from friends or the trade who make a speciality of the Strawberry and can be depended upon. Indeed, I question if a general exchange of young plants amongst gardeners who have all they require would not be highly beneficial, as we cannot shut our eyes to the fact that Potatoes and a host of plants and trees start with renewed vigour when carried from light or heavy soils to others of an opposite character. The worst stocks are plants which have been weakened by forcing, by spider and mildew, and yet we find many people clinging to and recommending them under the quite erroneous opinion that they beat the open-air maidens of the previous year in point of earliness. Next comes the question of

PLANTING upon properly prepared soil, for without a good foundation the attempt to build is worse than useless. A winter and spring fallow and constant working in dry weather no doubt answer best, especially for May planting, but for runners of the current year the culture of early Kidney Potatoes reduces the ground to the finest tilth, and backward indeed must be the season if the crop is not fit for lifting by the middle of August. Just now I have south and west borders, from which we are digging Mona's Pride and Myatt's Ashleaf Potatoes, the preparatory crops for early varieties of Strawberries. The ground last autumn was well manured with old mulching from the fruit trees, and worked two forks deep to within 4 feet of the foot of the wall. The bottom spit containing the bulk of the manure was not brought to the surface, now free from weeds and as fine as lime, as I have to look to the roots of my Quince stock Pears as well as my Strawberries, and this substratum of rich soil forms the reserve force when the Strawberries are in full bearing. Our old garden soil being so full of humus, I do not fork any manure on to the top spit, but having made it as firm as an old pasture by treading, take out good sized holes, 2 feet apart each way, fill in with new loam and place a single plant in the centre of each cube, water home, and mulch heavily. New or scarce sorts which I wish to multiply with all speed are planted in the same way right across the open quarters, only instead of placing the rows 2 feet apart, a clear space of 2 yards is allowed. A path 18 inches in width down the centre of each space leaves 2 feet 3 inches on each side of the row, and upon these spaces the runners are pegged out right and left as regularly as may be, and in this way from a single row of plants put out in May a fruiting bed 4 feet in width is secured by the end of the season. Planters who have not tried this plan and think of putting out new sorts will find this the most rapid mode of increasing limited stocks, as every runner can be utilised and grown into a fruiting plant alongside the parents, or, the runners being too thick on the ground, a portion of them may be thinned out in September for forming new colonies. North and east borders backed by walls carrying Cherries and Currants, which also require netting from birds, I break up early in the autumn, dress with burnt refuse and fresh soil and repeat the forking as frosty weather favours through the winter. Upon east borders I plant Elton Pine for coming in after the main crop on open quarters is over, and the north borders are devoted to Oxonian, not perhaps the best late Strawberry, but the variety which best answers my purpose, as one net supported by stout roofing laths resting on the coping of the wall and upon a breadth of rabbit wire along the front protects Currants, Cherries, and Strawberries, all pretty well ripe together in July and August. Spring planting with strong bedded runners of the preceding year here answers best, as the plants have the summer before them in which to get thoroughly established before winter. But lacking a good stock of autumn bedded plants, extra strong runners of the current year layered upon squares of turf in preference to small pots are put out very early in August. As few crops of vegetables can be taken off a north border before this date, the best and perhaps the only preparatory crops are widely-sown drills of Cos Lettuce and summer Turnips.

New Strawberries at Chiswick.—In the Chiswick garden of the Royal Horticultural Society there has been this year a trial of Strawberries, to four of which have been awarded first-class certificates, each having special merits that entitle it to the distinction. King of the Earlies has already been noted this season; it is a very early variety, of the character of Black Prince, the fruit conical, deep red, and good in flavour. Besides these qualifications it is an excellent cropper. At Chiswick this variety had some of its fruits ripe in the third week of June, and the same remark applies to the variety Noble, one of Mr. Laxton's gains, and certainly a most noble Strawberry. It is very early, and carries a large crop of red fruits of excellent flavour and handsome appearance. As early Strawberries these two acquisitions of Mr. Laxton are of the greatest value. The Countess, also certificated, is another variety that we shall see more of. As in the case of the last-mentioned, its fruits are large, the colour pale red, and the flavour good, whilst it also crops moderately well. Lucas is a variety known to some; its fruits are large, variable in shape, and of dark colour; the flesh is juicy, and

the flavour pleasant, though perhaps not altogether so to some palates. Another Strawberry, viz., Waterloo, was referred to last year in THE GARDEN as fruiting at Chiswick. It produces enormous fruit of a deep purple colour, almost black; the flesh is of a blood hue, delicate, and juicy. It is a late variety, and the large fruits would look well on the exhibition table. This has been a poor year for Strawberries. There was an abundant promise, but the constant rains have rotted much of the crop, and especially of the large-fruited varieties, washing out the flavour so brisk and fresh in a favourable season.

THE STRAWBERRY.

ONE often hears the remark made, "Strawberries do not do well in my garden; I hardly get enough to repay the labour bestowed on them." Now, as a matter of fact, the Strawberry might be made to flourish in almost every garden in England, whether it is large or small. If the soil is not naturally suitable, there must be a little extra trouble taken at planting time, and, given this, there are few fruits that recoup the cultivator better. A poor, shallow, sandy soil is about the worst one can have for the Strawberry, especially with such seasons as we experienced in 1887; and as failure is most common and frequent under these conditions, I may venture to deal particularly with them. Ground that has been devoted to spring Broccoli comes in well for a Strawberry plantation, and the plot selected should have a good dressing of stiff manure deeply dug into it as soon as the Broccoli is cleared. For land of this description there is nothing better than cow manure, as this keeps the soil cool and moist, and is a long time before it becomes thoroughly decomposed. Where it is not possible to obtain sufficient manure, I have found a few loads of rather stiff road sidings a capital substitute, or this latter may be used with the cow manure in equal proportions. Trenching may, perhaps, be resorted to in the case of stiff land, but with a light soil it is neither advisable nor necessary. A deeply-dug quarter, into which the dressing has been evenly worked, will answer the purpose admirably. When the surface is dry the ground may be trodden fairly hard to settle it down before the plants are put out, and when this operation is performed, the bed should receive a good surface mulching. This, with the exception of an occasional weeding, is all the attention it is likely to require for twelve months. It is simply necessary, especially in hot and dry weather, to keep the ground cool and moist until the plants are growing well, and the mulching may therefore consist of any rough material. The after treatment consists in never touching the bed with fork or spade, and all runners, old fruit trusses, &c., should be removed as soon as possible after the fruit is over, and a heavy annual top-dressing of good half-rotten manure given as soon as the bed is cleared. On the last-mentioned operation depends in a great measure the well-being of the bed—at any rate, on light sandy soils. Treated in the above manner, the Strawberry plantation gives very little trouble, and a good return will be ensured. It will be seen from the foregoing that I am no advocate for annual planting, so far, at any rate, as small gardens are concerned. There is a difference of opinion as to whether young well-rooted plants or old forced plants make the better plantation. Personally, I prefer the last-mentioned, as they yield a heavy crop the first season after planting, and will continue to produce capital results for four or five years. If the balls of soil are thoroughly soaked before planting, and the after surface mulching attended to, no watering will be required, even in the hottest summer. When the intending planter is not in a position to obtain old forced plants, it is advisable to take the first chance of securing runners. If these are pegged to small pieces of turf, and the latter kept moist, very good plants with an abundance of roots will be quickly secured. This pegging into turf is preferable to layering in the natural soil, as the plant does not suffer from removal. The distances from plant to plant in the permanent bed must vary with the variety. Such a kind as La Grosse Sucrée or Black Prince can be planted at 18 inches, but very strong growers in some soils will require nearly 30 inches. Where the space intended for Strawberry culture is limited, there is no better variety than Sir J. Paxton, and it is a great and consistent bearer; whilst Black Prince is the best for preserving. Vicomtesse Héricart de Thury is also useful for preserving, and the colour may be more acceptable; but the variety Black Prince makes decidedly the richest preserve.—E. BURRELL, in *Field*.

TOMATOES.

THE Tomato is such a popular subject that it can be found in almost every garden, and the variety of conditions in which it can be found cultivated is as remarkable as its widespread popularity. With regard to the production of early crops, there is no doubt but that the best are obtained from plants grown in pots; indeed, I am quite satisfied that for the majority of private growers the pot system is decidedly the best, as not only giving less trouble and anxiety in the main, but as affording earlier results. Indeed I am prepared to go further and say that in average seasons it is more satisfactory to confine the roots in pots for what I may call an ordinary supply of fruit. More than one market grower that I am acquainted with obtained their earliest fruit this season from plants grown in pots, and they intend next year to extend their operations in this direction. That the plants should arrive at a fruiting condition earlier when grown in pots is not difficult to understand, while the growth the plants make is not so succulent as when the roots have a wide run in a border of soil. Tomatoes when grown in pots come into flower earlier, and the fruit always sets better in the early part of the season when the roots are restricted for space than when they have more room. It is a well-known fact that over-luxuriance is not desirable at any stage of the growth of Tomatoes, and the less space there is for the branches to cover the more necessary it is to curb the growth. I have proved this season that plants in pots even when carrying a good crop of fruit can be too highly fed, for I had to withhold the liquid stimulants that had been liberally supplied, as I found that the blossoms did not set so well as they ought. A change, however, from liquid manure to plain water quickly set matters right again. A Seakale pot turned bottom upwards and filled with soil, if stood on a gravel walk that runs close to a wall with a south aspect, is about as profitable a way of growing Tomatoes in the open air as any that I have practised or seen, as the warmth which surrounds the roots must be much greater in such cases than when the roots occupy a border. Plants grown in this way of course require more feeding, but there is a decided advantage in having the roots more under command, especially in such a season as the present.

J. C. C.

The Cherry Tomato.—A friend of mine grows this Tomato exceedingly well, for the two-fold purpose of securing a plant of an ornamental character as well as for its fruit. I saw his plants in the middle of July; they were growing in pots and trained to the front wall of his house which has a south aspect. Some of the bunches of fruit were at that time nearly ripe and had a very pretty effect, but it must be understood that the plants were raised in heat early in the season and grown on in the same temperature for some time. They had in fact formed the fruit which was ripening in a warm greenhouse before they were placed in the open air. The plants occupy pots 12 inches in diameter, and carry a good crop of fruit. The growth is of a wiry character as compared to that of the large-fruited sorts. The fruits, which are of a bright red colour, hang in long clusters, and when ripe are about the size of a May Duke Cherry, and as they will remain some time on the plant without cracking they are decidedly ornamental. This is the only grower of my acquaintance who makes a speciality of growing Tomatoes for pickling, as small fruits are better than large ones for that purpose. He prefers those sorts that will give the greatest amount of fruit, although he never wastes any of the large ones. Those that are not ripe in the autumn are pickled in vinegar instead of being taken to the greenhouse to be ripened in the usual way. I am assured that those who care for pickles prefer the Tomatoes to any other kind.—J. C. C.

FRUITS UNDER GLASS.

PINES.

THE general stock of plants now swelling off fruit will require very generous treatment both as regards heat, moisture, and stimulants. The first, I need not repeat, should be secured from the sun when it again penetrates the gloom, and fermenting material in preference to sharp firing. The second, from the liberal damping of all floors, walls, and other surfaces on fine mornings, and a gentle dewing over with tepid soft water when the house is closed in the afternoon. The last by the use of clear diluted liquid drainings from the frame ground, or soot and guano water alternately, as Pines, like all other plants, make best progress when their food is varied. Not only may one or all of these be given to the roots when they are really in condition for taking stimulants; but also in a mild form they may be used for damping the surface of the bed, not omitting the stem-roots now clustering about the axils of the lower leaves, and for filling the evaporating pans whenever night firing is necessary. Last year, at this time, we were able to lay up the shovel and the poker, and we premised a series of hot bright summers which should lighten our bills for fuel, but our joy was short-lived, for once more we are registering one degree of frost in July and shivering over a brisk fire in our sitting-rooms shortly after the hour of sundown. By way of intensifying our difficulties, dealers in coke, with one accord, are crying "Scarcity" and raising the price; but fuel must be had and burnt pretty freely, otherwise the culture of tropical fruits will make very slow progress. This is the gloomy side of the picture; but we must hope for brighter days; possibly they may dawn before these lines appear in print, and, if so, the Pine-grower must be on the alert with the lightest of shading, as it is after these long spells of dark cold weather that the sun leaves his mark upon tender exotics growing under modern roofs of 21-oz. glass. I do not, as a rule, advocate shading, but there is no rule without an exception, and this is one of the peculiar seasons which calls forth a warning note. But returning to the swelling fruit, I must say when the most forward of the latter begin to change colour they may be lifted out and placed in a drier and cooler house, not only to ripen gradually, but to finish up in a sound condition, which will favour their keeping for a considerable time after they are perfectly matured. A light airy pit in which there remains a spent tan or leaf-bed is suitable; but the partial shade from the foliage in an early vinery, still containing ripe Grapes, answers equally well. Where convenience favours the adoption of this course, a glut can often be avoided, and later fruit can be kept progressing by a liberal supply of moisture and stimulants, combined with early closing.

Successions.—If all has gone well, the plants intended for throwing up fruit next January or February will now be filling their pots with roots and making a sturdy growth of broad fleshy foliage. To these plants, it is possible, slight shade may be advantageous through the hottest and brightest part of the day, but provided they can be kept from browning or burning, the less they are shaded the better. One of the cardinal points in growing them on to early maturity is the maintenance of a moist, steady bottom-heat from tan or leaves, the latter being preferable, as they contain in a fermenting and decaying state all the elements of plant life. Mild stimulants, especially when the pots are full of roots, also are necessary, but watering in cold, dark summers is an operation which cannot be too carefully performed, as it is much easier to get the plants too wet by constant dribbling and syringing than to restore the soil to a healthy growing condition. Water, as a matter of course, must be given freely when absolutely necessary, but once a plant in a moist bottom-heat is well watered, it will stand

a much longer time than many imagine before another full supply is needed.

Young stock.—In order to keep up a good stock of plants in various stages, all the best suckers, at least for the present, should be taken off the old stools as soon as the fruit is cut. The old-fashioned method of drying the suckers before they are potted having been given up, they are now trimmed and firmly potted into 6-inch or 7-inch pots in rather dry compost, moderately watered and plunged into a sharp bottom-heat at once. If the bed ranges from 85° to 90°, and the suckers, kept close up to the glass, are lightly shaded from bright sun, they will form plenty of roots, and be ready for a shift without the aid of a second supply of water.

The Orchard House.

If any of the early forced trees still remain in a pot-bound condition, no time must be lost in getting them transferred to others a size or two larger. Having made the balls thoroughly moist by repeated waterings or soaking in warm water, turn them out, divest them of all crocks, inert soil, and straggling roots, repot firmly by well ramming the compost, which, by the way, should be dry, and return them without delay to their former quarters. Here they must be kept rather close for a few days, slightly, but frequently moistened with the syringe, and the weather being bright, carefully shaded to prevent the foliage from flagging. When these as well as the earlier potted batch by the sharp, crisp appearance of their young leaves show that they are taking to the new compost, the ordinary routine, so far as relates to syringing and ventilation, may be gradually resumed, but after the first watering, which should penetrate the whole of the new and rather dry soil, future supplies must be carefully administered. At no time must the trees feel the want of water, as drought is the forerunner of spider and premature ripening of the wood and leaves; neither must they be checked by an excess, which sours the new soil and prevents the roots from running freely into it. Trees which do not require repotting will take liberal supplies of weak liquid, but unless the surface roots are washed bare, no more rich top-dressing will be needed at least for the present. When the buds are well up and plump, the trees may be transferred to a warm sunny spot in the open air, where the pots can be partially plunged, or, better still, loosely protected by Fern or long stable litter, which will shade without depriving the roots of the ripening influence of solar heat. From this stage forward all strong laterals must be persistently pinched, a little fresh loam may be cast over the surface roots, and the supply of water as regularly and carefully given as though the trees were bearing fruit. Should the weather continue wet and cold the foliage will remain free from spider; but otherwise, a good washing once or twice a week with the hose or garden engine will be found necessary.

The general house.—Trees in this compartment now swelling up heavy crops of fruit should have a full supply of weak liquid at every watering, and, equally important, the rich top-dressing kept in reserve must be plied little and often as the roots show upon the surface. When pot Peaches commence the last swelling, they make rapid progress to maturity; hence the necessity for feeding regularly and well, as pure water must take the place of liquid when the fruit shows signs of changing for ripening. Meantime, maintain a moist growing atmosphere by syringing about 6 o'clock on fine mornings and again at 4 p.m., when, to secure the largest size, the ventilators should be closed to maintain a good volume of solar heat. These, after a few hours, may be reopened for the night air, or they may be kept close until the following morning, whilst ventilation by day must be regulated by the period at which the fruit is wanted for use. Although fruiting trees, no matter how closely they are pinched, increase rapidly in size, it frequently happens that about this time they are found much too close together for the well-doing and colouring of the fruit. The remedy for this is obvious, but impracticable, unless former directions to place each pot upon two bricks or tiles have been carried out, as it is suicidal to move a tree after its roots have found their way into the border. In mixed collections room can often be made by turning barren trees out into the open air. Early Plums and Pears, too, although carrying good crops, we often treat in this way from choice, as we find full exposure in a sheltered place improves the quality and flavour. Cherries cannot be kept too dry, airy and cool when ripe, but they must be protected from birds, whilst Plums, especially the finest late varieties, including Golden Drop, will stand good syringing and feeding until the fruit begins to change colour. From this stage forward they will require regular supplies of pure water and plenty of unconfined atmospheric moisture, but no more water must touch the fruit, as Plums, like Grapes, lose their charm when the bloom is spotted by the syringe. If Strawberries are grown in the orchard house, runners pegged down in 3-inch pots or squares of turf should now be fit for shifting into the fruiting pots. The best and most expeditious method, however, is filling the fruiting pots with suitable compost and pegging down upon them, an operation which any unskilled person can be taught in a few minutes. Shifting from small to large pots, on the other hand, calls for skill and much practice, as it is so easy to get the tiny balls too deep when the crowns become throttled or not deep enough, when they are apt to become dried out early in the season. The secret of success in the preparation of these plants for fruiting in pots consists in keeping the crowns well above the soil, which, if dry, cannot be rammed too firm, the advantages gained being the avoidance of small pots and balls and double labour, the certainty of full exposure of the crowns, sitting as it were on the top of the soil, to sun and air when ripening in the autumn, and plenty of space for top-dressing in the spring.

Cherries and Plums.

Where a separate house is devoted to these and where all the earliest varieties usually grown in pots have been cleared of fruit, they should be placed in the coolest and most airy part, where they can be well syringed and regularly watered to keep them fresh and free from spider. If potting is necessary, no time should be lost in getting them transferred to others a size or so larger, or reduced and returned to the pots they have recently occupied. In either case, the first step is the proper moistening of the balls, as no amount of after watering will restore a dry ball to a satisfactory condition; the second is firm potting, in fact, solid ramming until the new compost is as impervious as the old balls to the quick passage of water; and last, but not least, the trees, especially those which have been reduced, should be kept close and moist by frequent syringing and light shade until the roots have taken to the new compost. When growing freely they must be gradually inured to light and full air, with the view to fitting them for exposure in the open quarters of the garden. The fine late Bigarreaux now ripe or ripening upon trees, trained to trellises or growing in pots, must be kept dry overhead, cool and airy, with just sufficient root moisture to prevent the foliage from suffering. When all are ripe the house may be well shaded with two or three thicknesses of small-meshed fishing-nets to break the direct rays of the sun and keep out marauders, but an eye must be kept on the fruit and the most gentle warmth turned on the pipes for an hour or two on dull or wet mornings should mould put in an appearance. The weather, on the other hand, becoming hot and the external atmosphere dry, daily sprinkling over the floor and surface of the bed may be essential to the maintenance of a fresh, plump condition of the fruit. The potting of Plum trees and the management of the fruit when ripe in no way differ from those of Cherries, but late varieties, which require more time, more water, and prolonged syringing, sometimes give a great deal of trouble, hence the importance of keeping the two sections in separate blocks or compartments, although the partition dividing them may be nothing more than a sheet of canvas. Glass, of course, is better, but few men, gardeners especially, get all they require; indeed, I question if a long apprenticeship to subduing difficulties is not often the stepping-stone to successful culture. Plums and Cherries being so easily excited, constant forcing soon changes their season and renders them very liable to burst their best buds late in the autumn. Potting or removal to the open air are retarding factors in the management of portable trees, but when we come to fixtures growing in borders and trained over trellises, the matter assumes a different aspect. This, however, can be got over by selecting late in preference to early varieties for training near the glass and by making the whole of the roof lights movable.

Pot Vines.

Some time ago I suggested the removal of past fruiters to make room for the introduction of their successors, thoroughly ripe canes and roots being of more importance than many people imagine. If the young Vines have been started and grown close to the glass in light airy houses, this change, as a matter of course, is quite unnecessary, but how often does it happen that they are crowded through the early stages, and get transferred to south walls to have half their leaves battered off by the wind, or possibly a July hailstorm; and this is called ripening. Years ago, thousands of Vines were hardened off in this way, but with what result? why, half of them, especially the strongest and best looking, did not show fruit at all, and those which did, evinced a strong tendency to transform their puny bunches into tendrils. As few gardeners can afford these risks; the first thought should be directed to the growth of moderately strong-jointed canes under the full influence of heat, air, and light, and when the foundation is laid, the plan I have suggested is the only safe route to certain fertility. The wood of Vines intended for starting in November should now be nearly ripe, but unless these conditions prevail, the sooner inventive genius finds a suitable place under glass the better. Here they may have plenty of fresh air and full exposure to the sun, when it shines, water in sufficient quantity to keep the roots fresh and healthy, and an occasional syringing to prevent the spread of spider. If backwardness suggests speed, let them be fed until the buds are hard and plump and the canes are the colour of Barcelona nuts, but ventilate freely through the day, and shut up in the afternoon with dry sun heat.

Vines from eyes of the current year are not often expected to make fruiting canes, but many of them, as planting out proves, might be grown to this condition were they removed earlier from the propagating pit, and trained up the wires in a light warm vinery. Gardeners who make it a practice to grow a few pot Vines every year, not because they really require them, but simply to have a few strings to their bow, do not feel bound to put on full power, otherwise very small ripe canes would show quite as freely as ordinary cutbacks. It is now too late to shift spring-struck eyes into anything larger than 7-inch pots; not so to get them out of close cramping pits and bottom-heat beds, and place them where they can have room to develop their foliage, and ripen thoroughly before autumn. If judiciously managed, and carefully worked out of bottom-heat immediately after they have taken to the compost given at the final shift, there are few makeshift places better than the surface of the border, and not too far from the front pipes in a newly planted vinery. Here, tiles or boards to prevent downward rooting will be necessary; all laterals and sub-laterals should be pinched at the first leaf, the points when they have made 6 feet, and afterwards the top laterals may be allowed to ramble. Although their future may be cutting down to a single bud for potting or planting out in the spring, it is easy to imagine the superiority of these bright healthy rooted Vines over others which have been crippled in close pits, and have but few roots ripe enough to survive the winter. W. C.

A pretty screen.—At Lythe Hill is a prettily designed and effective method of hiding the bare Vine borders from the garden walks. The borders are broad, and reach from the vineries down to the walk, while their mulch of long strawy manure looks somewhat untidy. To hide this, there has been made a number of wire hurdles with an outer frame of iron and spikes to go into the ground, with

galvanised wire, such as is used for training wall trees upon, running across obliquely in two directions, small screw bolts holding them together. Upon these climb Sweet Peas, Canary Creeper and Nasturtiums, which in the course of the summer effectually conceal their support, effect the desired object in hiding the borders, and form a nice fringe to the garden walk. When winter comes and the flowers have decayed, the hurdles are removed and free access is again obtained to attend to the Vine borders.—A.

THE CHERRY AND THE STRAWBERRY AS FOOD.

THE acid fruits of spring and early summer must not be used carelessly, for there are dangers lying within their delightful and refreshing berries. Popular theories about the physiological effects of these fruits have not exaggerated their services to the body at a season when such good offices as they are able to perform are peculiarly timely and grateful to the physical and decidedly comforting to the spiritual man. They stimulate the ducts of the liver to pour out bile, their abundant mineral substances correct the acidity of the blood and the secretions caused by the excessive meat diet of long winter months, and in a strict and proper sense they act as house-cleaning agents, rendering the dwelling of the soul a good deal more comfortable for its tenant. Where, then, in view of such great benefits, lie the dangers connected with such excellent fruits? Not certainly in the juicy pulp and its refreshing acids, for the latter, especially by their stimulating effects on the nerves of the digestive organs, act most wholesomely upon the liver, the stimulation upon the membrane of the intestines being transferred to its bile ducts in an easy and natural manner, and not with such agitation and excitement of the digestive apparatus as follow the use of purgative drugs. Ripe Cherries, especially the sub-acid varieties, are among the best of cholagogues. No person who has the misfortune to have a moody and jealous liver should lose that opportunity for improving its condition afforded by every return of the Cherry season. But as one values his life let him beware of swallowing Cherry stones.

Every part of a fresh and ripe Cherry is eminently wholesome excepting the hard and round seed, which being entirely indigestible, must traverse the 18 feet or 20 feet of sensitive membranes in the bowels before it ceases to be an irritating and disturbing intruder. If it enters the large intestines it does no more injury, but just below the smaller intestines is a little sac (the remains of a much longer stretch of intestine in some of man's ancestors) into which the Cherry stone may fall and produce the worst consequences. After the Cherry season the trouble will reveal itself, suddenly, if at all. The number of cases of serious illness due to such an accident is few, but the danger is one so easily avoided, and the difficulty so fatal when it does occur, that all Cherry-eaters should be forewarned.

Strawberries cause difficulties of a much milder character, but of frequent occurrence. Their small seeds irritate the sensitive surfaces of the intestines and produce constipation, or perhaps a general irritation of the nervous system without other symptoms. "I suppose," remarked a sagacious, but somewhat sarcastic physician to the mother of a nervous child, "your boy has been eating freely of that very healthful fruit, Strawberries?"

There is no more wholesome fruit for those with whom they agree, but it should be thoroughly understood that all persons cannot eat Strawberries with impunity, and that they are to be cautiously given to children of nervous temperament having a delicate digestive apparatus.

Although Cherries contain more acid than Strawberries, they also contain more sugar, and should therefore be eaten without any addition and in as fresh a state as it is possible to have them. The Cherry is a fruit to eat under the tree. The Strawberry needs the condiments of the table—a little sugar and even cream, and for some persons a little pepper. Strange as it may appear, there are some unfortunates who can eat only peppered Strawberries, but there is no necessity for anyone to use the sauce once provided for the writer at an Italian inn, namely, lemon juice! Those who use Cherries freely, should keep in the cupboard a little old cheese as an antidote to indigestion; not for constant use, but as one's sensations may demand. Its regular or even frequent use is not to be commended. If Cherries are to be kept even so long as forty-eight hours they should be gently stewed in their own juices, with not more than a quarter of a pound of sugar to a pound of the berries. Even slightly stale, raw Cherries are objectionable. The true method of obtaining benefit from the Cherry is to use it when in season, fresh and freely, especially at meal time, dispensing with milk dishes or with any other foods that tend to interfere with its digestion. Those who make use of marketed Cherries, or who use milk with even the fresh fruit, are taking a position over a small volcano, whose eruptions, although not frequent, are of a rather serious nature.

Strawberries may be eaten with cream, but there is an antagonism between the conditions necessary for the digestion of milk and fruits, especially Cherries and acid fruits. We prefer them with sugar only, even as a matter of taste, and likewise for the stomach's sake. Cream seems to conceal the true flavour of good Strawberries.—*American Garden.*

FERNS.

W. H. GOWER.

THYRSOPTERIS ELEGANS.

THIS is the only species belonging to the genus. It is found only on the island of Juan Fernandez, and would appear to be rare in its native habitat, whilst in cultivation it is seldom met with. I recently observed a handsome plant of this fine Fern in the nursery of Messrs. Seeger and Tropp at Dulwich, and it occurred to me at the time that the number of collections in which this species is to be found might be counted on one's fingers. The largest example I have ever seen is a specimen in Mr. Warren's garden at Handcross, in Sussex. Thyrsopteris elegans is considered by some authors to be allied to Cyathea, whilst others place it in the Dicksoniæ, and the latter, in my opinion, is its right position, coming near to the genus Balantium, in having decompound, multifid fronds, but whilst Balantium has a decumbent stem, that of Thyrsopteris is erect, although it appears to take a long time to become arborescent; the crown of the plant and the bases of the fronds are densely clothed with large chaffy, dark brown scales; the stems upwards are clothed with wool. The fronds vary from 1 foot to 4 feet or 5 feet high, the lower pair of pinnæ in a mature frond being from 3 feet to 4 feet across; the texture is leathery and the colour vivid green. In a young state the plant is equally handsome, and when sterile it has somewhat the appearance of a gigantic Davallia canariensis. When fertile, however, the lower pair of pinnæ lose their leafy appearance, and become reduced to coriaceous, globose, cup-shaped receptacles. These panicles of sori induced one author to propose the name Panicularia for this Fern, but the name Thyrsopteris, signifying a bunch or raceme of fructification, had already been given it by Kunze, a celebrated German authority upon Ferns. It is a handsome Fern, which should be planted in half peat and loam, with a portion of sharp sand. It requires good drainage, and thrives in a cool fernery. In its native island it is said to grow in shady, damp woods on the mountains, but to be nowhere plentiful.

Dicksonia Berteroana. — This is a species which like the last named plant is found only on the island of Juan Fernandez, and was introduced some time ago by the Messrs. Veitch, of Chelsea. It is an arborescent species attaining to a height of some 12 feet or 15 feet, and bears a spreading head of fronds which are tripinnate, and somewhat rhomboid in outline, coriaceous in texture, the pinnæ finely cut, smooth and bright green on both sides.—W. H. G.

STOVE BASKET FERNS.

NOTWITHSTANDING the great variety of plants adapted for this purpose, it is astonishing how few kinds are grown in this way, and these for the most part are of the commonest, and not the most beautiful that can be obtained. Ferns in baskets, when well grown, form one of the chief attractions and ornaments of a Fern house. I therefore would draw the attention of those having the convenience to grow basket Ferns to the kinds here named as being worthy of a place in every collection of such plants. The pattern of the basket is too frequently made of the first importance, and plants are procured to fill it which will not overgrow the design. I contend that this is of the least importance, and that every effort should be made to convert the basket into an elegant mass of greenery, to the total exclusion of both material and pattern. Ferns when grown in hanging baskets require a much greater amount of attention than when grown in pots immediately under the eye, and in too many instances I have seen what should have been a beautiful ornament reduced to a veritable eyesore through neglect and careless culture. Supposing the basket chosen for the reception of these plants to be made of galvanised wire, which I consider the best material, it should be first lined with a thick layer of living Sphagnum Moss, as this retains the greatest amount of moisture, decays very slowly, and prevents the soil from being washed through. Upon the bottom should be placed a layer of drainage material, and for this purpose medium-sized nodules of charcoal are to be preferred on account of lightness. The soil for the kinds named below should consist of about equal parts peat, light loam, good leaf mould, and sand, into which the plant may be placed and the whole pressed down firmly, after which it should be well watered, and in a day or two the basket and contents should be immersed in a tank of water, this operation to be performed once or twice every week, according as it becomes necessary.

GONIOPHLEBIUM CUSPIDATUM.—This and the other kinds named here have been removed from this genus by the late J. Smith, and constitute his genus Schellolepis, a name derived from some peculiarity in the scales surrounding the sori. They are also distinguished by having the pinnæ jointed to the main stem. This character is a good one and of great importance to the cultivator, inasmuch as he will find that if the plants are allowed to become dry the pinnæ will fall out from the socket-like joints, leaving nothing but the bare stems, which is sufficient proof that great attention is necessary in the matter of watering. The plant here named has a stout creeping rhizome, sparingly furnished with small light brown chaffy scales, from which it produces fronds some 3 feet or 4 feet in length, about 9 inches of this being naked stem. The fronds are pinnate, and from 9 inches to 1 foot long, the pinnæ wide apart, pointed, and bright shining green in colour; the sori are rich yellow, immersed in the substance of the frond, raising distinct button-like protuberances on the upper surface.

G. GRANDIDENS is considered by some to be identical with the above, but some forms are very distinct, and may be grown side by side for the sake of variety. The fronds are slender, from 1 foot to 3 feet in length; the pinnæ are deeply and beautifully serrated on the edges, with a long tapering point, and rich deep green in colour. The sori are brown and immersed, showing through on the upper side. It is a somewhat rare, yet exquisitely beautiful Fern.

G. SUBAURICULATUM.—This, in my opinion, is at once the most graceful and magnificent basket Fern in cultivation, and nowhere have I seen it in better condition than in the Kew collection. The fronds are from 3 feet to 7 feet or 8 feet long, produced from a somewhat slender rhizome, which is covered in a young state with ashy grey scales. When at its maximum size it bears some fifty pairs of pinnæ; these are rather narrow, toothed at the edges, somewhat ear-shaped at the base, hence its name, the numerous sori forming a raised row of protuberances over the

upper side, which materially add to the beauty of the creeping fronds, the colour of which is bright green.

G. VERRUCOSUM is a noble Fern, and one that has never been common. The fronds are from 2 feet to 4 feet long and nearly 1 foot broad, the pinnæ being some 6 inches long and nearly 1 inch wide, and of a uniform bright green. The sori are large and numerous, forming conspicuous button-like protuberances on the upper side.

These plants are all natives of the islands in the Indian Archipelago, and all require strong heat and moisture. W. H. G.

ORCHIDS.

W. H. GOWER.

ONCIDIUMS OF THE CRISPUM GROUP.

THE plants belonging to this section are of stately growth, and characterised by their rough wrinkled pseudo-bulbs, of a brown or bronzy hue and ample leathery leaves. They produce much branched and many flowered panicles, the individual blooms being large and showy, and on account of their noble mien, they stand in the first rank for exhibition purposes. Care must, however, be taken that the spikes are not left too long upon the plants, as the enormous quantity of blooms sometimes borne upon a single panicle speedily exhausts the bulbs, and thus weakened, they take a very long time to become restored to health. This is a subject far too little thought of by Orchid



Flower of Oncidium curtum.

growers, who appear to become so charmed with the beauty of the blooms that the health of the plant is never thought of until the flowers have fallen, when in many instances the plant is irretrievably lost, and we are told the particular plant flowered itself to death, a condition for which the cultivator is entirely to blame, as no plant should be allowed to exhaust itself in this manner. On the first sign of the bulbs shrivelling, if not sooner, the spike should be cut, and the plant encouraged to produce new growth. Oncidium crispum and its congeners are very apt to suffer in this way, although they appear to be so robust and vigorous, and I am of opinion that the drying they received in the winter months during the earlier Orchid days was the principal cause that led to so many deaths and obtained for O. crispum the character of being difficult to manage. We are told that these plants are found wild on the Organ Mountains in Brazil, but this gives but a very indefinite idea of the treatment they require under cultivation. I was once told by a collector that they are usually found growing upon dead trees, and if this is a fact it leads one to infer that they enjoy more sunlight than is obtainable on living trees bearing foliage. This appears to be borne out by the conditions under which the plants which have come under my notice during the past few years are grown. In the winter treatment of this section a great difference has come about, and with beneficial results. Formerly the plants were subjected to a thorough rest at this season, but now, although much less water is given than in summer, they are not allowed to suffer from drought at any season, the resting being brought about by a reduction in the temperature.

Basket or block culture is the best system to adopt with the crispum section of the Oncidiums. If baskets are used they must be well drained, sufficient rough peat and living Sphagnum Moss being placed about the roots of the plants to hold the moisture, as during the summer months they enjoy a copious supply. When grown upon blocks the plants thrive equally well, but more attention is required to keep them moist. In whichever way they are grown



Oncidium curtum.

the plants should be made firm and fast, and not be allowed to rock from side to side whenever taken down. The basket or block should be hung up near the roof glass in order to allow the plants all the light possible. Shading will be necessary from the sun's rays during the hottest part of the day, and a free circulation of air at all times. In the growing season the cool end of the Cattleya house will suit them admirably, and in winter, if growth is mature, they may be rested in the Odontoglossum house.

O. CRISPUM has long been an inhabitant of our gardens, and it is included in the list of plants grown by the Messrs. Loddiges, of Hackney, who give the date of its introduction as 1831. They also had a variety named pallidum, and another luteum, but I am unacquainted with these. It is a plant which varies considerably, especially in the size of its blooms, but all are remarkable for being nearly destitute of the yellow colour which is so prevalent throughout the genus. The pseudo-bulbs are oblong and furrowed, rough, and of a brown or bronzy hue; these bear a pair of broad, leathery, dark green or bronzy leaves on the summit. The scape is erect and spreading, attaining a height of 3 feet, much branched, frequently bearing upwards of fifty flowers, each of which is from 2 inches to 3 inches across. In the best varieties the sepals and petals are rich reddish brown, beautifully crisp on the edges, the broad three-lobed lip being of the same colour in front; the crest, small side lobes, and claw are yellow, the latter usually blotched or spotted with orange. It blooms at various times during late spring and summer, and lasts a long time in full beauty.

O. FORBESI is sometimes to be found in gardens under the name of crispum marginatum; it, however, received the above name from Lindley, and was grown by Loddiges in 1849, who give the date of its introduction as 1843. It has much the general appearance of crispum, but the pseudo-bulbs are usually smaller, they are more obtuse, and with the leaves greener. The branched panicle is many-flowered, the blooms being about 3 inches across and of a bright chestnut-red, all the divisions being bordered with yellow, the sepals and petals being more or less indistinctly marked with transverse lines of yellow. It is a very beautiful plant, but it does not appear to enjoy such a copious supply of water as crispum, neither does it like much soil about its roots.

O. CURTUM.—This (here illustrated) is also an exceedingly handsome kind, which, although figured as long ago as 1847, still remains rare in cultivation. The growth somewhat resembles that of crispum, but the flowers are very distinct from those of either of the preceding plants. In O. curtum the sepals and petals are yellow, transversely streaked and blotched with rich brown; lip deep rich yellow, broadly bordered with cinnamon-brown, the side lobes being golden yellow; the crest is warty and bears five lobes.

O. GARDNERI is nearly related to the previously named kind, yet distinct. In the first place it is dwarfer in habit, and in the flowers being deliciously fragrant; the sepals and petals spreading, the latter much the broader, ground colour chestnut brown, narrowly bordered with yellow, and transversely streaked with a few yellow lines; lip large and flat, the middle lobe notched in front, golden yellow, with a marginal row of chestnut brown blotches. It is a summer bloomer.

O. MARSHALLIANUM. — This is truly a magnificent plant, with every aspect of a strong grown crispum except colour, as both bulbs and leaves are green. The panicle is much branched, and bears some sixty flowers; these are individually upwards of 3 inches or 4 inches over, and of a rich golden yellow, the sepals and petals bearing a medial line of chestnut blotches; lip large, deeply bilobed in front, clear golden yellow, blotched with chestnut on the claw. It is a spring and early summer bloomer, and thrives in a cooler atmosphere than the others. O. amictum is another form of this section which is rarely seen; whilst O. prætextum is similar to O. curtum in flower, but the habit is somewhat different.

Hardy British Orchids.—My attention was recently directed to hardy British Orchids by seeing a field near this town studded over with spikes of what I thought was Orchis Morio. However, having consulted "British Orchids," I concluded the Orchis was O. mascula. Some are white, others violet, but those I am alluding to were a bright pink. Since then I have found others, notably, O. maculata, with the foliage curiously spotted or blotched, in a damp ravine beside the Southern Railway. So prolific is this in seed bearing, that Darwin estimated that the seedlings from a single plant if placed 6 inches apart would cover an acre. Still, it is by no means common. In one of our meadows I have found O. pyramidalis true, many of the plants being splendid specimens 2 feet high. Mr. Webster has not hitherto seen it so robust. I have two distinct colours, pale pink and very deep pink, the variation not being

owing to soil or situation. I found them thus side by side. As this is sweet-scented, and most attractive in appearance, remaining two weeks fresh in water, it would be a desirable addition to garden plants and flowers. It can hardly be common in England, as I find it is not included in lists of hardy British Orchids of more than one London firm that keep such. As to many others, it would be desirable if at least amateurs and professional gardeners knew more about the species peculiar to their own districts. If they did, perhaps Spiranthes Romanzoviana, and others formerly referred to in The Garden might not be so near extinction as is supposed. At present so few know them.—W. J. Murphy, *Clonmel*.

Promenæa stapelioides is an interesting Brazilian Orchid, the flowers of which are speckled in the way of those of the genus Stapelia; hence the specific name. A variety named heterophera is in bloom with the Messrs. Veitch. This has larger flowers than the type, of neat rounded shape, the sepals and petals greenish, barred closely with rosy red, the lip almost velvety black. It succeeds on Fern stems, and is very free, the flowers proceeding on a short stem from the base of the pseudo-bulb.

Cypripediums seem to lose none of their popularity. The useful C. barbatum, Harrisianum, superbum, superciliare and its variety ornatum, together with Curtisi were recently flowering with the Messrs. Veitch. The last of the number has a very neat flower, petals spotted thickly with crimson over a rosy suffusion, the dorsal sepal green shading to white, and the lip dull brownish red. C. selligerum, conchiferum, Dominianum, Swanianum, and grande were also gay. Of C. grande there were twelve large specimens in the most vigorous health, all raised from seed sown in 1876, so that in the case of this Lady's Slipper twelve years elapse from first sowing the seed until the flowers appear. One of the plants had an exceedingly fine bloom, the tails measuring 15 inches.

Lycaste tetragona.—This very remarkable Orchid is now in flower in the collection at Kew, and as it is rare and seldom seen in bloom, it is worthy of a note. In growth it so much resembles the well-known Maxillaria Harrisoniæ, that it is hard to distinguish them out of bloom. It has the same big angular bulb, wrinkled and marked with a black ring on the top, and has similar large deep green leaves. The flowers are, however, quite different, though of similar size to those of M. Harrisoniæ. They are on short stems, and are poised in a peculiar way. The sepals and petals are broad and pointed, in colour of a pale olive-green heavily streaked and mottled with a ruddy tinge. The lip is hollow, fleshy, and stands erect, the outside being pearly white, inside heavily blotched and spotted with brownish crimson. It is not a showy Orchid, but to an Orchid lover is of great interest. It comes from Brazil and is an old introduction, as it was figured many years ago in the *Botanical Magazine*. As we have never met with it in flower before we imagine it must be very rare.—W. G.

SHORT NOTES.—ORCHIDS.

Angræcum falcatum is an interesting, compact-growing species, and at this season a mass of white, long-spurred flowers. Its sweet, delicious fragrance would alone make it worth growing.

Masdevallia Schlimi is a very free-blooming Colombian species, with reddish brown flowers, the tails of which are gold-yellow. It is a most distinct and interesting Masdevallia.

Epidendrum nemorale, in bloom now, is one of the most lovely of its genus. The narrow sepals and petals are delicate mauvy rose, the lip bordered with a similar tint and richly veined. It is found on trees and also rocks in its Mexican home.

The Butterfly Orchid (Oncidium Papilio) is rising in importance. This and O. Krameri are excellent companions. The first has a wider, larger flower, similar in colour, however, and longer jointed and taller stem. Good varieties of both are in flower with the Messrs. Veitch.

Epidendrum vitellinum majus is the showiest Orchid in bloom now. It requires very few specimens of this orange-scarlet flowered Epidendrum to create a warmth of colour. The type is a native of Mexico, and is also found on the cloud-capped mountains of Guatemala, whilst its brilliant variety is also a Mexican Orchid.

Phalænopsis speciosa was flowering a few days ago in the nurseries of Messrs. Veitch. It is a strikingly handsome species from the Andaman Islands, and has much of the character of P. Luddemannia in it. The sepals and petals are purplish, barred with white; the side lobes of the lip yellow, relieved with white at the base and apex, and the centre lobe purple.

Orchid paintings by Durham, the property of the late Mr. John Day, of High Cross, Tottenham, were offered for sale by Mr. Stevens, of King Street, Covent Garden, on the 18th inst. They were contained in 24 vols., each containing twelve plates mounted and bound. They were, however, bought in for £500, having not realised the reserve price put upon them by the executors.—W. H. G.

Oncidium macranthum.—Flowers of a splendid variety of this fine species come from Mr. Vicary, who has charge of Mr. Peacock's fine collection at Sudbury House, Hammersmith, who says he has several of the same kind now in full beauty. The flowers are large, round and full, and very richly coloured. It is one of the aristocrats of cool Orchids, and should be in every collection. A coloured plate of this species was given in The Garden, December 1, 1883 (p. 486).—W. H. G.

Cypripedium bellatulum.—The more we see of this new Lady's Slipper, the more charmed we become with its finely-spotted flowers. In the Chelsea nursery of the Messrs. Veitch there are several excellent forms, in which the sepals, petals, and lip have a white ground colour, freely freckled and spotted with deep crimson. There is no greenish tint present, such as was seen in the first specimens exhibited. This carries on the race of C. Godefroyæ, and we cannot have too many of this class.

Odontoglossum Coradinei.—What appears to me a very brilliant form of this species comes to us from Mr. Evans, of Lythe Hill Gardens, Haslemere. The sepals and petals are white suffused with lemon, and broadly blotched with crimson; lip broad, apiculate, white, with a broad blotch of crimson in front of the calli; base of the throat also spotted crimson. It is an extremely handsome flower, to which I cannot assign any other place than the above, and is well deserving care and attention.—W. H. G.

Angræcum falcatum.—This pretty little Japan species is now flowering profusely and in quantity in the nursery of Messrs. Seeger and Tropp, Lordship Lane, East Dulwich, and its white long-spurred flowers are very conspicuous. Amongst the batch I observed a curious variegated form of the plant with a broad band of yellow round the leaves, leaving the normal green just as a medial line. Are we to have a race of variegated Orchids? I recently heard of a variegated form of Cattleya Mendeli from a batch imported by Mr. Shuttleworth, and which has bloomed this season and proved to be a fine variety, so that the variegation has not affected its blooms.—W. H. G.

Cattleyas in the Chelsea Nursery.—Several forms of Cattleya are in bloom with the Messrs. Veitch. This is not one of the best seasons for Orchids, but C. gigas was extremely fine. There are few Orchids that can surpass this for breadth of flower, colouring, and showiness. There are several excellent varieties of it; one was exceedingly broad, the sepals and petals rose colour, and the lip purplish. Another with a vivid purple lip was also conspicuous. Besides the glorious C. gigas there were the richly spotted and showy C. Schilleriana, or Regnelli, the lovely, delicate rose-coloured C. Eldorado, C. Gaskelliana, of which we are now obtaining admirable varieties, and C. Mendeli. And besides these were also in flower Lælia purpurata and C. crispa; the last of the two has a neat flower, the sepals and petals white, and the lip heavily frilled, velvety purple in colour, with a yellow suffusion in the throat.

The Gold-chain Orchid (Dendrochilum filiforme).—A specimen plant of this growing in an 8-inch pan, and bearing fifty-four of its rich golden spikes of great length, is now a conspicuous feature in the gardens at Lythe Hill, Haslemere. This plant usually thrives well so long as its drainage is all right and the soil in which it is planted remains sweet, but once let the former become choked and the latter sour, the plant will melt like snow before the sun. This plant is also often ruined by too severe a resting, which causes its small bulbs to shrivel; after this occurs it is very difficult to restore it to health again. Treated genially, however, this is one of the most elegant of Orchids in cultivation. It is a native of the Isle of Luzon, &c., and other Philippine Islands, and it enjoys strong heat and moisture.—W. H. G.

Flower Garden.

THE CANADIAN LILY.

Gardeners know well the advantage of selection in setting up a stock of plants, and in the case of those plants which are not habitually raised from seed in gardens with a view to improvement by cultivation, it is very important that a good selection should be made in the native habitat. A careful search in the native grounds in flowering time is very often productive of a variety to be called major, followed perhaps in the next visit by a maximus, and however out of place these promotions in rank may be, especially when we begin, as in the case of Trillium, with a grandiflorum for the type, we cannot deny that there are many flowers of this class which deserve some such distinctions as those given to them in nurserymen's catalogues. But to pass at once to the Canadian Lily. A kind gardening correspondent living in the State of New York was rather hurt by my speaking in disparaging terms of the native Lilies of the North-eastern States (L. superbum and canadense), which I said were good for little in my garden. He said we got only the inferior forms, and that he would mark me a dozen selected forms in a neighbouring wood and send them to me in the autumn; some would survive the journey and flower in a year or two, and he hoped I would then change my mind. Several of these are now in flower, and I have quite changed my mind, for they are amongst the best Lilies I have, 5 feet high, with five flowers on a stem; the petals widely expanded; the colour uniform bright red at the back, just as bright and as shining as the red sealing-wax of old times, and the inside rich chestnut-red, passing into yellow towards the base, with large black spots. The large anthers are deep rich brown, and form a very good feature. This description may seem tantalising, because everybody has not friends amongst the North American woods, and L. canadense increases very slowly; but I advise those who have friends there to ask them, if they are sending roots, to choose them when in flower.

I must say that the plants I have described were sent to me as L. superbum; but Asa Gray in his handbook says that L. canadense and L. superbum pass into one another, and it is certainly very difficult to draw a line between them. I can find few figures of L. canadense. My flowers are larger and richer in colour than any in Mr. Elwes' plate, though they resemble them in shape. The bell-shaped flowers such as represented in the *Botanical Magazine* (figs. 800 and 858) are perhaps common in Canada, from which country Parkinson tells us this Lily was first introduced, as the name implies. For the cultivation of L. canadense I find peat soil recommended, and we should expect inhabitants of American bogs to require such soil; but in my peat beds, in which L. pardalinum and its allies flourish and increase exceedingly, L. canadense never flowers well, and soon dies out. I found it do better in the stiffer soil of my mixed borders, but I have now made two or three small beds of rich turf loam, well decayed and worked up with half or one third limestone riddlings. But I think granite riddlings, or any hard stone would do as well; 3 feet of this in depth, with good drainage below, enables me to grow well several Lilies which formerly

failed, especially L. pomponium. This and L. canadense do best in a sheltered place with partial shade, but in the same mixture in full sun L. philadelphicum and L. concolor have now flowered well for two years, and L. Hansoni, though not a capricious Lily, does much better in it than in peat. L. colchicum with its many varieties, all of which come in my garden from the seed of one another, does best in the stiffest loam. This Lily has made a grand display this year grown from seed, for no Lily is so averse to transplanting, or takes greater offence at it. The most desirable number of flowers on a stalk of it is from ten to fifteen, for though it often attempts more, as I had one head this year with over thirty, the buds seldom expand properly.

C. WOLLEY DOD.

NOTES ON HARDY PLANTS.

Romneya Coulteri.—This curious Californian Poppywort is now in flower in the alpine house at Kew, and seems to promise well as a cool indoor plant for early autumn flowering. It is said by many to be quite hardy, and so it may be, but I know of only a few gardens where it gives anything like satisfactory results, and these are well sheltered as well as being placed in favourable localities. This Romneya stands the winter well in the neighbourhood of London as well as further north, but it never assumes a robust habit, and only here and there produces a flowering shoot. It is well worth a trial, however; the flowers as large as those of the white Water Lily, pure white, with a large golden yellow ball in the centre; the leaves glaucous, and very pretty even in the absence of the beautiful blooms. It is found near San Diego, on the borders of streams, which fact may lead to success, as I believe it has nearly always been grown on the sunniest and driest spot that could be found. It may be obtained at any of the leading nursery establishments.

Calandrinia oppositifolia.—Another and an extremely interesting addition to the Calandrinias has just flowered at Kew. It was first collected about two years ago by Mr. Howell at Waldo, Oregon, and in the coast mountains of Del Norte County, California, near the Smith River. In striking contrast to the roots of C. umbellata, the present species has a tuber as large as a Hazel or larger, the flower-stems and leaves being deciduous in winter. It will, no doubt, be quite as hardy as the latter plant, and at any rate will be more easily protected during the cold season should that be found necessary. The leaves are narrow, lance-shaped, dark green, thick, and very succulent; the flower-stem, from 6 inches to a foot in height, is usually branched, bearing one or more terminal umbels of large flowers, white, tipped with rose, making a charming and very attractive subject.

Tridax bicolor var. rosea.—This pretty new Mexican annual was introduced last year by Mr. W. Thompson, of Ipswich, and, so far as we can judge, it has a future before it vouchsafed to few annual Composite plants. In habit, and perhaps in appearance of flowers also, it comes nearest to the Layias, none of which are so free flowering nor so upright growing. It branches freely, and when allowed plenty of room forms a neat erect bush from 1 foot to 18 inches high. The leaves are oval with a wedge-shaped base, and only slightly toothed. The rose or rosy lilac flowers are from 1 inch to 2 inches in diameter, borne in great profusion well above the compact foliage, and continuing throughout the summer and autumn. It makes a charming little border plant, and will be found useful also for the flower beds or boxes, its compact growth suiting it admirably for the latter purpose. The seeds can be sown in the open ground at the same time as those of the other annuals, and the seedlings thinned out to 9 inches or a foot apart. A sunny spot suits it best. The type is said to have pure white flowers.

Alstrœmerias.—It is not a little surprising, after the very trying spring and summer we have had, to see the hardier of these Peruvian Lilies in all their glory flowering as if at home in their native warmth. At present we have four or five that may be considered perfectly hardy, and one of these, A. hæmantha, which has been unusually prolific in varieties, seems endless in diversity of colours. With a little care in the choice of a position and free drainage, there are several other distinct kinds that might with advantage be added to the list, each adding to the range of colours and diversity of forms. No plants are more charming in the border at present than A. aurantiaca, aurea and hæmantha varieties; the first two names are included by botanists under one species, but to the gardener they are as distinct from each other in colour as almost any other two species. Growing together under exactly similar conditions, aurea shows a dwarfer and more compact habit than aurantiaca, the flowers much paler, and inclined to sulphur-yellow rather than orange-yellow, as in aurantiaca. These two are perhaps the most common in gardens, and they deserve to be taken care of, the large beautiful bunches of flowers being quite a feature. They are not at all hard to establish, and may be increased readily either by division or from seeds, which should be sown in pans as soon as gathered. The seeds are as large as Peas and should be well covered in the seed pan. A. hæmantha we find extremely useful for the rockery, and although it has a habit of running close to the boulders, it may be transplanted readily, and arranged as desired as soon as the growth has died down. It may also be raised from seeds, and interesting results obtained. Others that can be grown with a little care are pulchra, Pelegrina, Flos-Martini, Errembaulti, &c. K.

Narcissus Johnstoni.—I should like to ask your correspondent "K." (p. 55) if Ajax muticus and A. pallidus præcox really are found wild in Portugal, as he states them to be. I am under the impression that they are both Pyrenean, and both are certainly stated so to be by Mr. Baker in his "Amaryllideæ" (pp. 3, 4). N. Johnstoni is structurally different from any true Ajax known to me. The tube, instead of being "short,' is as long as the corona or trumpet, and, moreover, the stamens are adherent to the inner lining of the tube for about half of its length. Parkinson's figure in his "Paradisus" (101, fig. 5) is therein called "Pseudo-narcissus tubo sexangulari," and not "Oileus hexangularis," as "K." assumes and states in his notes; and instead of Rudbeck (A.D 1701) having "copied" from Parkinson (A.D. 1629), the reverse is, of course, the case. But the figure to which "K." alludes originally appeared in the "Florilegium" of Swertius, published A.D. 1612. Swertius, on plate 22 of his work now before me (fig. 1), has "Narcissus falsus tuba sexangulari dilutior flavus non descriptus" as its legend, and the figure itself certainly does not suggest any of the peculiarities so characteristic of N. Johnstoni. The angle at which the flowers of Daffodils are borne on the scape depends on the age of the flower, the latter becoming more horizontal, or even sub-erect, as the ovary swells after fertilisation. —AJAX.

Eremurus Bungei.—There are evidently at least two forms of this beautiful hardy Asphodelad, which if not botanically are at least horticulturally distinct the one from the other. As I have bloomed both of them this season some notes as to the differences between them will not, I hope, be uninteresting to a considerable portion of your readers. I received from Germany last autumn a tuber which its sender believed to be the pale straw-coloured variety figured by the Russian botanist, Dr. Regel, under the name of Eremurus aurantiacus in the volume of his *Gartenflora* for 1884 on the same plate as E. Bungei, from which it is there shown to be quite distinct. This when it bloomed turned out to be not aurantiacus, as was supposed, but a much taller spiked and altogether more robust growing form of E. Bungei. In shade of colour (clear canary yellow with orange stamens) the two are identical, as well as in size and form of bloom; but whereas E. Bungei under similar conditions produced a spike 3 feet in height, the flowers commencing at 2 feet 3 inches from the ground, and thus giving only 9 inches of flower head, the spike of the stronger growing variety reached 5 feet 3 inches in height, and commenced to bloom at 3 feet from the ground, thus giving a dense column of flowers 2 feet 3 inches in height. It is, therefore, evident that the so-called E. aurantiacus is a much finer and more desirable plant than the ordinary E. Bungei, and some distinctive name should, I think, be found for it to distinguish it for the future. A Haarlem nurseryman who grows these handsome plants in considerable numbers (not knowing that I already had it) wrote the other day to offer it to me under the name of E. Bungei perfectus, but this does not seem to me to be either a good or appropriate distinctive name, as it would seem to imply that the flowers were of a better or more perfect form than those of the type, whereas they are identical. Instead of perfectus, I would therefore venture to propose robustus as a better and more appropriate name for this beautiful hardy plant, which, if adopted, would then henceforth be known as Eremurus Bungei robustus. I hope, however, that these lines will be read and noted by the well-known introducer of new plants who sent me my tuber, and that he will give me and the readers of THE GARDEN the benefit of his opinion as to what the distinctive name of this plant should be, and if he has any better name to propose for it I shall be most happy to adopt it.—W. E. GUMBLETON.

A note from Shirehampton. — Flowers are blooming well here. Alstrœmerias are quite magnificent. I was talking to a good gardener yesterday, and we agreed that much rain suited these best. I should like you to see Lilium polyphyllum, nine blooms on one stem, three on another, and on a third one, the whole so sweet scented. L. candidum, nearly 400 heads of bloom; testaceum, just out, very large, 7 feet high; L. canadense, L. chalcedonicum, L. testaceum, all in bloom together. What a happy family! Iris anglica has been magnificent.—C. O. MILES, *Sunny Hill, Shirehampton.*

SHORT NOTES.—FLOWER.

The Madonna Lily (Lilium candidum) is flowering exceedingly well in the London parks, far different from the "bedders," which show a luxuriant growth, but little bloom.

Lilium giganteum was flowering recently in one of the recesses of the Kew rockery. This Himalayan Lily is of noble proportions, the stem sturdy and the flowers handsome.

Scabiosa caucasica amœna is a comparatively dwarf, vigorous, and handsome hardy plant. The flowers are large, blue with a whitish centre. We noticed it recently at Kew.

Iris aurea.—This is a noble variety and useful, as tending to prolong the Iris season. It is a tall grower, attaining the height of nearly 4 feet. A group now in flower forms a conspicuous feature, the bright yellow flowers being very effective at a distance.

Poppies from Wantage.—A box of Poppies comes to us from Mr. Caudwell, The Ivies, Wantage. The flowers are curiously coloured, some with the petals distinctly and elegantly fringed. It is evident Mr. Caudwell has an excellent strain of Poppies.

Carnation Apricot, of which a coloured plate was given in THE GARDEN, March 17, 1888, has been flowering most freely out of doors for some time in Messrs. Veitch's Chelsea Nursery. It is synonymous with Mrs. Reynolds Hole and Gravetye Gem.

The Swamp Lily (Lilium superbum). Mr. C. L. Allen, of Garden City, who has lately been in England, informs us that Mr. Faulkner, of Dosoris, Long Island, grows Lilium superbum 8 feet high, with forty flowers on a stalk, and the stalk an inch in diameter.

A noble Foxglove.—My attention was recently arrested by a noble-looking spike of the wild Foxglove, which was more than 6 feet high. On counting seed-pods, flowers, and buds yet to expand, I found that this plant would produce the enormous number of 225 flowers.—A. H.

Subtropical bedding is not a great success this year. The foliage of such plants as the Musa is stripped into fragments by the severe rains and winds. If it were not for the Lilies, Pansies, and a few other hardy flowers, the parks would show very little colour.

Saxifraga juniperina.—One of the early spring gems of the rockery, following in time of blooming its near relative S. Burseriana. The sturdy-looking little flowers are of the same lively white, rising from dense cushions of leaves, whose bluish colour and pointed shape give the plant its specific name.

Single Dropwort (Spiræa filipendula).—A note recently appeared praising the double form of this as a good hardy flower. Though a native wild flower, the single form is very pretty in gardens. It is not given to everybody to see it in native luxuriance spreading

cut in broad sheets and wreaths and mounds on the breezy downs, but many more might enjoy it in some quiet or semi-wild corner in the garden. A broad carpet of it fringing a shrubbery and running out into the Grass would be very pretty. The panicles of flowers are much larger and lighter in appearance than those of the double form. A garden that has one should have both.—H.

Sedum dasyphyllum.—This is a British Sedum found growing naturally on old walls. I recently found it in quantity on the old wall surrounding Petworth Park. The leaves are small, rather oval and very fleshy. When this Sedum is grown in the garden it assumes a pretty glaucous colour, and spreads out into neat tufts. This kind is grown in some nurseries and sent out under the name of Sedum corsicum. If this is done to disguise the fact of its being a native plant, such practice is certainly deceptive, and does not reflect much credit upon those who carry it out. The improvement in the plant under cultivation is so great that one would not readily distinguish its affinity.—A. H.

Pink Lord Lyon.—It seems difficult to say too much in praise of this fine rosy purple Pink, one of several raised by the late Mr. James Clark, of Bury St. Edmunds. It does well in pots or in the open ground, but I would advise, when plants are grown in pots, that some be also planted in the open ground in good soil so as to secure some Grass for cuttings. My plants in pots—4½-inch and 6-inch—are blooming so freely that I am afraid they will not give me any stock, and I shall have to depend on the old plants to live through the winter, which is perhaps a little risky so near London and in soil of an ungenial character. For cut flowers this Pink will be found very useful.—R. D.

The great sharp sea-side Rush (Juncus acutus).—This I found in April of this year in a field inside the sandbanks by the sea about five miles from here. It is a very remarkable plant, forming huge tufts 5 feet or more in height and 2 feet to 3 feet across. The rushes, *i.e.*, the barren ones, are very rigid at the end and fiercely sharp-pointed. They do not, however, stand stiffly perpendicular, but arch over round the outside of the tuft. The flowering stems are very numerous, and the great attraction of the plant is, as I saw it last April, when all the upper part of the tuft was crowded with the persistent dense corymbose panicles of glistening brown capsules—some of these panicles being over 4 inches long and from 2 inches to 3 inches across. It struck me that it was a most excellent subject for the winter scenery of the pleasure-ground.—W. M., *Gorey*.

Japanese Iris.—The Japanese I. Kæmpferi or lævigata is just commencing to bloom, and some of the varieties are grand. It is quite at home when growing just at the margin of water, so that the roots can draw an unlimited supply therefrom, but still fairly successful results can be obtained under very different conditions, for here in a rather dry and very sunny spot this Iris is a great favourite. The bed prepared for the Iris is made of open loam with an admixture of manure, and instead of being raised up above the surrounding ground as so many beds are (often injuriously to the plants), this is fashioned in the shape of a saucer, so that when it is watered none of the moisture is lost. The rains, too, have much more effect upon such a bed than would be the case if it were raised. Given a stand-pipe to yield a supply of water in close proximity to a bed of these Irises, and I have proved that they can be grown and flowered well under what is commonly regarded as very adverse circumstances. Where it is intended to divide any in order to increase the stock, the best time for the purpose is early in the spring, just before they commence to grow.—H. P.

—— The Japanese Irises (I. Kæmpferi or lævigata) carry on the Iris season far into the summer, and present splendid characters now that we have obtained such excellent additions. Mr. W. Gordon, of Twickenham, flowers this class exceedingly well, and it is one that gardeners may well grow, as the plants thrive well in a moist soil. The following kinds have been sent to us: Walter Furze, a splendid bloom, the standards almost as broad as the falls, the base yellow, and the other portion rich purple-lilac, striated here and there with a very delicate shade of the same; Vesuvius is soft lilac, veined with a deeper tint; Emperor, rich purplish violet, reticulated with white; Lady Marie, fine blue, deeply veined; Violet Queen, white, with purplish veins.

NARCISSUS CALATHINUS.

So much has been written in THE GARDEN about this small and elegant species, that little remains to be said. I think it is now generally agreed that it is merely a good form of triandrus, and I have it in all sizes, shape, and colour, of corolla. The engraving gives no idea of the size of flower, as it is merely intended to show what a pretty effect the bulbs have when grown several together in a pot. I have had this spring, in a 4½-inch pot, a mass of bloom from six bulbs which threw up no less than seventeen scapes, seven of these bearing five flowers on each. There seems to be a considerable diversity among growers in its management. I believe Mr. Wolley Dod grows it in deep pans, and Mr. Baylor Hartland in a similar way. I find



The Cyclamen-flowered Daffodil (Narcissus calathinus). Engraved for THE GARDEN from a photograph sent by the Rev. A. Rawson.

the bulbs do very well in 4½-inch pots, but I never disturb them. As soon as the leaves die down, I place the pots under a handlight in full sun, carefully protecting them from rain. This will be in June; there they remain till September, when I take the pots, and, removing the soil down to the bulbs, plunge them overhead in water. When thoroughly soaked, the pots are placed on a shelf for two or three days to drain, after which they are plunged in a cold frame and covered over with Cocoa-nut fibre an inch above the tops of the pots. No water is given till the leaves appear. If "the proof of the pudding is in the eating," I suppose this plan may be considered a good one. They will not succeed out of doors in this neighbourhood, but planted out under a common handlight they bloom exceedingly well.

Windermere. A. RAWSON.

Erigeron mucronatum, known in some gardens as Vittadenia triloba, is certainly one of the most charming Daisy flowers we have for the open air, reminding one vividly of Burns' "crimson tipped flower," only larger, and produced in much greater profusion. A small piece planted in the Kew rockery three years ago has begun to shed its seeds, and threatens to cover a larger area than was intended. It is such a charming plant, however, that, where possible, it should be left to itself, and the effect will be most pleasing.—K.

FLOWER GARDEN NOTES.

SPIRÆAS, PHLOXES, &C.—Amongst plants that are flowering extra well despite the unusual weather, these two stand out conspicuously. Of the former, all the varieties from the common Meadow Sweet (S. Ulmaria) to the ruby-flowered palmata are magnificent, but the varieties that I would single out as the grandest are S. Aruncus and S. astilboides. These two kinds have now been in flower for some three weeks, and are still as fresh as ever, and the foliage is very handsome. Though undoubtedly the right place for such plants is in a conspicuous part of the herbaceous garden, yet as lawn plants, supplementary to the smaller growing shrubs such as Retinosporas, they are extremely beautiful, whilst for cutting for the furnishing of large vases they are excellent. All the varieties that have come under my observation are of a moisture-loving nature, and, therefore, when used as specimen lawn plants either a damp, half-shaded position must be selected for them or the soil be artificially made of great depth, so that they may never suffer from drought, for undoubtedly their well-doing this year is attributable to the cool, wet season which up to the present date (July 20) we have had. I perhaps ought to add that all the shrubby kinds are the most readily increased by offsets or division, and the season to do the work is any time during the winter months. The weather has also suited Phloxes, and the enforced practical lesson taught will be of value to us when next a season of drought occurs, namely, that free supplies of water must be given if a high state of cultivation is desired. Many of the early varieties of the decussata section are already in full flower, and I do not exaggerate when I say that they are quite doubled in size of both flowers and plants and well repay the slightly increased labour that has been necessary in respect of staking and tying. Other species of herbaceous perennials are this season making the same abnormal growth, and promise to flower proportionately freely—a matter of some importance, because assuring us that more liberal treatment in respect of moisture and deep cultivation does not lessen, but increases the flowering properties of the plants in the same ratio as that of growth.

BEDDING PLANTS.—As regards the tender section, the least said the better. Alternantheras and Coleus are, up to the present, a complete failure. We are trying to hide the failures by dibbling in amongst the Alternantheras dwarf hardy Sedums and pegging out beyond the originally intended lines variegated Mesembryanthemum, Leucophyton Browni, Cerastium tomentosum, and Veronica incana. Contrary to that of herbaceous plants, there is a general lack of flower or bedding plants, and those that do manage to bloom are to a large extent injured by the first heavy rain, the exceptions being tuberous Begonias, Heliotropes, Lobelias, Fuchsias, Verbenas, Musk, and tufted Pansies. The latter are doing this season quite as well as they do in the north, where with greater moisture and a cooler climate they always succeed well. Whilst on the subject of tufted Pansies, I would give a word of warning to those who may be hoping to get a variety true from seed. A packet of seed labelled Viola Blue Bell was bought with this intent, and out of it, though there are something like a score of varieties, there is not a flower equal to those of the variety for which it was sown.

RANUNCULUSES AND ANEMONES.—We have had a grand bed of Ranunculuses, and they continued in good condition for at least five weeks, an unusually long period. They are now dying off rapidly, and will be lifted in a few days before there is any chance of the tubers breaking into re-

newed growth, which, of course, would ruin next season's display. As soon as the tubers are dry we lay them in shallow boxes—Strawberry packing boxes answer well—and store them away in any cool place, there to remain until planting time comes round again. Mice have a great liking for the tubers; hence the importance of making sure of their safety in this respect, which storing in Strawberry boxes ensures. Anemones have much in common with Ranunculuses, but are not so susceptible of injury from being left too long in the ground; in fact, we always leave a few with a view of getting late flowers from the second growth, but of course it is at the risk of sacrificing the tubers; but this is a matter of small importance.

Roses.—How fine these would be could we have the rain without its injury to the blossoms. Never were the plants more robust or free-flowering, and never was their beauty so constantly marred by wet. But there is no help for it, so we must pick and clip off decaying flowers, and expect a more lasting autumnal bloom, which, in fact, will be assisted by our now keeping the plants free of bad and blighted flowers and shoots. The longest shoots on most of the plants we have shortened, with the double object of securing compact-looking plants and a fresh succession of flowers in autumn from the new growths resulting from such shortening back. Those well-known varieties, Souvenir de la Malmaison and Gloire de Dijon, invariably produce a second batch of flowers equal to the first when they are cut back at this season. It is perhaps needless to add that a dressing of manure of some kind or other will greatly conduce to success, the most convenient of application at this season being bone-dust, or one of the many kinds of good artificial manure now so common.

Propagation and seed sowing.—That grand Clove-scented white Pink, Mrs. Sinkins, we mean to have in quantity another season, and cuttings have therefore been put in under handlights in a warm position in the kitchen garden, as also of the best varieties of Antirrhinums, Pentstemons, and Pansies, which strike well under exactly the same conditions. Cloves, Carnations, and Picotees I prefer to increase by layers, which work may now be done at any time. Early sown seedling plants of Wallflowers, Antirrhinums, Canterbury Bells, &c., should now be planted out, and other sowings made in a warm corner to stand the winter in the seed bed. It is full early yet to sow annuals for spring flowering, but in cold districts the following should be sown at once: Sweet Alyssum, Arabis alpina, Candytufts, Collinsia bicolor, Gilia tricolor, Godetias, Larkspurs, Limnanthes Douglasi, Myosotis dissitiflora, Nemophilas, Saponaria calabrica, Silene pendula compacta, Sweet Rocket, and Whitlavia.

General work.—Tying up of Dahlias, Hollyhocks, Sunflowers, Castor-oils, and tall plants generally. High winds and heavy rains cause much damage if this be neglected. To keep seed vessels off single Dahlias, Violas, Calceolarias, and in fact off all plants that are required to flower freely and continuously. Peg down such plants as require it, either for safety or for the filling out of the allotted space they are expected to occupy. Pinch the points out of Sweet Peas; this procedure is the best promoter of successional and continuous flowering, and prevents the necessity of additional sowings, thus securing not only flowers daily, but a fully furnished garden, at least as far as Sweet Peas are concerned. Grass verges and edgings of all kinds ought to be regularly cut; these and clean hard walks are essential to a well-kept garden.

W. Wildsmith.

White Everlasting Pea.—Would you have the kindness to let me know in an early number of your paper where I can procure roots of the white Everlasting Pea, which you recommend in your last week's issue as a good plant for conservatory decoration? I have frequently tried to obtain seeds or roots, but have always been unsuccessful. As it is now rather late for sowing seeds, I should prefer roots.—Mandarin.

*** Try any nurseryman who makes a specialty of hardy plants.—Ed.

Dyeing Pampas Grass.—Would any reader of The Garden give me any information as to the best way to crystalise the heads of the wild Grasses, and also to dye the plumes of the Pampas Grass?—J. B.

Blue Himalayan Poppy (Meconopsis Wallichi) is in excellent condition in the rock garden at Kew. It is in front of the large Arundinaria, and is better than we have ever seen it before. The flowers are large, beautiful clear blue, but one or two of the specimens seem to be the result of a cross between the type and fusco-purpurea, the colour of the blooms being exactly intermediate, and not nearly so pleasing. The pretty cut leaves, covered with shaggy reddish brown hairs, are no less attractive than their flowers. It is a biennial, but seeds freely, and if these are sown as soon as gathered and kept in a cool shady frame, there will be no difficulty in raising them.

Celsia Arcturus is an old plant, but not much known to gardeners, notwithstanding its extreme beauty and brightness of colour. There is a great similarity in general appearance as regards the inflorescence to that of the Cæsalpinia japonica, a beautiful shrub, described in The Garden for June 30 (p. 619). The Celsia has an elegant spike of yellow flowers that are not quite so large as a halfpenny, other colouring being given by the purple bearded filaments. The leaves are hairy and deeply cut. It is one of the best things of its class for a cold house, and a few specimens of it in the alpine house at Kew dotted amongst a mass of other flowering alpines are delightful.

Delphinium Zalil.—We noticed this new plant flowering, we believe, for the first time in the alpine house at Kew. Seeds of this Delphinium were offered by Continental seedsmen as D. hybridum sulphureum, owing to Dr. Regel having expressed an opinion that it was a variety of the old hybridum. This, however, has been found incorrect, and the D. Zalil is found to be quite new and a near ally of D. ochroleucum. It was found by Dr. Aitchison while attending the Afghan Boundary Commission. The seeds of it were gathered and a quantity was distributed two years ago. The flowers yellow, attractive, and though small for a Larkspur, are produced in such numbers as to make up for their size. Dr. Aitchison, in his notes in the Transactions of the Linnean Society, says that this plant forms a great portion of the herbage of the rolling downs of the Badghis; in the vicinity of Gubran it was in great abundance, and when in blossom gave a wondrous golden hue to these pastures. The flowers are largely exported, chiefly to Persia, for dyeing silk. It is also used in medicine.

Destroyers.

CATERPILLARS ON FRUIT TREES.

The recent rains and cold weather have, no doubt, as your correspondent "A. D." mentions on p. 17, done much to relieve the trees from the plague of caterpillars, but he goes on to say—

> The caterpillar raid of the past spring strongly illustrates the necessity which exists for having trees isolated from each other in orchards, so that the only means of access to them by the female or breeding fly shall be by the stems. Then by coating the stems with some innocuous, but glutinous substance, the ascent of the insect may be effectually checked.

This advice is very good, but "A. D." forgets that it is only the females of a very few kinds of moths that are unable to fly, and that by far the greater number are by no means dependent on their legs when they wish to reach the boughs. The ravages committed by caterpillars this season are far from being confined to those kinds the female moths of which are unable to fly. Of the moths whose females are destitute, or nearly so, of wings, there are two species whose caterpillars are particularly injurious to fruit and other trees—the winter moth (Cheimatobia brumata) and the Lime looper moth (Hybernaria defolaria), and it is no doubt to these insects that "A. D." refers. The means he suggests of preventing the females gaining access to the trees is a most useful one; but it must not be forgotten that it will not in any way deter the females of most moths from laying their eggs on the trees.

As to the suggestion by "A. H." on p. 17, in his remarks on "Wire-protected gardens"—

> That perhaps those who have recorded failure have used too large meshed mire, through which the moth has free access,

I would say that the injuries to the foliage of Gooseberry bushes are far oftener caused by the grubs of a sawfly than by the caterpillars of a moth, and it is very possible that the netting which will keep out the moths will not exclude the sawflies. Mr. Evan's plan of removing the top soil after an attack of these grubs is the most effectual one, as all the chrysalides are then taken away, and if destroyed, as they should be, by burning or burying deeply, there will be no sawflies the next spring. It is very clear that a cold winter does not do much injury to insect life; when in a state of torpor, neither the perfect insects nor their caterpillars seem to feel the cold, particularly if, as they usually do, they shelter themselves in some dry position. But in a mild winter, which is usually damp also, they are tempted either not to take so much care in the selection of their winter quarters, or to leave them before they should, and if overtaken by cold or damp they are almost certain to succumb. A few warm days very early in the spring will cause the eggs to be hatched and moths to leave their chrysalides; a sudden return to wintry weather soon destroys the young caterpillars and plays havoc among the moths.

G. S. S.

Grubs on Rose trees.—I shall be glad to know the cause of and the best remedy to rid my Rose trees of the grub enclosed. This grub has attacked some Rose trees, fortunately only in a mixed border, during the last five or six days. The leaves turn a light brown colour, and the plant has the appearance of dying off. Previously the bushes were in perfect health.—H. L. B.

*** In reply to the above, your Roses are attacked by the grubs of one of the sawflies. Syringing the trees with soft soap and water to which some tobacco water has been added is as good a means as any other of getting rid of the grubs, except picking them off by hand, or the leaves may be dusted when damp with lime. The grubs when full grown bury themselves in the earth and become chrysalids. If the attack has been a very severe one it might be of use to remove about 2 inches in depth of the soil beneath the trees and burn or bury it deeply.—G. S. S.

The Madonna Lily disease.—Where it grows well there is no better plant in the flower garden than the Madonna Lily, but the disease which has attacked it of late years in some localities has done much to mar its beauty and give it a bad name. It is very disheartening after the plants have made 1 foot or 2 feet of seemingly healthy growth and a good show of flower buds to see clump after clump wither gradually away, giving us nothing but a lot of rotten stems and leaves instead of lovely flowers. I would like to ask any of your readers who have unfortunately had experience with the disease to give us in The Garden the result of their observations. Has anyone noticed a difference in the effects of the disease on established clumps and newly planted ones? I ask this because there is a marked difference in the two cases here. Some clumps of selected bulbs which were planted last August have escaped the disease entirely and are doing well, and the small bulbs taken from them are also making good growth. In the case of established bulbs the disease has been very prevalent, many clumps having lost all their growth, and in other cases from one to six puny spikes are left on a clump that should have borne at least a dozen strong ones. On examining the bulbs I find them of good size, white, perfectly sound, and healthy, without the smallest sign of disease. The roots

also seem quite healthy, but not too plentiful. Where the disease has shown itself badly it would be worth while trying the effect of transplanting a few bulbs some time next month; for, whatever may be said to the contrary, they can then with ordinary care be removed with a certainty of their growing, and the worst that can happen, unless the disease again attacks them, will be a possible reduction of the number of flowers on a spike for the first year after removal, and even that is by no means certain.—JOHN C. TALLACK, *Livermere Park.*

*** See reply in THE GARDEN, July 21 (p. 67). —ED.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

JULY 24.

WE naturally expect a good meeting in the month of July, and visitors to the Drill Hall on Tuesday last were not disappointed, as it was one of the best of the fortnightly shows that have yet taken place in the new home of the society. There were plenty of hardy flowers, and a magnificent group of Ferns comprising 400 kinds from Messrs. W. & J. Birkenhead, Sale, Manchester.

FIRST-CLASS CERTIFICATES were numerous, as will be seen below.

CARNATION ELAINE.—A border variety of great promise, as the flower is not only well-built, full, and with strong petals, but of a clear white, such as to render it a useful Carnation for cutting. It resembles the variety Governor in shape. From Mr. J. Douglas, The Gardens, Great Gearies, Ilford.

ANGULOA RUCKERI ALBA.—The Anguloa genus is rising in importance, and here is another beautiful addition to it. The plant was shown by Mr. C. Dorman, Laurie Park, Sydenham, and bore on a stem about 9 inches long a flower larger than generally seen in the type, very waxy and massive, and quite white, save inside the lip, where there are numerous bars of soft maroon. A chaste, beautiful variety like this should be highly prized.

SACCOLABIUM CŒLESTE.—A singularly beautiful Saccolabium of uncertain habitat, but recorded as a probable native of Moulmein. It has much of the habit of the scarlet-flowered S. curvifolium, the spike about 4 inches in length, upright, and carrying a number of small, delightfully coloured flowers. The sepals and petals are white, tipped with a delicate sky-blue tint, most charming against the rich self blue of the lip. A well-grown plant was shown by Mr. B. S. Williams, Victoria Nurseries, Holloway.

LÆLIA AMESIANA.—An extremely beautiful Lælia, one of Messrs. Veitch's acquirements, and the result of a cross between Cattleya (Lælia) crispa and Cattleya maxima. It has the character of C. crispa, and the large plant of it shown by Mr. Ballantine, gardener to Baron Schrœder, The Dell, Egham, displayed its beauty. It carried three spikes, the flowers about the size of those of an average C. Mendell, and in the character of the petals we trace a likeness to C. elegans. The sepals are narrow, twisted somewhat, and flushed with a pale amethyst tint; the petals broader, wavy at the margin, and of the same delicate tint, the lip having a rich purple colour, except at the base, where it is yellow, this running into the throat and intensifying the whiteness of the arched lateral lobes.

NOTHOCHLÆNA MULLERI.—A new addition to an interesting genus. The fronds are of rigid growth, about 12 inches in length; the segments deep green, ovate or nearly so, and covered on the upper surface with silvery scales, whilst the stem is clothed with chaffy hairs of a brown colour. From Messrs. W. and J. Birkenhead, Sale, Manchester.

SCOLOPENDRIUM CRISTULATUM.—Out of many excellent forms of Scolopendrium shown by Messrs. W. and J. Birkenhead this was one of the best. Its erect, full green fronds are each surmounted with a dense tufted crest that appears on quite young plants and gives large specimens a distinct and inviting appearance. It is quite constant, and should be much valued by those who admire crested Ferns.

LASTREA MONTANA RAMO-CORONANS.—A very distinct and excellent form of the hardy L. montana. It has narrow, somewhat tall, and slender fronds, not only crested, but frequently divided, and each of the pinnæ is also crested, while the colour is of a rich deep green. This was also shown by Messrs. W. and J. Birkenhead.

RHODODENDRON PURITY.—A greenhouse Rhododendron, the result of a cross between R. Taylori and R. Teysmanni. It came from the nurseries of Messrs. Veitch, of Chelsea, and has large, well shaped and pure white flowers.

STUARTIA PSEUDO-CAMELLIA.—This has the character of S. virginica, of which a coloured plate was given in THE GARDEN, July 13, 1878, but it is distinct from that American shrub. The flowers are not so open, and may be likened to those of an Abutilon, pure white, except the tuft of orange-yellow stamens, and clustering amongst the ovate, deep green foliage are exceedingly beautiful. It does well in the Coombe Wood Nursery of the Messrs. Veitch, by whom it was shown.

CARNATION SCARLET BEDDER.—This is a very brilliant self scarlet-coloured variety, and we should say justifies its name, as from its great freedom of flowering and showy colouring, it would do well for border or bed. The petals are finely cut, and make up a full bloom. From Mr. A. Dean, Bedfont.

ROSE DUCHESS OF ALBANY.—Several notes have appeared in THE GARDEN already respecting this sport from La France. Messrs. Wm. Paul and Son, of Waltham Cross, showed several flowers of it in excellent character. It resembles La France, but the colour is far deeper, the shape more finished, fuller, and even, while together with these qualifications is a sweet fragrance that increases its value. It bloomed well in 1887, in spite of the drought, and appears comparatively little affected by the heavy rains and coldness of the summer of 1888, though this, generally speaking, has been a poor one for light coloured Roses. It will be surprising if this does not become the La France of the future.

CHESHUNT SCARLET.—An excellent garden Rose, described as "decorative," and of the most glowing shade of crimson we have yet seen. The flowers are of full, handsome expression, though comparatively small, but this is atoned for by the strong, well shaped petals and the rich fragrance. From Messrs. Paul and Son, Cheshunt.

OREOCOME CANDOLLEI.—The Oreocome genus is now included under Selinum, and comprises upwards of twenty-five species, most of them hardy and of no particular value. This is a plant of weedy growth, hardy, herbaceous, and producing a mass of pinnate foliage. The flowers are whitish and in flat umbels. As an isolated specimen in the wild garden it would look well, but is scarcely worthy of a certificate. From Mr. C. Noble, Bagshot.

IRIS ENTERPRISE.—A broad, handsome variety of I. Kæmpferi, or lævigata. It is reticulated and blotched with purple and reddish maroon. From Mr. W. Gordon, Twickenham.

I. KAISER WILHELM.—This is something like the variety Enterprise. It has broad segments, flaked and reticulated with purple. From Mr. W. Gordon.

Hardy flowers of July were in force, and a large bank came from Messrs. Paul and Son, of Cheshunt. There were Campanula grandiflora semi-plena, a very richly coloured semi-double variety; the small, deep blue-flowered and dwarf C. Waldsteini, Cistus algarvensis, which has very rich yellow flowers with a central ring of deep purplish black, and varieties of the glorious Kæmpfer's Iris. There were also the graceful Gypsophila paniculata, the golden yellow Alstrœmeria aurea, Thalictrum flavum, French Poppies, one named Bichou being very double, with cut petals of a scarlet and white colour, and the deep blue bell-flowered Whitlavia grandiflora. The annual Cornflowers were delightful for the variety of tints, from pure white to the richest blue. A silver-gilt medal was given. Mr. T. S. Ware, of Tottenham, had a silver medal for a gay group of choice plants. Gaillardia Attraction, brilliant red and yellow; the semi-double white Chrysanthemum Leucanthemum; Calochortus lilacinus, pale pink; and C. luteus, yellow, were in the collection. The Lilies are now in their fullest glory, and were represented by such beautiful kinds as L. Parryi, yellow, sparsely spotted with crimson; L. Heldreichi, maculatum, and græcum, all varieties of chalcedonium and scarlet, the last of the three, however, being the brightest; L. colchicum, the old L. candidum, and the Canadian Lily, which is spoken of at length in this week's GARDEN. A flower that should be noticed is Triteleia laxa Murrayana, the colour of the richest blue. A silver medal was awarded. Messrs. Kelway and Son, Langport, Somerset, had Gaillardias and Larkspurs, which they know how to grow and improve so well. It is surprising what great strides have been made with respect to the Delphinium and Gaillardia of recent years. They also showed other hardy flowers and Pentstemons. Amongst these were Charles Robin, scarlet, the throat white, pencilled with a deeper tint; W. Mein, deep maroon, white throat; Oasis, deep red; and Pearl, pink; all varieties with bold and creditable blooms, considering the weather we have had. Pentstemons are not stormy weather plants, as they are far too slender and delicate. A bronze medal was given.

Mr. G. F. Wilson, Weybridge, showed several Lilies from his Wisley garden. They included an excellent spike of the noble Lilium giganteum, the flowers very highly coloured, also L. Browni in first-class character, L. elegans sanguineum, L. e. cruentum, avenaceum, concolor, Coridion, and three varieties of L. Martagon dalmaticum. Varieties of L. elegans and L. auratum rubro-vittatum also came from Mr. W. Gordon, and cut blooms of Japanese Iris, I. Kæmpferi, one variety, White Queen, being noticeable for its large white segments. We cannot say we altogether admire the reticulated flowers; they are far handsomer and bolder when self-coloured. Messrs. H. Cannell and Sons, Swanley, sent a box of Pentstemons, representing excellent varieties. A few more bright colours amongst the class would be welcome; we have too many dreary shades of purple. The same firm showed double and single-flowered Ivy-leaved Pelargoniums, Fuchsia triphylla, referred to in last week's GARDEN, and the white Salvia patens. Mr. Noble, Bagshot, had the beautiful crimson-flowered Spiræa palmata, and Messrs. Laing and Mather, Kelso, Carnation R. H. Elliott. It is a mixture of red and yellow, confusing to the eye. A seedling Lobelia was exhibited by Mr. A. Scott, Brookfield, Cambridge. It was of exceedingly pretty blue tint, but too weak to be of much value. Mr. T. Smith, The Nursery, Newry, sent Lychnis hybrida, a variety very much like L. coronaria. Messrs. J. Cheal and Sons, Crawley, contributed single and decorative Dahlias, the flowers excellent considering their earliness, single Begonias, and Roses of good finish and colour. From Mr. F. Ross, gardener to Sir G. Macleay, Pendell Court, Bletchingley, came a box of flowers of the tubular-flowered Bignonia Cherere, the fragrant Rosa rugosa, Veronica salicifolia, and flowers of an excellent strain of Sweet William that deserves to be still further improved.

ORCHIDS were numerous, and a most charming group was put up by Mr. B. S. Williams, excellently arranged, and comprising such good things as Masdevallia Harryana Walkeriana, purplish magenta; M. H. Bull's Blood; Vanda teres, an excellent variety of Cypripedium grande, C. Harrisianum superbum, C. œnanthum, selligerum, &c. A beautiful Orchid is Oncidium incurvum, bearing dozens of white and magenta flowers of great beauty, and a Calanthe not often seen is C. masuca grandiflora, the flowers of a lilac tint. There were also included the curious Epidendrum cochleatum, Cattleya gigas, and Anguloa Ruckeri retusa, a Columbian Orchid, the flowers bronzy yellow on the outer surface, but inside thickly spotted with crimson on a pale olive ground. A silver medal was awarded. Messrs. F. Sander and Co., of St. Albans, showed Lælia Eyermanni, described in our last report of the Royal Horticultural Society, and a variety named superba, the flowers of a much deeper rose-lilac. Bollea Wendlandiana, from the same firm, has rigid, deep green leaves and a short flower-stem coming from the base of the plant; the sepals and petals are lemon-yellow, the broad, waxy column white, and the tongue-like lip

of a rich shade of yellow; the whole flower neat and fleshy. Messrs. Seeger and Tropp, The Nurseries, Dulwich, showed Cypripedium Stonei acrosepalum, the flower very much like that of the type. Mr. Cowley, gardener to Mr. F. G. Tautz, Studley House, Shepherd's Bush, had the exceedingly beautiful small-flowered Miltonia vexillaria superba. The bloom is not a quarter of the size of the type, but richly coloured with rose-pink, the centre white and stained with deep blood-red; it is very free; also D. McCarthiæ, very delicate lilac, and Cattleya crocata, which has a neat, medium-sized flower, quite white, except the rich orange colouring at the base of the shapely lip. Odontoglossum cristatellum came from Mr. R. B. Lemon, Moat Lodge, Beckenham; the flowers are almost wholly rich chestnut-brown, but coloured with yellow at the base.

ROSES will be soon in their fullest beauty, and it seems that August this year will be the month for Roses, not July. A large collection was shown by Messrs. Paul, of Cheshunt, comprising leading varieties in the Hybrid Perpetual class, and such beautiful kinds as the double Rosa rugosa Comte d'Epremesnil, exquisite for its delicious fragrance, the lovely R. Brunonis, and R. Pissardi. Amongst the Hybrid Perpetuals especially good were the blooms of Mlle. Susanne Rodocanachi, a brilliant carmine tint and of fine globular shape; all the flowers were surprisingly fresh and finished. Mr. B. R. Cant, Colchester, who had several boxes of excellent flowers, the dark varieties being especially good, was awarded a silver medal. Mr. J. Ridout, gardener to Mr. T. B. Heywood, Reigate, sent Rose Margaret Heywood, a fine flower very much like that of William Warden, though a sport from Mme. Clemence Joigneaux. Messrs. W. Paul and Son, Waltham Cross, exhibited Marchioness of Lorne and Brilliant Roses, both recently referred to in THE GARDEN, and a Tea Rose named White Lady, the buds large, full, and white; it is of considerable promise.

The Ferns from Messrs. W. and J. Birkenhead, Sale, Manchester, were quite the feature of the meeting. There were 100 hardy Ferns and 300 of the stove and greenhouse kinds. The collection was especially rich in varieties of Scolopendrium, Polypodium, Athyrium, and Nothochlæna. It seems, indeed, that an interest is springing up in this class, and we certainly hope that the hardy kinds will receive more attention. A silver medal was awarded. We shall shortly note the best types shown.

Messrs. J. Veitch and Son, of Chelsea, had Clethra alnifolia, noted in our last report of the Royal Horticultural Society; Yucca obliqua, white, with the outer segments of a reddish colour; Sambucus nigra heterophylla, the pretty pale purple Notospartium Carmichaeliæ, Spiræa bullata, dwarf, flowers dull red; and very fine cut blooms of Kæmpfer's Iris. It would be far better to exhibit the Iris more naturally, that is, with leaves and stem. Simply the single flower does not show its charming grace and elegance. From the same firm also came the deep crimson-flowered Canna Victor Hugo, and C. lutea splendens, very brilliant yellow.

Fruit committee.—There was more fruit than we have seen for some time. Messrs. Veitch sent a most interesting collection, and Currants were shown from the Chiswick Gardens; the varieties Defiance, Red Cherry, Red Dutch were conspicuous for their large, red, handsome fruits; the White Dutch was one of the best of the White Currants. From the same place came a dish of the Waterloo Strawberry, and splendid Strawberries, comprising the varieties Crimson Queen, British Queen, Unser Fritz, large, angular, excellent colour, and Amateur, also of bright red colour, and otherwise good, were exhibited by Mr. Allan, Gunton Park Gardens, Norwich, who knows well how to grow this luscious fruit. Mr. Walker, Thame, had Duke of Albany Pea, and Messrs. Paul and Son, fruits of Elæagnus longipes edulis and the White and Red Versailles Currants.

Council Meeting.—A report was read from the Chiswick committee concerning the National Apple and Pear Conference to be held at Chiswick Gardens from October 11 to 18, and a schedule (which may be obtained of Mr. Barron, Royal Horticultural Society's Gardens, Chiswick) was drawn up and agreed to. It was resolved that the secretary have a proof of the new bye-laws printed and circulated amongst the members of council and of the Fellows' committee, and that a meeting of the committee be called by its hon. sec. (Mr. Deal) for Tuesday, August 14, to consider the corrections and alterations.

NATIONAL CARNATION AND PICOTEE.

SOUTHERN SECTION.

THIS was one of the smallest exhibitions probably ever held by the society, and it was not to be wondered at considering what a late and unpropitious season it has been. The flowers appeared to linger in the process of opening as if waiting for the warm sun which failed to shine. They are a fortnight behind their usual time, and they promise to be at their best about the first week in August. But the exhibition was useful in one point; it taught the value of the new yellow ground Picotees raised by Mr. Douglas as early bloomers, and they cannot fail to become great favourites in consequence.

There was a great falling off in the number of exhibitors. They scarcely exceeded more than eight or nine, and had it not been for Mr. Turner and Mr. Douglas, the show would have been meagre in the extreme. But the paucity of exhibitors must not be taken as indicating a lack of interest in the society, but simply a result of the lateness of the season. Exhibitors appeared to have brought all the flowers they possibly could.

What is a Carnation and what a Picotee? asked several of the visitors to the show. The Picotee is simply a Carnation in another form. They are all Carnations; the term Picotee is a convenient one, indicating that the colour is laid on in a kind of beading on the edge of the petal, and not in the form of longitudinal flakes and stripes, as in the case of the Carnation. Whether the Picotee was the forerunner of the Carnation, or *vice versâ*, is a matter probably admitting of much difference of opinion, but that varieties of the Picotee are in some cases of weaker constitution than those of the Carnation there can be no doubt.

Florists divide their Carnations into six divisions, three of them bizarres, or three-coloured flowers, that is, having two colours, one heavy and one lighter on the white ground. The most valued is the scarlet bizarre, the most brilliantly coloured of all; next comes the crimson bizarre, and lastly the pink and purple bizarres, but these two run closely the one into the other. Then there are three classes of flaked Carnations in which there are flakes of one colour only upon the white ground, the purple, the scarlet and the rose. These are easily distinguishable by a novice much more readily than in the case of the bizarres. Each of the foregoing classes is constantly receiving additions of new varieties. Then there is a numerous section of self flowers running through various shades from pure white and yellow to deep crimson and maroon, and there are fancies having stripes of colour on grounds other than white. Many of the last are very handsome.

The Picotees are divided into four divisions, red edged, purple edged, rose and scarlet edged, and yellow grounds. In the case of the three former there are light edged, some of these being exquisitely beautiful, medium edged, and heavy edged. The yellow Picotees are a very pleasing group indeed, and the colour is not laid upon the edges of the petals in the form of a neat beading, but distributed in slight flakes and short stripes, and not so heavy as in the case of the Carnation.

At the show on Tuesday last the leading class was for twenty-four Carnations, not less than twelve varieties, and here Mr. C. Turner, of the Royal Nursery, Slough, was first, and Mr. James Douglas second. Mr. Douglas was first with twelve flowers, and Mr. Headland second. Carnations were shown in sixes and also as single blooms in their several classes. It will suffice if we name a few of the leading flowers in each class: Scarlet bizarres—Admiral Curzon, Arthur Medhurst, Fred, Mars, Squire Potts, and Tom Power, the two last named being brilliantly coloured. Crimson bizarres—E. S. Dodwell, Harrison Weir, H. K. Mayor, Mr. Whitbourn, W. M. Hewitt, and William Wardell. Pink and purple bizarres—Isaac Scott, Mrs. Gorton, Sarah Payne, a very old variety, and William Skirving. Purple flakes—James Douglas, Juno, Mayor of Nottingham, and Prince George of Wales. Scarlet flakes—Clipper, Henry Cannell, John Ball, Scarlet Keet, and Sportsman. Rose flakes—James Merryweather, Jessica, John Keet, Sybil, and Thalia.

In the class for twenty-four Picotees, not less than twelve varieties, Mr. Douglas was first, and also in the class for twelve; Mr. C. Turner being second in one case, and Mr. Headland in the other. Picotees were also shown in sixes and single blooms. Prizes were offered for yellow ground Picotees, and here Messrs. Douglas and Turner showed conspicuously. The best among them were Almira, Annie Douglas, Agnes Chambers, Colonial Beauty, Janira, and Ada.

A few of the best of the self Carnations were Amber; Bride, white; Comte de Chambord, flesh white; Pride of Penshurst, yellow; Purple Emperor, Purple Gem, Rose Perfection; W. P. Milner, white; and Elaine, white, the last a very beautiful variety, and awarded a first-class certificate of merit.

The premier Carnation was scarlet bizarre Tom Power, and the premier Picotee, heavy purple edge, Muriel, both being selected from the whole exhibition. Messrs. Veitch and Sons had cut Carnations, and Mr. C. Turner a group of plants in pots. Messrs. E. Collins and Son also showed Carnations.

GARDENERS' ORPHAN FUND.

TO THE EDITOR OF THE GARDEN.

SIR,—At the conclusion of the first year of the above, it is a source of gratification to me to review the success which has attended our efforts, and which is due to the hearty co-operation of all concerned.

I take this opportunity of returning my personal thanks to all associated with me in the matter, and also the many gentlemen who have undertaken the office of local secretaries and worked so zealously in the cause.

The dinner, as is now well known, was a great success, thanks to the numerous kind contributions of fruit, plants, and flowers. The room and tables looked well, and were much admired by those fitted to judge.

It now affords me no small degree of pleasure to be able to state that we are commencing the new year well, being empowered, as I am, to announce that Mr. Sherwood (Messrs. Hurst and Son), in token of the interest he takes in the movement, has generously offered to place an orphan on the fund solely at his own expense, in accordance with Rule XII., thus increasing the number of recipients from ten to eleven. It would afford me, and I may add the committee also, much pleasure if any other gentlemen, blessed with an abundance of this world's goods, were to emulate this noble example. There are plenty of deserving applicants to whom such a favour would be of the utmost service and benefit. GEORGE DEAL (*Chairman*).

Death of Mr. George Soper.—It is with regret we learn of the death of Mr. George Robert Soper, a member of the firm of Corry, Soper, Fowler and Co., which occurred on the 6th inst. at Amhurst Road, Stoke Newington, after a long and painful illness.

Death of Mr. F. Whitbourn.—I am truly sorry to say that Mr. Whitbourn, Great Gearies, Ilford, died very suddenly on the 25th inst. He had long been in feeble health, but was able to be out up to the day before he died.—J. DOUGLAS.

Grape Cannon Hall Muscat.—Will any reader of THE GARDEN tell me if the above will do in the same house as Black Hamburgh and Alicante? We have a new vinery 25 feet long and 18 feet 6 inches wide, with inside border.—A CONSTANT READER.

Names of plants.—*J. X. X.*—Raphiolepis japonica.——*Constant R.*—Helianthus decapetalus.——*G. M. Olivet.*—The material sent was all bad; flowers when shrivelled are very difficult to determine: 1, Cattleya Dowiana; 2, Miltonia Regnelli; 3, Cattleya Gaskelliana; 4, Scuticaria species; 5, Maxillaria species; 6, Oncidium species, near O. Brauni; 7, quite unrecognisable; 8, material insufficient; 9, Epidendrum aromaticum.——*A. Snow.*—Eurybia Gunniana.——*J. Rainbow.*—Rose Triomphe de Rennes.

WOODS & FORESTS.

BEAUTY OF THE LARCH.

THE merits of the Larch as an ornamental tree are not often alluded to, yet it is capable of producing an extremely picturesque effect in the landscape, particularly in hilly districts. An old French writer says, "the Larch is admired for its pyramidal shape and spiry head, for the tender green and peculiar disposition of its foliage, and for its tassel-like catkins, which spread over the tree, and, seen at a little distance, resemble wood Strawberries in their form, colour, and size, contrasting pleasingly with the pale green of the beautiful tufts of leaves which crown the slender branches." On the other hand, Gilpin, who is generally acknowledged as an authority as regards the aspect of trees, considers it too formal in growth to be beautiful in this country, though he admits it is elegant. This writer probably regarded it only as a formal tree, when seen, as it generally is, crowded in plantations with a view to profit. I am more concerned at present with its aspect as a lawn or park tree, and in such places it is, I consider, a most beautiful tree, particularly at the age between the juvenile and adult stages. At this age, if the tree has been merely sheltered, not crowded, it is feathered almost to the ground with branches. Wordsworth, who held a high opinion of the Larch as an ornamental tree, says, "To produce an ornamental Larch it should be carefully nursed, removing the nurses gradually so as to allow sufficient air around the specimen to encourage the growth of the lower branches, but at the same time affording shelter enough to produce length of stem." He continues: "I do not know a more beautiful object on a lawn in the early summer months than a tree so treated, forming, as it does, a delicate pea green cone from the Grass upwards to a height of 50 feet or even 60 feet. If properly managed, the lowest branches will live as long as the tree. Then, again, its death-like character in the winter is strikingly peculiar to the tree." In many places in this country I have seen Larches which fully justify Wordsworth's remarks, and even some old trees I have seen with branches sweeping the ground.

So much for the ornamental character of the common Larch, so common, indeed, that it is looked upon as a native. But beautiful as it undoubtedly is, its near ally from the other side of the Atlantic is even more beautiful. In the American Larch we have a naturally weeping or pendulous tree, not an accidental sport or monstrosity, as the majority of so-called weeping trees are, but one that embodies all the elegance of the young Deodar with the addition of being deciduous, which enhances its interest and beauty so much. It is generally admitted that the American Larch is handsomer than the European; and, moreover, possesses wood superior for lightness, strength, and durability. But it is not its utility which now concerns us. The branches being longer and more slender, and its leaves being shorter, all add to its distinctiveness. Therefore, in places where the common Larch abounds in plantations, this one may be planted on the lawn or in the park for the sake of variety. It is of undoubted hardiness, as it inhabits the coldest, swampy districts, from New England northwards. It is known popularly as the Black Larch, American Larch, Tamarack, and Hackmatack, and botanically by several names, the chief being Larix pendula, Pinus pendula, Larix americana, Abies microcarpa, and Larix microcarpa. The last name is that which generally has precedence among botanists in this country, though nurserymen, as a rule, call it L. americana. It is a slender growing tree, throwing off horizontal branches, and often attaining a height of from 70 feet to 90 feet. It is said to be an ungainly looking tree when old, but in a young state most elegant; the cones are larger, and the foliage of a duller hue than that of the European species. It was first introduced to this country about the year 1739 by one Peter Collinson, to whom is accredited the introduction of many fine American trees.

There is a pendulous variety of the European Larch in cultivation in this country, originally introduced from the Tyrol. In this form the branches are drooping. It is, however, rarely met with as a large tree, the finest being, it is said, at Henham Hall, in Suffolk. This tree is only about 12 feet high, though it covers a walk some 10 feet wide for a distance of 130 feet. It is so recumbent in growth that a strong support to the branches is necessary so as to keep the path clear beneath. There are other varieties of Weeping Larch which grow taller; among these are the Godsall Larch and Lawson's Pendulous Larch, the latter somewhat resembling the American Larch. X.

THE PLUM-FRUITED YEW.

(PODOCARPUS ANDINUS.)

I WAS pleased to see in THE GARDEN of June 23 (p. 590) that this distinct and pretty, but seldom seen Conifer does so well in the grounds at Osborne House. This is certainly encouraging, for not every part of the British Isles is suited for the culture of this Valdivian tree, a matter much to be regretted, for it is certainly as handsome a shrub (I have not known it to attain to tree size yet in this country) as could well be wished for. The habit is neat, the branches and foliage thickly produced, while it bears the pruning shears as well as does a Yew or a Holly. About its general hardihood in this country I am now able to say a little, but only a little, for it is a rarely seen plant.

I have watched its behaviour in at least four wide-apart counties in England, Scotland, and Ireland. In these stations it has proved itself to be well able to withstand even a severe winter, and the positions it occupies are by no means sheltered, nor was any special care bestowed either at the time of planting the trees or in their after management. The Irish specimen to which I refer is a neat and healthy plant with plenty of branches and foliage, and is growing in a semi-shaded spot amongst loam and peat, more of the latter than the former. Rapid of growth we can hardly apply to the Plum-fruited Yew, for it inclines far more to expend its substance in the production of short, twiggy branches and a rich abundance of foliage than a long leading shoot. A friend to whom I pointed out a fair sized specimen, but who did not know it, remarked how much in general appearance it resembled a stunted Douglas Fir (Pseudo-tsuga Douglasi). Such is by no means an incorrect judgment, for the whole appearance, and particularly the shape and colour of foliage, resemble in no small degree those of that now popular Spruce.

The leaves, about the size of those of the Douglas Fir or Yew, and thickly produced, are of a very deep Yew green above, but slightly silvery on the under sides. In the fruit we have something out of the usual way of coniferous trees, for they are bigger than Sloes, almost transparent, though stiff and leathery in substance. For planting where ground is limited this Podocarp is peculiarly well suited, its slow rate of growth, neat bushy habit, and adaptability to the pruning-hook being no mean recommendations. It grows as wide as it is high, rather stiff than wandering and untidy in appearance, and presents at all times, even in the dead of winter when many of our conifers assume a rusty aspect, a cheery and healthy outer surface.

No doubt the conditions under which the finest specimens have been developed in Britain are such as to warrant us in saying that this Podocarp prefers a warm and sunny spot and light peaty soil, but for all this, two or three plants could be pointed out (one on the wind-swept Isle of Anglesey) that have had no such favourable sites and soils allotted to them. However, it is just as well—for good plants are rare and costly—when planting out a specimen to treat it as well as is in our power and then after-reflections will be pleasant. Dig out a good big hole, say 4 feet in diameter and 3 feet deep, fill it with a mixture of half peat and half sandy loam, into this place the plant, and more than likely, if the position is not too cold and cheerless, it will do well. It is of the easiest propagation, cuttings rooting freely if placed beneath a handlight in sharp sandy loam or peat. The young plants grow freely enough after the second year, at which time they should be lined out in well-worked lightish soil and without protection of any kind.

Let me advise every lover of a neat and distinct plant to procure a specimen of Podocarpus andinus, *alias* Prumnopitys elegans.

A. D. WEBSTER.

Planting ornamental trees.—The choice of soils and situations best suited for the health and development of the different kinds of trees is even more important in ornamental than in economic planting, and as, in the former, the number of sorts dealt with is much greater than in the latter, a more widely extended knowledge of arboricultural botany is needed than is usually aspired to by merely practical foresters. Further, in ornamental planting, a knowledge of the wind-resisting powers of the different kinds of trees is specially needful, in order to arrange them so that the stronger may shelter the weaker, and prevent that one-sided appearance that, although prized by artists in depicting wind-beaten scenery, is looked upon by tree admirers with feelings of unpleasantness.—R.

Raising Elms from seed.—The seeds of the Elm generally ripen towards the end of June. In gathering such, select tall, well-grown trees, and be particular in the handling and storing of the seed, as it is very delicate and heats quickly. On this account it should be well spread out if not sown the same day on which it is gathered. When intended to remain in the beds for two-years' seedlings, it should not be sown too thickly, as the plants are apt to become drawn up and weakly. A covering of half an inch of soil is sufficient, and this should be both rich and mellow. The seeds kept over for sowing in the following spring should be well and gradually dried before being stored away. An airy loft is the best place for storing them. The quality of Elm seeds may be ascertained by the firmness of the capsule.—A. J. B.

Lombardy Poplars and lightning.—Professor Asa Gray observed that the reason which lies at the bottom of the general belief, on the Continent of Europe, that lightning strikes the Lombardy Poplar trees in preference to others is coming to light. Green herbage and green wood—sappy wood—are excellent conductors of electricity. A tree is shattered by lightning only when the discharge reaches the naked trunk or naked branches, which are poorer conductors. An old-fashioned Lombardy Poplar, by its height, by its complete covering of twigs and small branches, and their foliage, down almost to the ground, and by its sappy wood, makes a capital lightning-rod, and a cheap one. Happily no one can patent it and bring it round in a wagon, and insist upon trying it. To make it surer, the tree should stand in moist ground or near water, for wet ground is a good conductor and dry soil a poor one. It is recommended to plant a Lombardy Poplar near the house, and another close to the barn. If the ground is dry, the nearer the well the better, except for the nuisance of the roots that will get into it.

A venerable Larch.—At West Lavant House there is a very old Larch, conspicuous, not for its great height, but for its spread of branches and girth of stem. The stem at 1 foot from the ground girths 15 feet, while great arms, thick as ordinary Larch stems, have grown outwards and come down to the ground. The tree is still as healthy as in the prime of youth, for it must be a very aged tree, and there is nothing in the soil to stimulate the rapid formation of bulk of stem, for the subsoil is chalk.

No. 872. SATURDAY, Aug. 4, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

SEA-SIDE ROSES.

I HAVE often been asked, both by friends and strangers, "Which are the best Roses for the sea-side?" And I have often been told by both that "Roses do no good at the sea-side." Having given considerable attention to this matter during the last few years, I will venture to set down the results of my observations and conclusions. I have often stood still to admire the luxuriance of growth and foliage and the beauty of the flowers of Roses on the shores of the Mediterranean between Marseilles and Genoa, especially about Antibes, and these have been, for the most part, the varieties of Noisette, Chinese, Tea-scented, and Hybrid Perpetual most prized and cultivated in England. This, it may be said, is a climate more favourable to growth than that of England. Granted; but then I have seen Roses flowering well near the sea in various parts of France and Great Britain, in our own country as far north as Aberdeen. It is but recently that I met with the common China Rose, the Maiden's Blush, the old Cabbage Rose, and more than one sort of the French (R. gallica) at Herne Bay planted in gardens fully exposed to and within a few yards of the sea. They had plenty of decent flowers on them, and seemed to laugh at the fiercest attacks of Father Neptune. On looking into more than one garden, I found many of our best Hybrid Perpetuals, also the Gloire de Dijon and Noisette Aimée Vibert. These also had grown freely under the shelter of a wall or fence, and were now producing many fine flowers. In one of these little gardens I was recommended to "go and see" the Roses at the Vicarage at Herne, two miles distant. Accordingly I set off, and on presenting my card, with a request that I might be permitted to see the Roses, received at once, although a stranger, a kind and cordial welcome from the vicar, the Rev. J. R. Buchanan. Now, this collection is large enough to include a great number of the best sorts of Hybrid Perpetuals and Tea-scented, and I never saw plants in better health or finer bloom. In this garden, one and a half miles from the sea, were La France, Etienne Levet, Charles Lefebvre, Dupuy Jamain, François Michelon, Baroness Rothschild, and others amongst the Hybrid Perpetuals. Perle des Jardins, Rubens, Mme. Falcot, Anna Ollivier, Madame Lambard, Comtesse de Nadaillac, and other Tea-scented kinds budded on dwarf standard Dog Rose, were beautiful in the extreme; two rows of these I had never seen surpassed. The soil was unquestionably good, but the cultivation was even better; not a plant but bore marks of thoughtful attention. Close to this vicarage is Strode Park, the residence of Major Davis, and here Roses were seen to flourish well; the plants were in the rudest health, and covered with a wealth of handsome flowers. The standard Roses in beds on the lawn were most effective. Herne is only one of many sea-side places that I have visited during the last few years, and I quote this because the most recently visited, and therefore the freshest in my memory, and to repeat descriptions of other gardens might be tiresome from sameness. The conclusions I have drawn from these and other visits are:—

1. That the sea air is not prejudicial to the growth of Roses.

2. It is the fierce and cold blasts from off the sea that hinder growth and maul and spoil the flowers.

3. Given a good soil and shelter—under a hill, bank, belt of trees, or wall—and good cultivation, and Roses may be grown at the sea-side to produce flowers equal to the majority of those exhibited at the Rose shows.

4. The following sorts in addition to those quoted above have been met with in a highly satisfactory condition; *Common Moss, Damask*—Madame Hardy. *Alba*—Felicité (Parmentier). *Hybrid Perpetual*—Anna Alexieff, Anna de Diesbach, Dr. Andry, Duchess of Sutherland, Duke of Edinburgh, General Jacqueminot, Glory of Waltham, Jules Margottin, Mme. Clemence Joigneaux, Merveille de Lyon, Magna Charta, Queen of Bedders, Crown Prince, Ella Gordon, Lady Sheffield, Mme. Gabriel Luizet, Ulrich Brunner, Violette Bouyer, Coquette des Blanches. *Ayrshire*—Thoresbyana. *Sempervirens* — Félicité-Perpetué. *Boursault*—Amadis. *Hybrid China, &c.*—Mme. Plantier, Charles Lawson, Coupe d'Hébé, Chênédolé. *Noisette*—Céline Forestier. *Tea-scented* — Homère, Marie Van Houtte, Safrano. I do not mean to say that these are the only Roses that will do at the sea-side, but that these will do, and I believe many others of the free growing sorts that are not too full, may safely be added to this list.

WILLIAM PAUL.

Pauls' Nurseries, Waltham Cross, Herts.

Rose Niphetos.—With me this Rose proves much more useful than Maréchal Niel, as it is more continuous flowering. Although it has not flowered so profusely at a given time as the Maréchal, yet I have been able to cut every week since before last Christmas some good buds for button-holes as well as full grown flowers. About twelve months ago I received some young plants, apparently spring-worked, for they had but one good shoot each, and were in 6-inch pots. I plunged them in coal ashes outdoors in a sunny place in order to ripen the wood. After a time I cut them back about half way down, for the shoots were quite 3 feet in length; they broke well into growth and each shoot produced a flower-bud, which was taken off. This induced the plants to break back at different places. The pots being full of roots and the plants increasing rapidly in size, I put them into pots two sizes larger, using rough decayed loam and some sand, with an addition of one-third rotten manure passed through a coarse sieve. In this mixture they grew very fast, for I must here say the plants were in a house with an intermediate temperature, close enough to the glass to have all the light possible and air at all suitable times. As the plants grew fast I shifted them into 12-inch pots, in which they are now. The plants have not been pruned in any way since the first start, but I have them plunged as before in an open sunny spot outdoors, and although they do not now grow much the wood will soon be well ripened, while the buds from which by their appearance I hope to get some early flowers are very prominent. All the pruning necessary will be a little thinning of the weakest growth.—T. R. F.

THE ROSE GARDEN IN EARLY JUNE.

IN a pleasant article in the *Saturday Review* for July 14 on the National Rose Society's metropolitan exhibition at the Crystal Palace occurs the following:—

There is some truth in the complaint of the writer in THE GARDEN that the July exhibitions are unfavourable to the claims of many excellent Roses. They undoubtedly cause the too exclusive cultivation of Hybrid Perpetuals and the neglect of many early Noisettes and summer Roses, some of which are exceedingly beautiful and distinctive. At the same time it is from the former that the bulk of exhibition Roses are derived, and while there are exhibitions there must be exhibition Roses. In an exhibition of cut Roses none may compete with the splendour and variety of the Hybrid Perpetual class. A Rose show in early June would, in our fickle climate, be of very uncertain quality, though not without interest, and as for the contention that gardens devoted wholly to Hybrid Perpetuals are roseless until July, it may be urged that this applies only to portions of the country. Of course, no garden worthy of the name should be without Roses in June, and it is difficult to believe that there are such gardens, except in the midlands and north. At the Crystal Palace it was not altogether proved that "one result of Rose shows has been to induce generally the cultivation of a single class of Roses." If, however, the proposed early exhibition, say in mid-June, would tend to the better cultivation of all branches of the Rose family, we are confident it would not lack the support of the National Rose Society.

From which it would appear that the article in THE GARDEN proposed, as the best means of making the early-blooming garden Roses better known, that a Rose show should be held in early June—a construction that the article itself can hardly be made to bear. For while it is urged that "there is no reason why the Rose garden should not be in a state of beauty from the early days of June," nothing is said about the attractions of an exhibition at that time; and, in fact, the ineffectuality of such an arrangement is expressly pointed out in the statement that "there are no other means than the reports of cultivators by which the merits of garden Roses may be made known, since some Roses lose their chief beauty under the ordeal of a journey to an exhibition."

Herein lies the main difficulty, that it is impossible practically to exhibit many of the best garden Roses so as to give an adequate idea of their beauty or of their ornamental value as garden plants.

Good blooms of Hybrid Perpetuals seen under canvas on a sunny day appear even more glowing and intense in colour than when growing on the plants out of doors, and the habit and growth of all the class are sufficiently similar to enable anyone who has ever grown a few varieties to form a pretty accurate estimate of the effect that other sorts would make in the garden from merely seeing the cut blooms of them.

But with many garden Roses, particularly in the case of climbers, it is very different. For instance, a vase or bowl of blossoms and buds of Fortune's Yellow is delightful beyond compare, but what idea can it give of the glory of a great plant of this unique Rose covered with flowers in all stages on a sunny morning in

June? Or, again, however great bunches of Rosa multiflora be staged, what notion is afforded of the snowy cataract of bloom that so completely veils the plant over which it seems to pour—a "waste of waters" of Roses, with an infinity of spotless petals for foam and spray? In fact, it were hardly more hopeless to make anyone realise the beauty of a waterfall by means of a bucket of water taken from the torrent than to give a just idea of the appearance and lavish profusion of some of the most beautiful climbing Roses by means of exhibiting a handful of their cut blossoms in a hot tent.

How to enable those who have no opportunity of seeing the growing plants in flower to form an exact estimate of the display that may be made by some garden Roses, is a problem that still requires solution. One valuable means, which has been tried to some extent, but might well be far more extensively employed, is the photographing of typical plants. The difficulties attendant on this proceeding are, of course, considerable, as it may often happen that growers who have beautiful plants are not within reach of a sufficiently skilful photographer; while the best photographers (generally in the neighbourhood of large towns) may be asked to portray quite unrepresentative specimens. Photographers are numerous enough now-a-days, but it is not everyone who has a camera that can make a photographic picture that shall display the essential and characteristic qualities of a plant. Then, even if a first-rate photograph is taken, there are further and greater difficulties about its reproduction on a scale that will render it really valuable.

At the same time, where all these difficulties can be overcome and good photographs of first-rate plants be artistically reproduced, the demonstration of the beauty and value of particular varieties is far more effectual and widespread than could be made by any one exhibition.

The class for garden Roses in the National Rose Society's schedule is a comparatively recent addition, and its introduction was no doubt to some extent the outcome of the very general agitation in favour of the greater recognition of the claims of so-called garden Roses, so that the exhibits of these varieties at the Crystal Palace cannot be held to invalidate to any great extent the contention that Rose shows induce generally the cultivation of a single class of Roses. Again, that Hybrid Perpetuals bloom to any extent in an average season before July is contrary to the experience of many rosarians in that part of the country extending from twenty-five miles north of London as far south as the Isle of Wight, and has been proved many times by the fact that Rose shows fixed to take place on dates between the 20th and 26th of June have often either had to be postponed or have been comparative failures for lack of flowers. So if the writer in the *Saturday Review* finds it "difficult to believe" that such a condition of things obtains elsewhere than in the north, it would probably argue that he had been unable to make opportunity to visit any of the innumerable gardens within easy reach of London, where the conventional collections of Hybrid Perpetuals are well grown on or about the 20th of June, when the chances are ten to one that he would find the beds as green as a meadow.

There is one sentence in the article in the *Saturday Review* which expresses an idea unhappily entertained by a good many people, namely, that "while there are exhibitions there must be exhibition Roses." There is no special class of Roses retained in cultivation merely by the exhibitions. If all the exhibitions were abolished, Roses would still be grown in every county in England, and the bulk of them would be the Hybrid Perpetuals that are now most seen at the exhibitions. If any varieties had not beauty enough to ensure their being grown apart from their utility to the mere exhibitor, the sooner they went out of cultivation the better. But happily the existence of such varieties is hardly more than a superstition, which, at the same time, it is very undesirable to encourage.

The converse of the statement, in consideration of human vanity, probably more nearly expresses the truth, namely, that "while there are Roses there will be Rose shows;" but in any case, the superstition that "exhibition Roses" constitute a distinct and separate class of Roses useful only to the exhibitor, or that because a variety is "good for exhibition" that therefore it is not valuable as a "garden Rose," needs to be removed rather than revived.

The statement that "colour is not easily determined in flowers" is, alas! only too true, and many incongruous instances might be quoted to show just cause for the more precise definition of colours in Roses. But the apparent incongruity of including Prince Arthur among the dark velvety Roses, and Captain Christy among the whites, is not difficult of explanation. Owing to the dull weather, there has been this season a general deepening in tint of all the dark Roses, and Prince Arthur has been coming several shades darker than its normal colour, some blooms having been almost exactly the colour of flowers that opened in sunshine of Prince Camille de Rohan. Again, it will often happen that an exhibitor, especially in view of a long journey, will stage a box of blooms of Captain Christy but half expanded—still all in bud form—in which state they are practically white; but the next morning, particularly if the night has been close, when the exhibitor opens his box, his flowers will very likely greet him with a warm and open-hearted glow (of satisfaction perhaps at their safe arrival!), whereby, although their whiteness is reduced, their beauty is enhanced, as the beauty of a fair cheek is heightened by a glowing blush; and in either case what human judgment was ever proof against blushing beauty?

The conclusion, then, of the whole matter is briefly, not that rosarians should love the Hybrid Perpetuals less, but that they should love other (and especially earlier) Roses more, and that the popular fallacy that "exhibition Roses" are something apart and useless to any but exhibitors, or that there is any hard and fast line of demarcation between exhibition and garden Roses, should be finally exploded.

T. W. G.

Earl of Dufferin.—This new Rose has during the past fortnight been flowering freely both on cut-back and maiden plants, and is undoubtedly the finest dark Rose that has been sent out since Louis Van Houtte, a variety which it follows in the invaluable characteristic of having its rich crimson flowers shaded with brownish red rather than purplish tints. The plant is very vigorous and free-blooming, every growth being terminated by flower buds; the flowers are large, very full and globular with a high-pointed centre, from which the outer petals recurve, boldly displaying the brilliant red shades of their margins which light up the rich maroon crimson of the centre of the flower with the most telling effect. Earl of Dufferin has by some growers been called a dark Maurice Bernardin, but the new Rose is of far finer quality, not only in form and petal, but also in its handsomer habit and less liability to mildew than Maurice Bernardin. It might more aptly be described as a Pierre Notting, of the colour of Louis Van Houtte. It has only the fine form of the first-named dreary beauty, whose shyness in displaying its charms, frequently dull purplish tints and easily damaged complexion, are in no way characteristic of Earl of Dufferin, of which, in spite of its great fulness, almost every flower has opened fair and true in colour, notwithstanding the uninterrupted rainy weather. It may be confidently predicted that next season when its cultivation will have become more general, Earl of Dufferin will take a very prominent position at all the Rose shows throughout the country.—T. W. G.

Rose Gloire Lyonnaise.—This Tea-scented Rose is said to be the result of a cross between Baroness Rothschild and Madame Falcot, and as a garden Rose it should have a brilliant future in store. It is a free grower, producing abundant foliage. Some plants that were not planted until May this year have made shoots 2 feet long. The buds are large, and at first tinted with yellow, passing to clear white as the flower expands. The blooms are very fine and of good substance, a plant with several blooms upon it being very conspicuous some distance away.—A.

Roses from Berks.—Mr. Girdlestone has sent us the following Roses, and also the notes appended to each:—

Cannes la Coquette (H.T.).—An invaluable light-coloured form in bad weather. Note the stiffness of the stem, whereby it stands erect and is always well seen in the garden.

Souvenir de Victor Hugo (T.).—Very free, and I think will be pretty.

Marquise de Vivens (T.).—Pretty colour, but, as I said last year, too thin and irregular to be valuable.

Marie Legrange (H.P.).—Pretty rose; colour dulled by wet weather.

Victor Hugo (H.P.).—Glorious colour, which this flower shows, though otherwise it is a poor example of a fine variety.

Viscountess Folkestone (H.T.).—An even lovelier flower than Cannes la Coquette, but stem less stiff and so less conspicuous in garden.

Grace Darling (H.T.).—Always beautiful.

Gloire Lyonnaise (H.T.).—Beautiful in cool weather, note erect habit, good in garden.

Marguerite de Roman.—A very pretty Rose, most free and quite distinct from the Marie Finger family.

Prosper Laugier (E. Verdier, 1883) (H.P.).—A useful crimson Rose, especially in the north.

Suzanne-Marie Rodocanachi (H P).—The most brilliant rose colour of all H.P.'s, most free and constant, and a great favourite here.

Comtesse de Paris II. (Lévêque, 1882) (H.P.).—Most free and bright distinct rose colour. The blooms sent are marred by rain.

Comtesse de Mailly-Nesle (H.P.).—Very free, a pretty Rose in a cool season.

Hardiness of Tea-scented Roses.—It cannot be said that Tea Roses are hardy, as I have planted out many in the open, but they have not withstood the severity of our winters as well as I could wish. In this respect I have met with many disappointments. When I first came to the west of England to reside, I was under the impression that this class of Roses could be grown in the open air with scarcely any protection; but I have been disappointed. The plants would pass through ordinary winters unharmed by frost, but in severe seasons they have always been killed to the ground, and in some cases outright. The only satisfaction I have gained out of repeated trials is my knowledge as to the hardiness of the different varieties, for some are more hardy than others, so that I have been able to avoid those which I knew could not be trusted. I find that there are not more than half a dozen kinds that it is safe to plant, even in this part of England, unless it be intended to protect them during the winter. Safrano, Madame Falcot, Souvenir d'un Ami, Madame Berard, Madame Lambard, and Etoile de Lyon are the six sorts which have proved the hardiest with me; but even these will do better against a wall than in the open.

In my estimation Gloire de Dijon should not be included in any list of Tea Roses, as it does not properly belong to them. It is unfortunate that many of the most beautiful Roses belonging to this section are not hardy. If we could infuse a more hardy constitution into such sorts as Catherine Mermet, David Pradel, Perle de Lyon, and Marie Van Houtte, it would be a great gain to our gardens; but he would be a bold man who would plant these, unless he was prepared to afford the needful shelter during the winter. During my experience I have found that the character of the soil has a great deal to do with their behaviour during the winter. I am quite satisfied that to give Tea Roses a rich soil when growing in the open air is a mistake. It is those plants that are in a rich soil that are most injured by frost. The plants which stand the winter best are those with short-jointed growth, which becomes hardened before the frosts occur. Rich ground favours late growth as well as early, and such conditions are not desirable when dealing with these tender subjects. I do not even advise a too free use of loam for Tea Roses; a lighter description of soil will be found to suit them better. It is not safe to speak of the hardiness of Tea Roses with only the experience of a year or two, because it is the severe winters that kill the plants. The amount of shelter the plants get from their surroundings is, of course, a great point. If they are favourably situated in this respect, they are more likely to succeed than those more exposed to cold winds. It is just a question whether it would not be better to return to the practice followed fairly generally thirty years ago, of taking up the plants early in the winter, laying them in by the heels in snug corners, and planting them again in the spring.—J. C. C.

SHORT NOTES.—ROSES.

Two Good Roses.—Viscountess Folkestone continues glorious, every bud opening into a good flower, and I am much pleased with Ethel Brownlow, which is most free.

Late Roses in 1888—As far as I can see, we shall this year be able to record Scotch Roses, Rosa Mundi, &c., Moss Roses, and many singles as being in flower on the 1st of August!—T. W. G.

Rose Pride of Reigate.—Such Roses as this should be seen neither on the exhibition stand nor in the garden. Speckled and spotted flowers as varieties of this class present are utterly distasteful.

Pierre Carot is a fine Rose, but badly conceals its centre—at any rate, in the case of those shown by B. R. Cant at the Royal Horticultural Society's meeting recently. It is large and crimson in colour.

Comtesse de Paris (Lévêque, 1882) which has been a mass of bloom all the season, is still (July 30) carrying more flowers than any other variety of its class, and its erect sturdy habit makes it particularly effective in the garden.

Merveille de Lyon.—A Rose that opens well in such a season as this is one of undoubted merit. Merveille de Lyon was good last year in scorching heat and exceptional drought, and this year it perfects large buds which open into the fullest and purest of delicate tinted Roses.

Tea Rose Mme. de Lartas—Mr. Piper, of Piltdown, says this Rose is not grown nearly so much as it deserves. The colour is a bright rose. In the bud state the flowers at first suggest those of Mme. Lambard, but when open are full, globular, and quite distinct. It is a strong grower.

Rose Heinrich Schultheis is a brilliant rose-coloured variety with flowers of superb form and substance. It was very conspicuous in the Rose ground at Maresfield, where buds of many kinds were rotting and falling off. This kind, however, was opening splendidly.

Roses White Baroness, Helen Paul, and Merveille de Lyon growing side by side at Maresfield were all in full flower, but had the labels been taken away, so great is the resemblance between these three kinds it would have been hard to say where one ended and the other began.

Lord Bacon is a Rose that if it had only its colour to recommend it, would be invaluable. But besides the rich crimson hue lit up with scarlet and shaded with a deep velvety tint, the flower is of excellent globular, full shape. It is one of the kinds we noticed in the Waltham Cross Nursery.

Single Roses.—A very beautiful dinner-table decoration was lately arranged entirely with three varieties of single Roses. In some of the slender upright glasses were blooms in various stages of R. macrantha and in others of Hebe's Lip, while below were bunches of the exquisite and delightfully fragrant R. Brunonis. The flowers having been cut in the proper stage, lasted well for two days.

Tea Roses in 1888—It has indeed been a trying season for the Teas, especially for the very full ones like Jean Ducher, Catherine Mermet, &c. A few have made a good fight of it here, notably Mme. Lambard; also Perle des Jardins, Amazone, and Souvenir de Gabrielle Drevet, and one or two of the pendulous flowers, like Rubens, which is next best to Mme. Lambard.—T. W. G.

A MARÉCHAL ON ITS OWN ROOTS.

When I came here, about three years ago, I found an old Maréchal Niel Rose tree which had been planted outside more than seventeen years. It was worked on the Brier 3 feet from the ground, and carried up a west wall about 8 feet more into the conservatory just above the floor, and covered the end and roof to the extent of 230 square feet. Two years since it showed signs of distress; the stock was decaying, the bark had nearly gone, and the tips of the shoots were turning black. The Brier was $3\frac{1}{2}$ inches in circumference and the Rose 9 inches. I bound the stock with cow manure, and kept it moist during the summer of 1886. In January, 1887, as it seemed evident the Rose was dying, I built a space around the stock with burrs and filled it with soil, then made an incision in the stem of the Rose, just above the union, with the object of getting it on its own roots. I then cut longitudinally a drain pipe, 12 inches in diameter, placed it in the soil round the stem, reaching 8 inches above the cut, filled in the pipe with a compost of loam, rotten manure, and sharp sand, and cut the Rose back to the hard wood. During the year (1887) the plant made a little growth. In the autumn I found a leading root from the incision, 18 inches in length, and several fibrous roots all around. I then got the burrs out, filled up a space about 2 feet 6 inches square with loam and rotten manure in alternate layers, and straw outside to protect from frost. The plant bore in April last about 200 blooms, which were cut off as fast as they opened. In May the tree started into growth, and is now producing a second crop of blooms and an abundance of wood. There is not sufficient ventilation in the roof of the conservatory, and the young growth is beginning to get drawn. Will any reader kindly say if it is advisable to thin the wood now or in the winter, and whether my experiment is likely to succeed?—D. Daws, *Farnham.*

*** Mr. Daws' account of his experiment with a view to getting Maréchal Niel worked standard high on Brier on to its own roots is exceedingly interesting. There seems now nothing to prevent the successful accomplishment of his object. No doubt, in a hot summer there might have been some possibility of the roots being injured by drought, owing to their being included in a comparatively small volume of soil, exposed on all sides to the air, and therefore Mr. Daws is fortunate in the coolness of the present season; but, at the same time, the protection of straw which Mr. Daws provided against frost in winter would, no doubt, have equally well guarded against all danger in summer. Beyond such risk from either heat or cold, it is difficult to see what is to prevent the complete establishment of the Rose on its own roots. The wood should be thinned out now, all weak and spent branches being removed, and only sufficient of the best and strongest of the young wood retained to furnish the required surface in the house. Further notes from time to time as to how the experiment succeeds will be of great interest.—T. W. Girdlestone.

Ella Gordon is a most beautiful Hybrid Perpetual of fine form, with large petals of rich crimson colour. In general appearance it follows Mme. Victor Verdier, than which, however, it is so much more free and constant, that the older variety is being discarded in favour of the Waltham Cross seedling. Ella Gordon, also, is hardy and vigorous, and makes a handsome plant.

Duchess of Bedford Rose.—A perfect flower of this rich crimson variety is hardly to be surpassed for beauty amongst crimson Roses; but there are not many cultivators who are so fortunate as to be able to describe it as of "vigorous growth"—one of the three recommendations urged in its favour on p. 72. Were its constitution only generally stronger, it would probably be reckoned one of the best twelve Hybrid Perpetuals.

Mrs. George Dickson (Bennett, 1884) is another of the Roses which is far better suited by a cool season. The past two summers were too hot for it, but this year grand flowers of it have been produced, large, full, and with a high pointed centre, lasting well in the cut state. The delicate satiny rose colour of the variety is so distinct and beautiful, that it is very gratifying to find that in a suitable season it may be flowered without difficulty in such perfection.

Waltham No. 1 Rose will clothe a pillar to a height of 20 feet. It is a seedling from the popular Gloire de Dijon, and gives a mass of brilliant carmine flowers with plenty of substance and extremely sweet. Roses so gay as this during summer and autumn should be considered priceless treasures for the garden.

ROSES FOR GROWING IN MASSES.

There has been such a wealth of flowers on all the old-fashioned hardy summer-flowering Roses this season, that one could not take a walk or drive through a country village without being impressed with their value for more general planting in the better class of gardens. Owing to the additional space in such cases they could be grown to greater advantage than what we see in gardens of limited area, as they could be cultivated in larger groups, which would make them more attractive. If there is one reason why these old forms of Roses should be more widely known, it is because they will thrive where the better forms of Roses refuse to grow, as they are indifferent about soil, requiring, however, a fair amount of sunshine. I have lately seen some grand bushes of Gloria Mundi occupying a dry bank where a Hybrid Perpetual would hardly live, yet these plants were producing their flowers in abundance. This Rose is not only very free-blooming, but some of the blossoms come striped, while others are red, the last mentioned predominating. The old pink monthly Rose was also associated with it, the two making a grand show of blossom. Village Maid is a much scarcer variety than either of the above, but is occasionally to be found in cottage gardens. The reason of its scarcity is no doubt owing to the fact that it does not make suckers so freely as the others and is altogether less vigorous, but it is a charming old Rose, and produces a great number of flowers, which are large, and full, and excellent in form. The ground colour of the petals is white, which is irregularly striped with rose and dark crimson; altogether it is a charming old Rose, and will thrive in any fairly good soil. It should not be pruned, and is very hardy. The Maiden's Blush, if possible, is more attractive than those already mentioned, as it is a stronger grower and produces an enormous quantity of flowers. It never looks better than when overtopping a low wall, or when grown in the form of a hedge. There are several Roses of the same style of growth as the last mentioned, the names of which I do not know, but I have met with them in neglected gardens flowering in the most profuse manner. One in particular I have seen with rich crimson-shaded flowers, and another with a dark velvety purple colour, which was very striking, the plant growing in a semi-wild state. All the varieties of Roses which I have mentioned are well suited for planting in masses in the wild garden or shrubbery border, or in any other position that would not be considered good enough for the more tender sorts. Plant them in fairly large groups, and leave them alone. The cultivator who considers it necessary to prune every year all the Roses that he cultivates is advised not to plant these, for as sure as he attempts to prune those sorts I have enumerated, he will be disappointed in the results. J. C. C.

Beautiful gardening.—In the quiet little garden at West Lavant House, Aralia Sieboldi fringing the shrubbery assumes the dimensions of a tree, being 9 feet high. A bed of Pampas Grass, Tritomas, and Arundo donax was prettier without flower or plume than the flat monotony of a dozen beds of scarlet Pelargoniums. The Yuccas were well represented, and a large group of the New Zealand Flax was conspicuous. The wealth of plants of fine form, both hardy and tender, is hardly recognised, and but scantily used in flower gardening or in many gardens at all, people being under the impression that it involves the carrying out of an elaborate system called sub-tropical gardening. This is unfortunate, for in these plants we have a type of vegetation of good form, many of them per-

fectly hardy, so that when once planted they give no further trouble, and in summer they afford relief and make a pleasing variety after one has been gazing upon a scarlet and yellow glare.

NOTES OF THE WEEK.

Fasciated Red Currant. — Mr. Ricketts, Birch Hall, Windlesham, Bagshot, sends a bunch of Red Currants, the stalk quite fasciated, and therefore accounting for the large number of berries.

The Cape Leadwort (Plumbago capensis) is a mass of bloom in Messrs. Laing and Co.'s nursery. The lovely blue-coloured flowers delight everyone. A coloured plate of this and the white form appeared in The Garden, April 21, 1888.

Anthurium Laingi is the best white-spathed Anthurium we know. It has a spathe about the size of that of A. ferrierense, of the purest white, and with a pink coloured spadix. This is one of Messrs. Laing and Co.'s acquisitions.

The bad weather, we learn, is universal in Western Europe. The immense supplies of fruit and vegetables which come into Covent Garden usually in good condition are this year, like our own, in bad condition and lacking flavour. Packed wet, they travel badly.

Fuchsia procumbens.—Exceedingly pretty is this very dwarf Fuchsia in pots at Highfield. The flowers are of no great merit, but the plants are very dense growing and dwarf, and these carry the seed-pods for a long season. These, when ripe, are of a bright red colour, and present a very attractive appearance.

Carnations from America.—We have received some Carnations from Mr. Butcher, an Englishman, settled as a florist in Providence, Rhode Island, America, perfectly fresh and nice, in a little box. They were very neatly sent with a little bit of wire over the top, and the hint may be useful to others who are sending things a long distance.

Elæagnus longipes edulis.—Fruiting twigs of this ornamental hardy shrub have come from Mr. T. S. Ware, of Tottenham. The long-stalked, oval, and red berries, speckled with white, give a well grown bush an exceedingly handsome appearance, and their use for preserving should not be overlooked. The flavour is something like that of the Red Currant, but more acid.

Brassia caudata.—A very fine form of this old, but now rare species is flowering with Mr. White at Winchmore Hill, and its long many-flowered spike, with the blooms arranged in a two-ranked manner, render it extremely handsome; the blooms are yellowish white, spotted with greenish-purple, the sepals and petals very long, stiff and straight. I have recently noted various specimens of this genus blooming in collections round about London, evidently a sign of future favour again for the old-fashioned genus Brassia. They are worthy of attention for their distinctness, and as many of them are cool-house plants and easily grown, it is to be hoped that they will again come to the front.

A case of ready and rapid propagation occurred here last week. Some cuttings from the haulm of a Yam or Sweet Potato, I believe, recently received from South America, were given me to grow as an experiment. They were inserted in a sandy soil, covered with a bell-glass, and plunged in a rather brisk bottom heat. To my surprise, in four days they were not only well rooted in the soil, but bunches of long aërial roots had pushed from every joint above ground. On the fifth day they were potted off and returned to the hot-bed. In less than a week from the cutting state they were independent established plants in full growth. What is remarkable is that the stems were perfectly smooth, without the least trace of roots. —J. M., *Charmouth, Dorset.*

Spiræa Bumalda.—All that has been written in praise of this new Japanese shrub is thoroughly merited, and we have no hesitation in saying it is one of the prettiest dwarf shrubs of July. It is evidently only a variety of the variable S. callosa (or what should be more strictly called S. japonica), as it is like it both in growth and foliage. It does not grow much more than a foot high, and its slender stems spread widely. The flower clusters are broad and flat, of a delicate rose-pink, sometimes deeper, and so numerous are the flowers that the whole bush is a mass of colour. It is now in great beauty, and particularly in the Knap Hill Nurseries, Woking, where already it is grown on a large scale. A fine group could be made with the forms of S. callosa alone, using the common kind, the white, the deep crimson, atro-sanguinea splendens, and this little Bumalda as an outside plant.

Hollyhocks are flourishing in spite of the unfavourable weather conditions, and if we are only favoured with sun, which we reasonably expect, a grand show of flowers will be the result. The growth is strong, the foliage healthy, and from a large batch in Messrs. Laing & Co.'s nursery, free from the disease that has almost destroyed this stateliest of border flowers. About this season a good mulching is given, and in hot weather a thorough watering, but this, we need scarcely mention, is hardly required. If only we have summer weather, so far denied us, the Hollyhocks will be finer than for very many years past.

The Bath Floral Fete.—Considerable interest attaches to the exhibition in the Sydney Gardens on September 5 and 6 next, as the British Association for the Advancement of Science is holding its meeting in the city at the same time, and in honour thereof special prizes are offered for the most interesting hybrid Orchids, for the best hybrid plants, and the same for Ferns. It is desired that illustrations of the parents from which the plants are raised be shown at the same time. Prizes are also offered for hybrid forms of Athyriums, Polystichums, Scolopendriums, or any other species of Ferns; also for collections of cut flowers of herbaceous or hardy plants, not less than twelve varieties, and the same in regard to annuals.

Lapageria rosea superba, Nash Court variety, is certainly the finest Lapageria that has ever appeared. Its immense vigour, quick growth, and large, waxy, deep red flowers should make it the most popular of its class. Messrs. Laing and Co., of Forest Hill, are the possessors of this distinct Lapageria. Some plants of it in their nursery are commencing to flower, the robust stems being wreathed with bloom and buds, showing that not only does it quickly become established by reason of its great vigour, but gives a proportionate display of flowers, and these of a splendid kind. Some of the growths made last season measured 16 feet.

Passiflora Constance Elliott. — This is flowering remarkably well in a house in Messrs. Laing and Co.'s nursery at Forest Hill. It is, as is now well known, a white form of our common hardy blue Passion Flower, and is a worthy relative of the type. It is like it in the flower, except that this is white—not a French white, as is the colour of many so-called white flowers. Its freedom of growth is extraordinary; it rambles over the rafter, and forms a dense curtain of greenery studded with flowers, which are most useful for wreaths and decorations generally. The more we see of it, the more we are certain that in P. Constance Elliott is a plant of priceless value for the greenhouse and warm sunny walls. Its rapid rise in popularity is an excellent test of its real value. A coloured plate of it appeared in The Garden, May 7, 1887.

Roses at Forest Hill.—That this is a poor season for Roses everyone knows; but there are some kinds that have done remarkably well, in spite of the drawbacks as regards weather. In the large batch of Roses in the nurseries of Messrs. Laing & Co. the under-mentioned varieties are, apparently, almost indifferent to the rains and unnatural coldness. One of the finest was the variety Mrs. John Laing, one of Mr. Bennett's choice acquirements, and certainly a lovely, full, brightly-coloured flower. It has often been written of lately in The Garden, but we remarked how proof it is against mildew at Forest Hill. The plants at Messrs. Laing show a vigorous leafy growth and not a trace of mildew, which is assailing other varieties hard by. The dark-coloured Earl Dufferin, and the delicately tinted Tea variety Grace Darling, Victor Hugo, splendid for colour and fragrance; Earl Pembroke, full, bright crimson, and Mrs. George Dickson, charming pink, excellent grower, are also in the list of those Roses that have made a fair display in the season of 1888. All are free both in flower and habit.

Crossandra undulæfolia.—This is to be recommended as a first-rate stove plant, very bright and uncommon in colour, and a most continuous flowerer. It is a small erect-growing plant, with large wavy-edged dark green leaves, and begins to bloom when only a few inches high. The flower spikes terminating the principal shoots are very dense and compact. Each flower is 1 inch or so across, five-lobed, usually of a bright orange-scarlet, varying to almost a clear yellow. For several weeks past this plant has enlivened the stoves at Kew with its bright bloom, and will continue to do so for some time, hence its value for general cultivation. The plant called C. infundibuliformis is said to be synonymous with C. undulæfolia, which is convenient if only to get rid of such a cumbrous name. We owe this fine plant to Mr. Bull, who introduced it from the East Indies a few years ago.

Lilies from Twickenham.—A splendid box of Lilies comes to us from Mr. W. Gordon, Twickenham, the majority of them forms of L. elegans, itself a beautiful Lily, but the offspring of it now in cultivation far surpass the type. Mr. Gordon knows well how to manage Lilies of all kinds. The flowers sent show careful culture, the foliage good, and the colours of all shades, from the deepest crimson-red of the variety sanguineum to orange-scarlet flamed with ruby that shines in the sunlight. The dwarf forms of L. elegans, which often attain scarcely a foot high, are very neat when in a mass, as the large Tulip-like blooms are well shown; though it were better to have a good sprinkling also of the taller kinds to prevent monotony or formality. Lilium longiflorum, imported from Japan, carried three of the large, ivory-white flowers on each of the leafy stems, and was glorious for colour and expression, but the variegated variety also should be seen in every garden, as the foliage is exceedingly beautiful, glaucous green, margined with white. Clumps of this in the garden have a bright effect.

Waterloo Strawberry at Gunton.—I send you a sample box of three late kinds of Strawberries, Dr. Hogg, Amateur, and the new variety Waterloo. I may state that here Waterloo has surprised me by its excellence. From the not very flattering notices of it last season in the horticultural press, I did not expect anything so good as it has proved on trial. Waterloo Strawberry is undoubtedly one of those new, good, and distinct things that make their appearance occasionally, and deserve more than a passing notice. It is a good grower, the fruit large and very showy; flavour excellent, and although not quite so good as British Queen, it is far before Oxonian, and almost as late, which should make it a welcome addition. A worse season for testing the flavour of Strawberries is seldom experienced, especially after three wet nights in succession, culminating on the 30th in a perfect deluge, which choked drains and flooded stokeholes, putting out fires that were badly wanted in this ever-to-be-remembered July, 1888.—W. Allan, *Gunton Park.*

*** We have to thank Mr. Allan for some carefully packed fruit which came with the above note. We were pleased with the fine quality of the Strawberry Waterloo as it came to us. It has a wholesome pleasant flavour which is remarkable during the present season, when even British Queen has hardly any flavour. It is of a distinct and deep mulberry colour throughout, with firm flesh, not blown into cavities and angles as many of the large Strawberries are. When compared with very fine specimens of Dr. Hogg sent at the same time, it had a better flavour. We strongly advise all our readers to give it a fair trial. We hope we shall never have so bad a season to record again, and the fact that it does so well in such weather is greatly in its favour. Is not this the variety known as Mons. Fournier by the French nurserymen? If so, we shall certainly call it by its true name. The re-naming of vegetables and fruits of foreign origin is not creditable to us and against the interests of gardening. What should we think of a French nurseryman who gave the British Queen another name and sent it out as a new thing?—Ed.

STOVE AND GREENHOUSE.

THE SAGO PALM.

(CYCAS REVOLUTA.)

THE accompanying illustration of C. revoluta is engraved from a photograph of a fine specimen growing in the gardens of Mr. C. Godfray, Beau Sejour, St. Heliers, Jersey, and I am pleased to find these plants are so highly esteemed in that establishment, for they are exceedingly handsome and interesting. This genus gives its name to the Order Cycadeæ, which appears to have in combination the features of two or three distinct orders of plants; thus they resemble Palms in their cylindrical unbranched stems, their venation and style of growth is similar to that of Ferns, and in their manner of fruiting they somewhat resemble the Fir tribe (Conifers). With these curious combinations and a noble appearance, why are English plant growers satisfied to look upon them in botanic gardens only? The Kew collection is a very rich one, probably the richest, although the Botanic Gardens in Amsterdam are also extremely rich in these plants, and on the occasion of my visit to these gardens some few years ago I observed one or two branching specimens which are occasionally, but rarely found. The distribution of these plants is much wider than was formerly supposed, although the southern portion of the African continent and Australia may be considered their strongholds. Many species are also found in the East and West Indies, throughout South America, Mexico, and some of the Pacific Islands; others have been found in East and Western Africa, Madagascar, and various other places. Mr. Bull, of Chelsea, has perhaps the largest trade collection of Cycads in this country, having devoted much time and expense to their introduction, and it is worthy of note that the Tree Ferns and Cycads bear removal better than any other class of plants, for many of the imported stems in the Kew collection must be several hundred years of age. These stems have their roots and branches cut away and then are shipped to this country, when they begin to grow again to repair the damage. To return, however, to the genus Cycas. The native home of the species here illustrated is supposed to be China and Japan; it may, however, have been introduced to those countries. It is undoubtedly found growing wild in some of the South Sea Islands, and also in New Guinea. It has been introduced in large quantities to the island of Cuba, and large supplies have been imported from this latter place to the gardens of Saxony, where the custom prevails of sending a leaf of Cycas revoluta on the decease of a friend, in the same manner as wreaths and crosses are used in this country, and in Leipsic large nurseries are devoted to the growth of these plants solely for the purpose of cutting their leaves to supply this custom. Good leaves vary in price from 1 thaler to 2 thalers each. Cycas revoluta is popularly known in England as the Sago Palm from the fact of a kind of Sago being obtained from its stems. It forms a stout cylindrical stem, the largest I have seen being some 12 feet high, but such plants must be of great age; they are nearly always straight and simple, but I once saw an example of this species in the collection at Amsterdam with a very stout stem some 7 feet high, and bearing five branches, each furnished with a well-developed head of leaves. Undoubtedly this Cycas is most ornamental when confined to a single stem. In a young state this species forms an excellent window plant, and I wonder that for this purpose alone it has not found a place in the plant markets of London and other large towns in this country. The fact, however, of its being so long-lived and so easily accommodated would perhaps prevent the sale being sufficiently rapid to prove remunerative, for one plant would last a family for several generations. As ornaments in the greenhouse or stove this plant is unsurpassed. As will be seen by our figure, it produces a stately head of leaves, which are from 2 feet to 6 feet in length, of an intense deep green colour, beautifully recurved, and very thick and leathery in texture, thus enabling the plants to last in full beauty for years. When growing this plant enjoys a higher temperature than at any other time; indeed, it appears to be of freer growth in Cuba than in China, judging by the imported stems from these two countries.



Cycas revoluta. Engraved for THE GARDEN from a photograph sent by W. Shave, Gardener to Mr. C. Godfray, Beau Sejour, St. Heliers, Jersey.

C. CIRCINALIS is a bolder species than C. revoluta, producing a somewhat more slender stem and longer leaves, which latter sometimes attain to a height of 12 feet or more, and nearly 2 feet in width at the base. The leaves are more erect than in the previously named plant, and the colour is light shining green. I once saw a stem of this species bearing three separate heads of leaves; it is the only case of branching I have ever seen in this species, and this was in the Dutch collection at Amsterdam. It requires stove-heat, being a native of various Indian and Malayan islands.

C. RUMPHI AND C. RIUMINIANA are plants of similar habit and appearance, although distinct, and well deserving space amongst a large collection of stove plants. They are natives of similar places to C. circinalis. There are also several species of this genus natives of Australia and New Caledonia; they have slender stems and are extremely ornamental. The soil for these plants should be sandy loam, and the pots must be well drained. When growing they enjoy copious waterings, but after growth is finished less should be given, especially in winter.

W. H. G.

Dipladenia boliviensis.—Though certainly not so showy as some of the hybrid Dipladenias now commonly grown, this is a very chaste and beautiful kind, and when all its desirable qualities are taken into consideration, it certainly occupies a high place among this ornamental class of warm-house climbers. It is altogether a more robust plant than the bright-coloured forms, as it will succeed almost anywhere in the stove, or rather in situations where the others would perish. The blooms of this, which are borne in great profusion, are smaller than those of most of the others, and rather less open in shape; in colour they are of a beautiful clear white, relieved by a central blotch of orange. A healthy plant of this Dipladenia will flower for months together, and grow away freely the whole of the time. Should the stem come in contact with a moist surface it will often push out roots after the manner of Ivy, so that it will be seen that the propagation of this Dipladenia is easily effected, for if cuttings (even good-sized ones) are kept close for a little time they soon root.—H. P.

Montbretias in bloom.—A few years ago the only member of this genus to be met with in gardens was M. Pottsi, which attracted a considerable amount of attention; but though the flowers were remarkably pretty it had one undesirable characteristic, inasmuch as the foliage was very liable to turn yellow just as the flower-spikes made their appearance. After a while M. crocosmiæflora was put into commerce, and proved better than its predecessor. The hybridisation of these Montbretias having been taken up by M. Lemoine, of Nancy, he was successful in raising a number of distinct forms, some of which should, when better known, become very popular, for they are extremely beautiful, and about London quite hardy, though they may if required be grown in pots, and wintered where they will be safe from frost. A few varieties that we have in flower are Bouquet Parfait, bright yellow centre with the edges and tips of the petals orange-red; Etoile de Feu, bright orange-red with small yellowish centre; Phare, upper part of the petals orange-red, inner part rich yellow, the partially expanded buds being bright orange-scarlet at the tip. It has broader petals than in Bouquet Parfait or Etoile de Feu, and in colour is about midway between the two. Gerbe d'Or is of a plain, rich golden-yellow, and Solfaterre more of a sulphur tint. Not only may these Montbretias be grown in the open border, but they may also be cultivated in pots and flowered under glass, where they form a very distinct feature. They last a considerable time in beauty,

not only on the plants, but also in a cut state. It is essential to choose a spot not too much exposed to burning suns and drying winds, as in this case the foliage is very liable to turn yellow and decay at the tips, when even though the flowers open well the beauty of the plant is to a great extent lost. At the same time they do not need too damp a soil, as if waterlogged they will decay, but rather a cool, moist spot with thorough drainage should be selected. When grown in pots the same considerations should be borne in mind, and as the Montbretias need liberal treatment, occasional doses of liquid manure will be of service. They are easily increased by division; for if a few plants are put in the open ground they will speedily push up shoots all around the parent plant, and each shoot will form a separate bulb.—T.

Lantanas in flower.—Lantanas are of the easiest possible culture and remarkably free-flowering, for with the protection of a warm greenhouse they will commence to bloom very early in the year, and keep up a display throughout the summer if they are well supplied with stimulants or shifted into larger pots. They may be also planted out during the summer months, under which treatment they will do well. The method we generally adopt with them is to strike some cuttings at this season, which are potted off as soon as rooted, and pass the winter in small pots. Directly they have recovered from the check of being potted off the plants have their tops pinched out in order to encourage a bushy habit of growth. They are wintered in a light part of the greenhouse, and in spring are short, sturdy plants ready to start quickly into growth directly they are shifted on. Then, towards the end of February, they are potted into larger pots and placed in rather a warmer temperature, when they will grow and flower freely and for the next three months be extremely useful for the greenhouse. The young growing shoots strike root very easily at any season of the year when they can be obtained.—T.

Greenhouse Rhododendrons, as they are commonly called, are flowering well with Messrs. Veitch in their Chelsea nursery at the present time. They have gained the name of greenhouse, but really the plants require more heat than the occupants of this structure are usually supposed to require. An intermediate temperature suits them best. There is no check to the raising of new varieties of the Javanese Rhododendrons, and some now flowering are well worth a note, of which the following are the finest: Queen of Roses, excellent colour; Aurora, splendid truss of chrome-yellow flowers; Souvenir de J. H. Mangles, scarlet-rose; Pink Perfection, lovely shade of pink; Apollo, bright orange-scarlet; Princess Beatrice, greyish white; Empress rosy salmon; Ne Plus Ultra, scarlet-orange; Princess Frederica, pale yellow; and Adolphus Kent, buff, margined with carmine. One great feature is the large, well-built trusses of flowers. This is most important, as such showy groups can be made with them.

SHORT NOTES.—STOVE AND GREENHOUSE.

Anthurium Andreanum Thellusoni is a very distinct variety of the finest of Flamingo flowers. The spathe is more open than in the type and rosy scarlet. We saw it at Messrs. Veitch's the other day.

Begonia John Heal and others of that class are most easily struck from cuttings, as can be seen in Messrs. Veitch's nursery. Plants struck at the end of June quickly grow into excellent bushy plants that give a free display of flowers the following winter. The winter-blooming Begonias of the socotrana race will be most valuable for that season, as we have already seen sufficient of them to justify this remark.

Saxifraga sarmentosa tricolor.—This is a charming form of the old plant known as the Mother of Thousands, and which when I was a boy was a great favourite as a basket plant for windows. The typical plant is a native of China and grows freely, but the variety tricolor, which is said to come from Japan, is not so amenable to cultivation. Its leaves are extremely beautiful, as those of a plant I recently noted in Sir Trevor Lawrence's garden amply testify. I have also seen it very fine in Messrs. Laing's nursery. Grown in a stove, the rich creamy rose-coloured leaves blotched with green appear to require warmth to fully develop their beauties.—W. H. G.

Polygonum complexum.—A very pretty form of this plant climbs about and over the rockwork in a greenhouse in Mr. Schwann's garden at Wimbledon, draping it with a beautiful greenery, and it also covers the outside wall of the same house. For a neat covering for the back walls of greenhouses no better plant can be used. Its foliage is small and of the deepest green, and it will bear any amount of cutting. Its shoots also are admirably adapted for arranging in glasses with cut flowers. It is a common New Zealand plant.—W. H. G.

CULTURE OF EUCHARIS AMAZONICA.

I have never experienced any difficulty in growing and flowering this choice and very popular bulbous plant satisfactorily. Indeed, we have plants of this free-flowering Lily in bloom more or less throughout the year, and some of them have not been disturbed at the roots for several years. There is no more manageable or accommodating flowering bulbous plant that I am acquainted with than this. Judging from the information which from time to time reaches me through friends in reference to their plants being infested with what is now known as the Eucharis mite, and also from the appearance of a friend's plants which a few months previously were robust and healthy-looking, I am fully convinced that in many cases it is the treatment which the plants receive that predisposes them to disease; that is to say, if strong clean plants to start with are kept in a low temperature and saturated with water at the roots, in addition to subjecting them to a too humid and, it may be, stagnant atmosphere, disease is sure to follow. Over-potting, too, like over-watering, must be avoided if success is to be attained, and to achieve this it is not by any means necessary to repot the plants every year. In support of this assertion I may say that our plants have not been disturbed at the roots for three years, and previous to this they had not been potted for five years. However, I think that a period of three years is quite long enough in a general way to allow the plants to remain in the same soil. For potting we use a compost consisting of three parts good fibry loam and one of pulverised cow manure or horse droppings, charcoal, and lime rubble, with a dash of fresh soot, well mixed. A sprinkling of fresh soot is put immediately on the top layer of fine crocks to prevent the ingress of worms, followed by a layer of Sphagnum Moss. In potting, the bulbs should be kept close to the surface, and the soil be pressed moderately firm about the roots. The pots containing the bulbs so potted are stood on the centre bed of a small plant stove, underneath which are two hot-water pipes covered with coarse gravel with 2 inches or 3 inches thick of fine soil on the top, and given tepid water to settle the soil around the roots, afterwards shading the plants from bright sunshine until root action has taken place. After this the plants should not receive any water at the roots until they have pushed into the soil, which they will do freely in the warm stove temperature; the plants should, however, be damped overhead morning and afternoon when the house is being syringed. After the roots have taken well to the soil weak liquid manure at a temperature of about 80° should be given in sufficient quantity to moisten the soil when the condition of the latter indicates the necessity of its application. These supplies will greatly assist the plants to fill their pots with large fleshy roots, and at the same time develop plenty of large leaves of firm texture as well as several flower-spikes each, within four months from the time of potting if all goes well. Continue the judicious application of lukewarm liquid manure at the roots for about three weeks after the plants have gone out of flower. Then withhold the supplies from the roots, when after a few weeks' rest most of the bulbs will send up a flower-spike. Tepid liquid manure should be again given at the roots, and continued as already advised, afterwards withholding water from the roots, &c. Thus treated, plants of this choice Lily may, where there are sufficient plants for small batches to be operated on at short intervals, be had in flower all the year through. An occasional watering at the roots with weak soot-water will prove beneficial to the plants; its application is conducive to the production of large dark green leaves as well as the abolition of insects, all of which are warded off by the use of fresh soot. H. W. Ward.

Longford Castle.

LILIUM HARRISI.

This variety of L. longiflorum is now at its best in a cool house, while some that were planted in the open border have a few of their earliest blooms just on the point of expanding. As an illustration of the great variation in the height of this Lily between specimens under glass and the same grown entirely in the open air, I may mention that though all the bulbs were obtained from the same source, and all planted at the same time, the indoor plants are twice the height of those grown outside. In both cases, however, it has proved itself a grand Lily—indeed, one of the most useful of the whole genus, for it can be thoroughly depended upon to flower either in the open ground or in pots, while the scent of its blooms is very pleasing. L. Harrisi is undoubtedly the best of the many forms of L. longiflorum, for although it may not (as is asserted by some) be botanically distinct from the Japanese varieties eximium or Wilsoni, it is from a horticultural point of view certainly superior, for it is more free-flowering than they are, as even comparatively small bulbs of L. Harrisi will produce more blooms than those of a corresponding size of either of the others. A good illustration of the superiority of L. Harrisi is the fact that it has made such a rapid advance in popular favour within the last few years, and from its many desirable qualities, it promises before long to be generally cultivated to the exclusion of all the other varieties. Though it is said not to be hardy, our bulbs were not injured in any way during last winter, when they were merely protected by a little litter being spread over them. Many of those flowering in pots were potted in the autumn and wintered in a cold frame, being only protected by a couple of mats, so that they were often frozen, but did not suffer any injury in consequence. This Lily readily lends itself for forcing into bloom much earlier in the season than it naturally flowers; indeed we had a beautiful group in blossom by the middle of March, and a succession has been maintained at intervals up to the present time. Another peculiarity of L. Harrisi is the fact that during the autumn many of the plants that flowered earlier in the season will push up secondary stems that will produce a flower or two, and that at a time when Lily blooms are scarce, as, except L. neilgherrense (which by the way is difficult to grow well), the Lily season is ended. The purposes for which we require this Lily render it more useful when each bulb is grown singly than if made up in masses or clumps in large pots, and, consequently, in potting there is only one bulb put in each pot. Unless in the case of very large roots, the pots employed are those 5 inches in diameter, and the soil used consists of good loam, lightened by an admixture of sand, peat, and well decayed manure. The bulbs are potted at such a depth that the tops are about an inch below the surface of the soil, and when finished they are stood on a good well-drained bed of ashes in an ordinary garden frame. If potted in October all the bulbs may be placed in the frame for a little time, but those needed for the earliest blooming will soon require to be assisted with a

little heat. It is a good thing to get the bulbs early in the season, as they are usually imported into this country (principally from the United States) during August and September, and they are consequently, when potted, under more favourable conditions than in the dry warehouses of the bulb dealers. In potting them sometimes a few loose scales become detached from the bulbs, and when this happens they should not be thrown away, for if laid in pans or boxes of light sandy soil they quickly grow, and, favourably situated, make good bulbs the first season. Besides those above mentioned there is a variety of the long-flowered Lily that I have lately much admired—it is L. variegatum, in which the leaves are so conspicuously and regularly edged with white, that a good clump of it presents a very uncommon appearance.

H. P.

WORK IN PLANT HOUSES.

Greenhouse.—Pelargoniums. — Plants of the large-flowered varieties that bloomed early in the season and afterwards were turned out-of-doors with a view to their becoming ripened may now be cut in. Old plants will, where fairly treated, last for many years, and be found preferable to young stock, as they are less disposed to make gross, over-luxuriant shoots, that run more to leaf than flower. I have known plants keep on until they were twenty years old, and at that age they made plenty of growth and bloomed profusely. Old specimens of this description will be large enough; consequently it is best to shorten the shoots back to within one or two eyes of where they were cut into last year. Younger examples such as were raised from cuttings last year, or the year previous, and that are wanted larger, should have the shoots left a little longer, but it is well not to leave them too long, otherwise in a few years they will have too many bare branches.

Fancy Pelargoniums.—The fancy varieties are much slower in growth than the large-flowered sorts, and neither require, nor will bear, cutting in as close as the large-flowered kinds. In their case the shoots should not be shortened to the hard, fully matured wood, as when so treated they often break indifferently, or not at all. It seems strange that the fancy varieties are not more grown at a time when flowers of soft delicate shades are so much more in favour than higher coloured ones. The profuse blooming habit of the fancies is another point in their favour. Before cutting the plants the soil should be almost dry, if not there is danger of the roots perishing. In wet weather it is best to lay the plants down on their sides for several days before heading them down. When the tops have been removed the plants should be stood in a cold frame or pit, as if left in the open air the soil may get drenched with rain so as to cause their destruction, the roots being more susceptible of injury from any excess of moisture after the plants have been cut in than those of other things. To help them to break they should be kept somewhat close by only tilting the lights a little. Syringe slightly overhead in the afternoons; they will get as much moisture in this way as it is safe to give them until the young shoots have appeared.

Late-flowering Pelargoniums.—Plants of the large-flowered varieties that have been kept blooming up to the present time should now be turned out-of-doors, as it is not desirable to allow them to bloom on longer.

Pelargonium propagation.—The tops that are removed will afford plenty of cuttings. Where only a limited increase of stock is required, the extremities of the shoots, with about three or four joints to each, must be used; but in the case of any variety that is scarce, the hard, mature wood will do; these cuttings may consist of one or two joints. They may be put several together in 5-inch or 6-inch pots. They will root in a cold frame or pit, or will do in the open air without being covered in any way. They should be fully exposed to the sun.

Myrtles.—In winter it often happens that there is a scarcity of sweet-scented flowers for using in bouquets and other arrangements. Where a sufficient quantity of Myrtle is grown it is an acceptable substitute for the flowers in question. Independent of the usefulness of Myrtles for this purpose, the plants can be turned to good account for greenhouse and conservatory decoration. During the winter, when their growth is at rest, they will bear standing for a considerable time in places where many things of a more tender nature would either suffer or be less effective. To enable the plants to bloom freely, they require to be turned out of doors during a portion of the summer after enough growth has been made. In most cases, even where the plants after being kept cool have flowered late, they will now be in the condition named. For a week or ten days they may be stood on the north side of a wall or elsewhere where they will be protected from the sun in the middle of the day; without this precaution the foliage sometimes gets browned, especially if the plants have previously been kept where they have not received sufficient light.

Agapanthus.—These common, but beautiful plants might with advantage be more extensively grown than they are at present. Their use is not alone confined to conservatory and greenhouse decoration, as there are few things so well adapted for standing in porches or about entrance doors. The flowers will now be making their appearance, when the plants should have manure water once a week if pot-bound. The amount of bloom forthcoming is more dependent on the way the plants are treated the year before than on anything that is done for them during the current season. The best white variety is equally as deserving of a place as the ordinary blue form, to which it is a fitting companion.

Cyclamens.—Young plants that are intended to bloom during the coming winter and spring, if not already moved into the pots in which they are to flower, should at once have the final shift; 5-inch, or at most 6-inch pots will be large enough. Good yellow loam that has plenty of vegetable matter in it, with some leaf-mould, sand, and rotten cow manure, forms a compost that will be found to answer for them. If the cow manure is not obtainable, a little well-decomposed material from an old hot-bed will do. Drain carefully, and make the soil moderately firm in the pots. To grow Cyclamens well so as to have plants that were raised from seed sown last summer in right condition for blooming well next winter, they require to be kept a little warmer than ordinary greenhouse stock. This may be done either by locating them where they can have a little fire-heat in cool weather, or by keeping them somewhat warmer through the admission of less air than is usually given to the generality of plants. But where the latter course is followed they must be placed close to the glass in a pit or house that affords plenty of light, as this will prevent the leaves getting drawn. Syringe overhead daily, keeping the soil moderately moist as well, and see that they are quite free from aphides and red spider, the presence of either being fatal to the plants making the progress necessary to enable them to flower as they should.

Old plants of Cyclamens.—It often happens that Cyclamens do not answer well the second time of flowering. This is generally traceable to the treatment they receive in being kept too dry in the summer and to their being too much exposed to the sun, both of which are against their nature, although it used to be the way they were generally treated. In place of this they should be put where the sun will not reach them in the middle of the day, and though the soil requires to be drier than when active growth is going on, still the roots must not be too dry. This is generally the cause of the plants not starting into growth again, or if they do move coming away weakly. Do not attempt to repot them until the new set of leaves has made some progress.

Habrothamnus for forcing.—The forcing of this climber may not be generally understood, yet when the plants have been properly prepared a full crop of flowers may be depended on. To secure the right condition for winter blooming, the shoots should be cut well in early enough in summer to admit of their making short growth before the autumn comes on. From the present time onwards to the middle of September the best place for such as have been cut back in the manner described is out of doors; there the growth will move slowly, the shoots being exceptionally stout and short-jointed. After they are housed the plants may either be put in gentle warmth at once or kept in a greenhouse for a time and brought on in heat later. The latter course will in most cases be found the best, as the flowers will be more acceptable when they come in late. Large examples, either grown standard shape or in erect pyramidal form, are the best, for if small plants are used they necessarily yield proportionately few flowers. H. carminata rubra and H. Newelli are not so well known as the commoner H. elegans, but they are much finer in colour, and when well cared for give more flowers.

Stove.—Poinsettias.—Young stock struck from cuttings at the usual time, about the end of May or early in June, will be ready for putting into the pots in which they are to bloom. Where large heads of bracts are wanted the plants must not be pinched for room. If they have done well and have made plenty of roots, with top growth in proportion, they will bear 7-inch or 8-inch pots. That Poinsettias will make some progress in a lower temperature than is sometimes looked upon as necessary is evident by their succeeding when planted out of doors in a warm season in a favourable locality, but to have them in the finest condition they must be kept moderately warm, especially in such summers as the present. When kept warm the plants attain a proportionately larger size, and it may be taken as a rule that the larger and stronger they get the finer the heads will be. Plants that flowered last year and were cut back previous to starting them into growth, and have since been partially shaken out and put in larger pots, must now be kept regularly supplied with manure water. It is not well to encourage too many shoots, as what is thus gained in the number of the heads is lost by their being smaller. In the case of these older plants they must have enough heat to keep them moving freely. Where Poinsettias are planted out in borders the necessary stimulants must be supplied to support the roots, especially when little has been recently done to renovate the soil. T. B.

Dwarf Cannas.—There are a number of dwarf-flowering varieties which, though not equal to C. Ehemanni in beauty, possess the great advantage of blooming freely in a small state, and at the same time producing remarkably bright and showy flowers. This dwarf section is of Continental origin, and at present is but little known. Their handsome blossoms, the freedom with which they are produced, and the dwarf and compact, yet robust, character of the plants combine to render them very useful subjects for the decoration of the greenhouse or conservatory at this season, where, with a little assistance in the matter of stimulants, they will maintain a succession of bloom for a considerable period. In colour they vary from pale yellow to bright crimson, through all the intermediate shades of orange and buff. A few highly desirable kinds are Revol Massot, very bright glowing crimson flowers; Annette Novel, flowers much like the last, but the foliage is dark; Pictata, yellow, spotted thickly with light crimson; Epis d'Or, buff-yellow; Antonin Crozy, rich crimson, slightly feathered with yellow on the lower part of the flower; Lutea splendens, pale yellow slightly spotted crimson, very fine bright green ample foliage; Capricieux, crimson, edged and flaked golden yellow; Geoffroy Saint-Hilaire, dark coloured foliage with orange-red blossoms; and Mont Cindre, yellow, slightly spotted crimson.—H. P.

Rhododendron calophyllum.—This is a very handsome Rhododendron, and when in flower attracts a greater share of attention than any of the other varieties, as with us it is the last of the Himalayan section to bloom. The flowers are tubular, pure white in colour, and arranged in good sized clusters. It forms a free-growing bush that at all seasons is very ornamental by reason of the ample deep green foliage. In this Rhododendron the large, almost globular bloom buds stand out very conspicuously for months before they open.

Contrary to what one would expect from such a vigorous grower, this Rhododendron will keep in health and flower well in comparatively small pots, especially if the specimens were originally raised from cuttings, as seedlings are not so free-flowering in a small state. Cuttings of the half-ripened shoots strike root without difficulty; indeed, it is one of the easiest of its class to be increased in this way. There seems to be much confusion with regard to the names of this particular section of Rhododendrons, for there is little if any difference between those known under the names of R. calophyllum, tubulatum, virginale, Jenkinsi, and Maddeni, except that these two last are rather more slender-growing and the flowers somewhat less massive than those of the others. R. calophyllum seeds very freely and the young plants grow quickly, so that irrespective of cuttings a stock of it is quickly obtained.—H. P.

PROPAGATING.

Hollyhocks.—Where these showy flowering plants are still grown, the present season is the time they are generally propagated, or at all events those that are increased from cuttings, for when intended to raise them from seed it should be sown early in the year. Some varieties are far more readily propagated from cuttings than others, for the principal consideration is to get shoots suitable for the purpose, and while some kinds will push them out freely, others are just the reverse. The best place for the cuttings is in an ordinary garden frame, and if so situated that it is shaded from the sun during the hottest part of the day so much the better, and if such is not the case mats or some other shading material must of course be employed. Should there be a considerable quantity of cuttings to put in, a very good plan is to place a few inches of fine sandy soil in the bottom of the frame, without the interposition of pots, pans, or anything of that kind, when the cuttings can be dibbled in without any trouble. Where only a few plants are required the cuttings may be put in pots or pans, but in any case the preliminary operations are the same. They consist in carefully taking off any of the small side shoots which can be obtained, or failing these the longer shoots may be taken and cut up into single eyes. Even for this purpose the very stout shoots should not be taken, as the weaker side ones are less liable to decay. A good way to prepare the eyes for propagating is to take a stem and cut off all the leaves at the base of the blade, thereby leaving a part of each leaf-stalk still attached to the stem. Then divide it up into single eyes, leaving about 1½ inches of stem below each bud, and in carrying out this division take care not to bruise the bark in any way. In dibbling in these eyes they should be inserted in a perpendicular manner, and at such a depth that the bud is just level with the surface of the soil. When finished, a thorough watering through a fine rose should be given, but afterwards care must be taken not to over-water, as the Hollyhock is in this stage rather impatient of too much moisture. In a general way the frame must be kept close, but should any signs of decay set in, or the condensed moisture appear excessive, a little air may be given for an hour or two each morning. When rooted the cuttings may be potted off into small pots and be then wintered in the frame.

Orange Ball Tree (Buddleia globosa).—This beautiful flowering shrub, so different from any other commonly grown, will strike readily enough from cuttings if they are formed of the current season's shoots and kept close in a frame until rooted. This is a very suitable time for the purpose, the young shoots being in good condition, as if too soft they are very liable to decay. The best cuttings are furnished by the shoots of medium stoutness, as the very vigorous ones do not root so quickly, and indeed failures among them often occur.

Seedling Ferns.—With the long spell of wet, dull weather that we are now experiencing especial attention must be given to Ferns that are still in their early stages, as if they get at all crowded the probability is that many of them will decay. In sowing a pot of Fern spores it is almost impossible to distribute them thinly enough to allow of their remaining in the pots sufficiently long to throw up fronds; therefore as soon as they get crowded the better way is to prick them off into other pots to allow them further space to spread over, for when the spores cover a pot thickly in their earlier stages they will often need to be pricked off three or four times before they are large enough to put singly into small pots. There will not be the same risk of decay among those that have been sown some time, and are consequently just on the point of throwing up their fronds, as there will be in the case of those that have been sown just long enough to cover the surface of the pot with a dense, Moss-like cushion. At the same time some Ferns are more liable to decay in their earlier stages than others, for, generally speaking, all the Maiden-hairs are fairly robust, while that (in its mature state) vigorous Fern, Pteris tremula, is remarkably delicate when young. In pricking off care must be taken not to bruise the delicate seedlings, and consequently the soil should be as light as possible. After the month of August if it is intended to sow any Ferns, the most satisfactory way will be to keep them over until the end of January, as should they be sown, say, in September, the young plants will be in their most critical stage just in the depth of winter, and consequently the chances are that many of them will perish, while if sown in January there is all the season's growth before them. Spores gathered now will keep quite safely if wrapped in paper and kept in a dry place.

Tree Pæonies.—These may be increased either by cuttings, seeds, division if possible, or by grafting, this last being the method usually employed, for plants raised in this way make more satisfactory progress during their earlier stages than those increased by the other methods. In grafting, the stock employed is usually a stout fleshy root of one of the herbaceous kinds, and the scion a young growing shoot of the current season. The best time of the year for grafting Tree Pæonies is during the month of August, when all that is required is to take a tuber having on it as many fibrous roots as possible, and having fashioned the scion in the form of a wedge, the upper part of the fleshy root must be split for a certain distance, and the wedge-shaped base of the scion inserted therein. It must then be tied securely in position, and the point of union covered with grafting wax or clay in order to render all air-tight. Of course in inserting the graft in position care should be taken that the bark of both stock and scion fit perfectly, and should there be any great difference between the two in size, the wedge-shaped portion of the scion may be so fashioned that an exact union is effected only on one side. After grafting the plants must be potted sufficiently deep in the soil to completely cover the point of union, and then they must be placed in a frame which is kept close and shaded till a union is complete; but during that interval especial care must be taken not to overwater them. The most suitable scions are the good clean shoots without flowers, but, of course, when required to increase any particular variety to the fullest possible extent, the shoots that have flowered may also be employed. P. albiflora and any of its numerous varieties supply the best of stocks for grafting. After a union is complete plenty of air must be given, but the better way is to winter the plants in a frame, as they are then protected, not only from sharp frosts, but also from heavy rains, which in their earlier stages must be especially guarded against. Another way of increasing Tree Pæonies that may be sometimes effectually carried out is to split up the plant after the manner of a herbaceous subject, but, of course, this can only be done when the plant has been buried rather deeply in the soil, and its several divisions have each roots of their own. Layering may also be successfully carried out for the increase of these Pæonies, and this is best done in the autumn, when the portion of the branch that is to be buried must be partially cut through and a tongue formed. The branch or branches thus layered will require to be held securely in position by stout pegs, and attention should be paid during the following summer to keep the soil sufficiently moist to accelerate the formation of roots. When seeds are obtainable, which is seldom the case, they should be sown in pans of sandy loam and placed in a frame, where, however, they will generally lie a good while before they germinate, and even after this they make but slow progress during their earlier stages. T.

FLOWER GARDEN.

POPPIES.

The Poppy during the last few years has become one of the most cherished of garden flowers, and with the advent of new forms is likely to become more so. We can well understand this. The delightful grace, beauty, and range of colouring in the Poppy are sufficient to account for the marked predilection for the flowers, which though debarred from the epergne by their deadly smell, are yet bold, handsome, and even striking on the rockery. The note in The Garden (p. 74) on the Oriental Poppy shows that a race of this flower is being promoted. The appearance of a flesh-pink variety augurs well for a rich diversity of colouring in the Oriental Poppy, one of the most brilliant of hardy perennials. The strain of Shirley Poppies shown by the Rev. W. Wilks, of Croydon, at the Royal Horticultural Society's meeting has also given an impetus to the culture of the Poppy. No one could but admire the delicacy of the flowers, the colours pure, soft, and varied, from white running through tints of pink and red, and all acquired by the most careful selection from the common Poppy of the field. Then the common Corn Poppy (P. Rhæas) has given rise to a group of garden Poppies, highly prized by many, not only for the richness of the colouring, but the bold, full, and handsome shape of the flowers themselves. These double forms are known commonly under such names as the Carnation, Picotee, and Ranunculus-flowered Poppies, according as each group, so to speak, resembles some popular flower. The brilliant little P. R. umbrosum is as intense in colour as the wild type, but enriched at the inner base of each petal with a jet black blotch. This came from the Caucasus not a great many years ago, and soon sprang into favour. It is useful as a margin to a bed, or a bed may be entirely composed of it. Plants from seed sown in the spring will flower the same year; and when we say P. umbrosum will grow anywhere, we have said sufficient as regards its culture. The Danebrog Poppy is a form of Opium Poppy, and has acquired considerable favour as a garden flower. We have also the Iceland Poppies, varieties of the widely-distributed P. nudicaule, which in its true condition is clear yellow, and found in Eastern Siberia, Asia, &c., thus having a considerable geographical range. There are several beautiful forms of it in our gardens, and none more delicate and lovely than the white variety, the purity of which is brought out by the yellow and sulphur of the other forms. Mr. Ware is developing an excellent strain, and has exhibited flowers in surprisingly good condition this season. They used to be the gayest flowers in the central walk in the Chiswick garden, where they formed a marginal edge to some of the beds, flowering freely throughout the summer. A succession may be obtained by sowing now, the plants from this flowering early next spring; and then by sowing also in early spring an autumnal bloom will be obtained. The above notes merely enumerate a few of the leading Poppies that may be recommended for all gardens—the gorgeous Oriental Poppy for the border, and the more

elegant Iceland and Shirley Poppies for the rockery, or to form clumps in well-kept borders often under view. But there are others, such as the beautiful mountain Poppy (P. alpinum), that all those who love rock plants greatly treasure, and which are quite as worthy of culture as the foregoing.

LILIES AT TOTTENHAM.

The Lily season is at its height, and though not so fine as in the glorious summer of 1887, yet there is a good show of flowers, though these are disfigured and battered by the winds of storms and rain. There have been many losses amongst the Lilies this year, and especially in the case of the pure white Madonna Lily (L. candidum) which has succumbed to a deadly fungus, the outcome of the wet and cold weather. This soon reduces healthy clumps into a mass of offensive decayed leafage, an eyesore to the garden. We can well sympathise with those who have had their Lilium candidum go off in this fashion. It is doing well in the London parks, and also at Mr. T. S. Ware's at Tottenham, where there are many other interesting kinds in flower. The Martagon section was well represented, and the variety dalmaticum is of very deep colouring; this and the white are, perhaps, the two best of the section. The scarlet L. chalcedonicum was the gayest of the whole; the variety Heldreichi has a larger flower than the type; then there is græcum, similar in character to L. chalcedonicum, but, except to the Lily fancier, the type will be sufficient. The tall L. testaceum, or buff Lily, was flowering well, though somewhat hardly dealt with by the storms, and L. Krameri, one of the most delicately coloured of the Lilies, was also in bloom; this does not do everywhere, and the best examples we have seen of it were from the garden of Mr. C. J. Grahame at Croydon. L. canadense and its variety rubrum, rich red, the inner surface spotted, together with L. elegans, L. concolor, and L. Browni, were also in perfection. Of L. elegans, a very handsome dwarf form, not more than 9 inches high, is Alice Wilson, a robust grower, the flowers lemon-yellow and each segment with a central band of orange; incomparabilis has its large rich crimson blooms spotted with black, and those of Van Houttei are deeper still, more of a blood red. The glorious L. Browni was blooming exceedingly well in a moist position between two hedges for shelter; it should have a light, rotten vegetable soil. L. pardalinum, the Panther Lily, and its variety pumilum, which is dwarfer than the type, were also in bloom; L. Parryi is a useful flower, lemon-yellow in colour, and spotted on the inside, but handsomer than this is L. Hansoni, which, when grown under suitable conditions, attains quite 5 feet in height, and produces flowers yellow in colour, spotted with black.

Staking herbaceous plants.—Will you or one of your numerous correspondents give me some assistance to prevent my herbaceous garden being, as lately happened, completely wrecked by a storm in a few hours? Is there no invention for tying up tall herbaceous plants securely? The climate of Ireland is moist and very windy, and except in a drought like last year, most of my plants grow nearly twice the height at which they are advertised in the nurserymen's catalogues. For instance, Pyrethrums attain 4 feet, and so-called dwarf kinds of Delphiniums 5 feet to 6 feet; consequently they suffer more from winds. Yesterday a quickly falling barometer predicted the storm which began in the evening and raged all night. This morning Lilies, Phloxes, Delphiniums, Œnotheras, Foxgloves, Rudbeckias, and many others are a complete wreck. I spent some hours in preparation (all to no purpose) putting fresh twine round the tallest and therefore weakest plants. My Delphiniums I single out as being the most showy flowers in my garden; these are surrounded by three strong stakes and bast twine (I know of no better plan); this morning either the twine is broken or the Delphiniums torn. One clump of these, with a forest of spikes 7 feet to 8 feet high, and coming into bloom, I found extended flat on the ground. I have no intention of giving up my hardy garden, but it is heartrending to have it ruined by a few hours' storm, and if there are any patent, strong, and not unsightly supports in existence, I shall be glad to know them. I am sure you would sympathise with me if you saw two clumps of Delphinium ranunculæflorum with forty to fifty flower-spikes on each snapped off by the wind, and numbers of Foxgloves flattened.—Jocelyn H. W. Thomas, *Belmont, Carlow.*

P.S.—Among other things the stems of pardalinum Lilies, which come up in increased numbers every spring, have been broken three years in succession before flowering.

YELLOW SWEET SULTAN.

As a pretty and useful border plant, Centaurea suaveolens, with its charming citron-yellow flowers, is almost unique amongst the large family of composites. It has long been a favourite flower, and the ease with which the plants may be raised in the open border, together with its graceful habit, enables those with even small space at command to grow this lovely hardy annual. Seeds may be sown early in a frame for cutting or for an early batch of flowers, transferring to the border about the middle or end of May. It may be, however, sown in the open air along with the other annuals in April where it is intended to remain, simply thinning out, so as to give those left space to develop. The driest and sunniest place should be chosen, and the supply of flowers will amply repay any extra attention given to it in the seedling stage. Amberboa odorata is a synonym. The common Sweet Sultan, the varieties of the Cornflower, &c., make a very interesting group, well worth cultivating. K.



The Yellow Sweet Sultan (Centaurea suaveolens).

A good basket Lobelia is one called Miss Hope, and which may now be seen in perfection in the greenhouse (No. 4) at Kew. The flowers are large and white, very abundant, and its growth is long and drooping, which makes it just the kind of plant for a suspended basket. The flowering shoots hang down about a foot all round the basket, and the effect is beautiful. The compact-growing bedding Lobelias will not do for basket culture, neither will Miss Hope do for bedding. The Kew plants have been in beauty for six or eight weeks, and promise to continue in flower for a long time yet.—G.

Baneberries.—Three useful plants for somewhat shady positions on the rougher parts of the rockery are Actæa spicata fructu-rubro, f. nigro, and f. albo. The first has scarlet berries, a contrast to those of the varieties A. s. f. nigro and A. s. f. albo. The red variety is very handsome, but where there is space all may be grown. They are plants that do well under trees, and may be introduced into the wild garden, but should not be of easy access to children, as the berries are poisonous. Baneberries are of easy propagation either by seeds or root-division.—S.

NOTES FROM SHIREHAMPTON.

A wet summer seems here very much to favour the herbaceous borders. The Alstrœmerias have been simply splendid; Martagon Lilies are also very fine. I have a fine race of seedlings raised by Frank Miles 5 feet and 6 feet high, fifteen to thirty blooms on a stem, some pure white, some almost black, dark red, crimson-red, and all much finer than the type, which seems quite dwarf and puny by the side of these giants. Lilium polyphyllum, which I find is quite hardy, threw up three stems, one with nine blooms. What a charming scent this Lily has! The white Lilies are fine, but slugs destroy a good many blooms and rain spoils their ivory-whiteness. I notice that Montbretias will bloom very strongly. M. Pottsi should be moved occasionally; the foot-thick mass of roots of old-established plants must mean starvation and no bloom. I have potted off all my stock of Alstrœmeria pelegrina alba, which I cannot get to bloom in the open, as the slugs always devour it. Gladioli look unhappy, their leaves having a yellow appearance. A small, early-blooming, scarlet-flowered one marked Cunonia was very surprising. It had a bloom like that of an Antholyza; I have saved seed of it. A curious Gladiolus from Natal puzzled me. Potted in October, it threw up leaves which died off and then fine spikes of leaves again appeared. I hope to see it bloom soon. I find that this Gladiolus behaved in the same way with Mr. Gumbleton. It is, I think, a green-flowered kind. Some Watsonias which came in the same parcel looked very strong in a pot, but I have never yet got mine to bloom indoors or out. Romneya Coulteri is growing to a very large size here, but I can see no buds yet. It, too, seems to like a wet summer. So does Antholyza paniculata, which is growing by its side. Ixias, Babianas, Sparaxis did well. I see Sparaxis pulcherrima is going to bloom freely. Iris aurea is superb; it is a giant among Irises. Harpalium rigidum grandiflorum, nearly twice the size of the type, is well worth obtaining; mine promise well for bloom. Chrysanthemum maximum, which I owe to Mr. Engleheart, is a very fine thing. I should add that Delphiniums have bloomed very well. There are no beds here for bedding plants, and I manage to keep the garden very gay with flowers, and yet I have only bedded out six plants of Pelargoniums this year. Annuals I sow here and there, and I place a few Asters among the Gladioli and also the Dahlias. I must confess I have to fight a sore battle with weeds and slugs. C. O. Miles.

Sunny Hill, Shirehampton.

Pansies in the flower garden.—The Pelargoniums and other tender bedding plants will make but a miserable show this year, and the gardener who has relied solely upon them laments the inclement season, and its devastation of his beds. For months past the Pansy has been in full beauty, and still promises to continue blooming, the season being most favourable to this flower; in fact, it is only under such conditions of weather that the quiet colours and simple beauty of the Pansy are seen to the fullest advantage. As ornaments for the flower garden the Pansies are much neglected, and are not found at all in the average bedding arrangements. Yet, if people would only take them in hand, and give them the attention they deserve,

they will amply repay any trouble, and will be found to need very little attention. The pity is, that with these and many other hardy flowers, people will not give them attention. Some of the happiest conceivable garden charms might be produced with groups or beds of some of the self-coloured tufted Pansies, either alone or as a groundwork to taller plants placed thinly. A few years ago I remember seeing a pretty bed at Hampton Court. The arrangement was simplicity itself, and consisted of Flower of Spring Pelargonium planted thinly, and a good blue Pansy used as a groundwork. That most exquisite of Pansies, Countess of Hopetoun, is known only to a few, but it is fit to go into any garden, and in the hands of a good flower-gardener would play an important part in many combinations. For this purpose neither the mixed strains of seedlings, nor the blotched and belted, show and fancy kinds will be of any service, as they produce only a few flowers and soon show signs of weakness.—X.

Hablitzia tamnoides.—There are other things besides the Hop, and such common climbers, that can be considered excellent pole plants. In this number is the graceful, and we may say beautiful, Hablitzia tamnoides, a herbaceous climber, dense in growth, exceedingly free, and surmounted through the summer with a great mass of greenish flowers, that individually are quite inconspicuous, but collectively give the plant a graceful, informal aspect. This profusion of flower clusters seems to weigh down the slender stems, and rambling over a pole or pillar the freedom of the Hablitzia is at once apparent. It might also be used for clothing tree stumps, or hiding the ugliness of a rootery. Provide a good soil, somewhat dry situation, and keep the plant well watered during hot weather in the summer. There is a thriving specimen of this Caucasian Hablitzia near the alpine house at Kew. It was introduced as far back as 1828, and cannot therefore be considered new, although it is practically unknown. It belongs to the Chenopodiaceæ.

The Aconites are an interesting and extremely showy group of hardy border flowers, succeeding in ordinary garden soil, and making a strong growth even under the shade of trees. Their propagation by root division or seeds can be easily accomplished; but it is necessary to be careful not to leave pieces of the roots about in the garden, as they are exceedingly poisonous. The common Monkshood (A. Napellus) is well known for its showiness, and there are many varieties of it, but the type is, perhaps, the most richly coloured and handsome. At Kew there are several other Aconites in bloom in the herbaceous ground. A. heterophyllum is of bushy growth and has robust foliage, the flowers yellow and in front of a rich deep blue. This is a Himalayan Aconite, said to be used medicinally in India. The handsome A. variegatum has also blue flowers and rich glossy green leaves. There were also A. lycoctonum and forms of it, A. chinense, and varieties of A. Napellus.

Ixias.—During the spring months some of our enterprising nurserymen, who make a specialty of spring flowering and other bulbs, treat us to a sight of a collection of cut spikes of Ixias, and very beautiful they are. Probably the number of varieties grown will be a surprise to many. The catalogue of Messrs. Hubert and Mauger, of Guernsey, who are large growers of these flowers, contains 120 varieties, and among them is a collection of seventeen new varieties, distinct in character, and producing larger flowers than the older sorts. Probably in no part of the world do Ixias do better than in the Isle of Guernsey, where they mature their seeds, and new varieties are raised. So far as the culture of Ixias in our own country is concerned, it is mainly in pots, and when about six bulbs of one variety are placed in a 4-inch or 5-inch pot in autumn, kept through the winter in a cold frame, protected from frosts and brought on gradually into flower in spring, the plants form objects of great beauty. In the southern and western parts of the country, and also in the south midland and the eastern counties, there should be no difficulty in growing Ixias in pots with suitable care. A gravel subsoil is best, so as to secure efficient drainage; the bed should be formed of a suitable and rather light sandy compost, and raised in the middle, so that water can drain from it. The beds should be covered in times of severe frost, and in early spring, when the young growths are in danger of being harmed by spring frosts, some sprays of Fir or other protection should be employed. Ixias are such beautiful flowers, and display such novel and charming tints of colour, as to be well deserving general cultivation in suitable localities.—R. D.

WILD FLOWERS IN KENT.

What can be prettier than a mass of the hoary Rockcist (Helianthemum canum), with its countless yellow flowers draping the almost perpendicular face of some long-neglected chalk pit? Perhaps by the side of it may grow in the wildest luxuriance a tangled mass of that curious and somewhat rare native shrub, the Bittersweet or Nightshade (Solanum Dulcamara), the pretty blue flowers of which offer such a contrast to the showy yellow of the Rockcist. Side by side—nay, even entwined together—it is no uncommon sight hereabout to see square yards of the glistening chalky cliff covered and wreathed with these pretty plants, and as both bloom together, the sight produced is not readily effaced from one's memory.

The common field Maple (Acer campestris) is surely a neglected British tree—at least, in Northern England and Scotland—for to see our Kentish hedges at present with the finely cut and highly-coloured leaves of this small-growing tree or shrub is very pleasing. But to be shown off to perfection the tiny, deeply cut leaves of this Maple must be in conjunction with others of a lighter and fresher green, such as those of the Hawthorn, Beech, or Privet, and then the effect produced is almost incredible for so simple and almost forgotten native trees. The leaves of the Maple, as seen in the scrub state, nestle so closely together that one cannot well compare them, as seen in the hedges, to anything more fitting than those of some of the better forms of Ivy when clinging closely to a ruined house or wall.

Every time I meet with a plant of the Bryony (Bryonia dioica), I must needs halt and examine it, not the flowers, for they are inconspicuous in the extreme, but the beautifully cut leaves. It is well worthy of a place in our gardens, and would hide an unsightly root or mound of earth just as well as the Ivy or St. John's-wort. Its worst fault is being deciduous, or rather of annual duration.

Nymphæa alba (the white Water Lily), when seen in quantity and in close proximity to the yellow-flowered plant (Nuphar lutea), has a most distinct and pleasing appearance. There are several forms of the white Water Lily, some very superior to others, not only in the size of bloom, but quantity produced, and it is well to bear this in mind when choosing specimens for pond and lake planting. Usually the flowers are produced at the expense of the leaves. By this I mean that in the largest-flowered forms the leaves are unusually small. Two lakes, one containing the white and the other the yellow Water Lily, in one of our woods are just now sources of much attraction from the great wealth of bloom with which the plants are studded. The Water Soldier (Stratiotes aloides) is a curious and interesting native aquatic plant, and when seen at its best resembles nothing so much as a submerged Aloe. It must be guarded from ducks and rats, both having an inclination to eat out the succulent centre from the crowns. Typha latifolia (the great Reedmace), when used with discretion, imparts a somewhat tropical air to any pond or lake. Here it grows nearly 8 feet in height, with 12-inch long plumes of the softest brownish hairs. Along the banks of the pond in which the latter is growing I was fortunate enough to pick up a couple of specimens of the white form of Orchis maculata—a pretty plant, but one that is rarely seen. The typical form is everywhere abundant; indeed, may just now be considered as our commonest woodland plant. It loves a strong dampish loam and to be shaded from direct sunshine.

In the Maiden Pink (Dianthus deltoides) we have a pretty and desirable native plant with pinky white, plentifully produced flowers. It grows in great quantity in one of our woods. The large and handsome yellow flowers of the Moneywort (Lysimachia nummularia) are now conspicuous in open patches of the woods and copses.

A. D. Webster.

A CANARY-COLOURED TORCH LILY.

(TRITOMA.)

This plant, which at present we are unable to refer to any particular species, and of the colour of whose flowers the term "canary-coloured" may give some idea, creates a pleasing diversity in the Tritoma group by introducing into it the self-yellow shade which has hitherto been wanting in the flowers of these plants. The plant is still rare in cultivation, and as we have recently seen it in flower with M. Godefroy-Lebeuf in his gardens at Argenteuil, we think we ought to make it known. The following is a description of it:—

A plant of vigorous growth, sending up a tuft of numerous shoots. Leaves light green, triquetrous, comparatively short, often slightly twisted. Stem glabrous, reddish-green, sometimes furnished in parts with short leaves or bracts. Flowers borne in a stout, broad spike. Corolla drooping, slightly reddish at first, but soon turning yellow; corolla-tube thick, marked with a few faintly coloured lines. Stamens projecting to a great length; filaments reddish.

The special colour of this Tritoma imports a new feature into ornamental plantings of the genus, which might be arranged so as to have the canary-coloured kind alternating with species and varieties of other colours. Moreover, it is probable that seeds of the canary-coloured kind will produce varieties, and also that when it is crossed with different coloured kinds, intermediate colours will be produced, perhaps even a series of them which will embrace every shade between white and golden yellow. We may expect, too, that in addition to range of colour, the variation will also extend to the form of the inflorescence, so that instead of the uniformity in this respect which has hitherto existed, we may become possessed of varieties which will exhibit greater or less diversity in this direction also.—*Revue Horticole.*

SHORT NOTES.—FLOWER.

Triteleia laxa Murrayana is a flower of the richest possible blue, and in full beauty at this season. It is one of those choice things that should be in every garden.

Dicentra eximia is most beautiful in a mass. There is a bed of it in Mr. Ware's nursery at Tottenham. The reddish purple flowers and dense pale green Fern-like foliage are in excellent contrast. It is very easily grown.

White Musk Mallow (Malva moschata alba) is a lovely border flower, and has been in bloom some time. Its purity and freedom are almost unsurpassed amongst hardy plants.

Veronica spicata is a mass of its deep blue flowers at the present time; the white form may well be grown with the type. One called elegantissima, now in flower at Tottenham, is also desirable.

Erigeron speciosum superbum has a flower larger than that of the type, but of similar colour. It is an excellent plant for the border, and so free that the mass of bloom almost hides the abundant leafage.

Pentstemon heterophyllus is an excellent rock plant; it is dwarf, of grassy growth, and has lilac and metallic blue flowers. On the rockery at Tottenham it is quite a feature.

Delphinium hybridum sulphureum, or Zalil, noted in The Garden (p. 91), was flowering well in Mr. T. S. Ware's nursery on July 25. It has axillary branching stems, sulphur yellow flowers and is quite hardy. Just the thing for a rockery.

Black Snake-root (Cimicifuga racemosa).—This is a showy plant at the present time, and its easy culture increases its value. The flowers are white and produced in slender compound racemes, while the leafage is deep green and abundant. This North American plant may well have a place in the border.

Helianthus japonicus is a most useful hardy plant, as at this season its deep yellow flowers with a blackish disc, and about the size of a penny, are in demand. It is in beauty a little before H. rigidus, which it is not unlike in general character. Some large batches at Tottenham show what two gay and handsome hardy plants are these Helianthuses.

Aster Townshendi is a strikingly useful summer-flowering Aster. It is almost as free as Erigeron

speciosum, and the rich purple-lilac flowers are in demand for vases, although this is not the season for Asters. We look for them at Michaelmas. It is synonymous with A. Bigelovi, and grows about 2½ feet high.

NOTES FROM NEWRY.

ALLIUM PLATICAULE is a very distinct and pretty plant; leaves numerous, broad, and deep purplish green in colour. The flowers are borne on 6-inch stems, very numerous, and of a silky rose colour; as they expand the stalk lies down on the ground; flowers at the end of May and June.

A. UNIFLORUM (?).—Either the derivation here is not evident, or I have got the wrong plant; however, it is a beautiful plant, flowering in June and July, lasting long in perfection. The flower stems are from 6 inches to 8 inches high, flowers numerous, warm rose in colour and thick in texture.

A. HÆMASTOCHITON is very beautiful, with narrow Rush-like foliage and slender flower-scapes reaching 8 inches or so in height, colour white with a pink centre, bearing a rather close resemblance to the flowers of Hoya bella. In some plants the colour is rosy, with purple centre.

VIOLA PUBESCENS.—Since I wrote my note (p. 557) this plant has developed a peculiarity which is, perhaps, characteristic. In the early spring it bore yellow flowers from the crown, then runners were thrown out around, and in June these produced pure white flowers which are followed by seed-pods. Has Mr. Falconer noticed this?

VIOLA ROTUNDIFOLIA is growing with the utmost freedom, planted in the open in sandy loam, only slightly moist. A few taller herbaceous plants grow on the sunny side. This is distinct and handsome from a foliage point of view, the leaves being large for so low-growing a plant, thick textured and of a bronzy green.

VIOLA RENIFOLIA AND V. ROSTRATA.—Will Mr. Falconer kindly say how these may be grown vigorously? I can grow them, but not as I should wish. While on the subject of Violas, I think one of the most beautiful is V. canina alba, found by me this spring. It formed a low dense patch of the purest white. It is as free in growth as the type and is now seeding freely, and I hope soon to have a good stock of it.

VIOLA DELPHINIFOLIA is a desirable plant, bearing freely in spring pretty blue flowers, and now forms a handsome tuft of finely divided leaves nearly a foot high.

WHITE TUFTED PANSY.—"A. D." (p. 601) need not remain very long without the very thing he inquires and longs for. I have here a sport from Blue King not differing at all either in free habit of growth or profusion and texture of flower. The colour is a pure white without stain.

Newry. T. SMITH.

New Holland Violet (Erpetion reniforme) is one of the prettiest of rock plants in bloom now, as it covers the ground with a mass of neat green leaves, amongst which the large Violet-like flowers peer through in profusion. During the summer in the rock garden it forms a mantle of green covering, and plant it away from coarser things, so that its lovely blue and white flowers will not be overshadowed. It never does well throughout the year in the open ground, but flourishes to perfection in a cold house.

Calceolaria mexicana is somewhat of a weed, but there are many odd spots, nooks, and corners in the garden where it could be planted, and a specimen or two in the herbaceous border would be allowable, if kept in order. But it is so weedy in growth that it will prove quite a plague if permitted to range at will. In a corner at Kew there is a mass of it, and the strong healthy leaves, dense habit, and cheerful yellow flowers mark it as a plant not to be despised. It sows itself, therefore gives very little trouble as regards culture.

Oreocome Candollei.—If the floral committee of the Royal Horticultural Society commence certificating things of the character of Oreocome Candollei, then it will find plenty to do. It belongs to an unimportant class, now comprised under Selinum, and though far too coarse for the border, rockery, or bed, would do for the wild garden, where its mass of large pinnate foliage and umbels of white flowers would be in place. It rises to a height of 6 feet, and does anywhere; in fact, it has almost naturalised itself in Mr. Ware's nursery at Tottenham, where we saw the other day a large specimen in full bloom.

A NOTE ON WILD PLANTS.

AT the end of the road in which I reside was a vacant plot of ground that had been used for several years as a receptacle for general rubbish. As nobody appeared to own or take any interest in it I took possession, put up a decent fence, and after immense exertions in the way of stacking tiles and moving old tar, gravel and rubbish off the surface, succeeded in bringing it under cultivation for vegetables and flowers. It is now, from being a disgrace to the owner and a nuisance to all around, an improvement to the road itself and a pleasure to all concerned. Everything grows in it luxuriantly. But what I want particularly now to mention is that in my narrow flower border there have grown up various weeds, and in the early spring four of them were especially noticeable, viz., one with a strong red shoot like a young Rose bush (which turned out to be Melilotus officinalis), Reseda luteola, Verbascum Thapsus, and Dipsacus sylvestris. These were so regular in form that they were admired by all my friends, and so were left alone. They have held their own against Hollyhocks, Sunflowers, Phloxes, Rudbeckias, and others, and are now admired more than ever. I measured their height and found them to be as follows: The Melilot, 7 feet 6 inches; Mignonette, 7 feet 5 inches; Teazle, 7 feet 2 inches; and Mullein, 5 feet 5 inches. Besides these there is a small Teazle (D. pilosus) about 5 feet; a Balsam (Impatiens fulva), 3 feet 6 inches; Erigeron canadense, 4 feet 6 inches; London Rocket (Sisymbrium Irio), Flixweed (Sisymbrium Sophia), Alyssum incanum, Raphistrum orientale, and Inula Elecampane. The last-mentioned I obtained from the Mendip Hills. All these are interesting plants in their way, and afford me more pleasure than the carefully raked bare ground which I see in many gardens around.

Bedford Park. R. J. G. READ.

Lilium candidum.—The white Lilies in my garden have entirely disappeared this summer, having fallen victims to the destructive fungus described in THE GARDEN, July 21 (p. 67). I thought the roots had been attacked by some grub or worm, but on taking them up I could find nothing of the kind. The disease appeared suddenly, completed its ravages in a very short time, and with me has destroyed leaves, stems, and bulbs; in fact, you might almost say it was done before you could look round.—HENRY BURNEY, *Warendon Rectory, Beds.*

Gaillardias promise to become amongst the most popular of outdoor summer flowers, and have certainly many points of merit. They are so free and gay that a clump should be in every garden, and it needs no special condition to obtain a free growth with a plentiful supply of the richly coloured flowers. At the exhibitions recently they have been exceedingly well shown, notwithstanding that the season has been somewhat against them. In Mr. T. S. Ware's nursery at Tottenham the other day they were flowering well, making a great amount of leaf and throwing plenty of flowers. Admiration is a variety of well-defined colour, yellow, with a central ring of crimson. Two other good sorts at Tottenham are maxima and Sunset.

Banded Rush (Scirpus zebrinus, or, to give it the full title, S. Tabernæmontani zebrinus) is an exceedingly beautiful hardy Rush, introduced about the year 1881 from Japan, so is comparatively new, but cannot remain rare long. It is one of the most distinct and handsome of the large genus of which it is a member, and is sometimes labelled Juncus zebrinus, though the name at the head of this note is that under which it is best known. It grows about 3 feet high, and a mass of the round leaves, transversely and regularly banded with white and green, are like huge porcupine quills, quite as beautiful in their way. In Mr. Ware's nursery at Tottenham it revels in a tub of muddy soil in full exposure.

FLOWER GARDEN NOTES.

WET WEATHER FLOWERS.—Most certainly these are the kinds that are needed this season, and what flowers there are continue to open in spite of the lack of sunshine and warmth, and not as a result of these. As we may—though it is to be hoped not—have a repetition of the same sort of weather another year, I here note those that are flowering well in the open borders under weather conditions so opposite to those that usually prevail at this season of the year. I begin with tuberous Begonias, because they are the gayest of all and impervious to injury from the heaviest rain. The growth of the plant is not so kindly as in warm and drier weather, but the flowers are finer; the trusses are so abnormally over-weighted, that most of them have had to be tied up with small sticks, notwithstanding the sturdy character of the flower-stems. The fibrous-rooted varieties are in no way behind as regards both growth and free production of flowers. That now well-known dwarf growing bedding variety Princess Beatrice is simply magnificent, as is also the variety Weltoniensis, which, except that it is not nearly so dwarf, partakes largely of the character of Princess Beatrice. The varieties castanæfolia and Ingrami are equally free flowering, but being taller and not of such dense growth they do not make that show in the borders the other varieties do. Fuchsias are excellent wet weather plants. Every year they have made a fine show in our bedding arrangements, but this season they are especially good, and not a flower seems ever to be the worse for the almost daily deluge of rain they have had for at least five weeks. In this connection, because they are intermixed with the Fuchsias, I must mention what is now commonly called the Blue Marguerite (Agathæa cælestis) as being of first-rate merit as a bedding plant for all weathers; it was just as fine last as it is this present season. The real Marguerites, both yellow and white-flowered varieties, are all of them worthy of classification amongst good flowering wet weather plants, and everybody knows they are first-rate when heat and drought prevail, as long as they get moderate supplies of artificial watering. Tufted Pansies of all sorts, as everybody would expect, are a profusion of flowers. I wish it were possible to place the Pansies generally as high on the list of drought-resisting plants, but this is quite hopeless, though some sorts stand heat and drought very much better than others; among such are Bluebell, Mrs. Gray, Countess of Hopetoun, and Hardwick Yellow, these varieties being here last year almost as good as at present. Heliotropes, Ageratums, Verbenas, and Calceolarias about exhaust the list of good wet weather flowers, at least as far as ordinary plants are concerned, but this being the declining phase of flower gardening, I note sundry others in the fast becoming popular section that have and still are flowering and lasting a long time in that state in spite of the fact that July weather has this year been of the same type as April, only worse. Delphiniums are splendid. We have huge masses ranging from 3 feet to 9 feet high, and none are one bit the worse for the excessive rainfall and prolonged absence of sunshine. All the Spiræas are just as beautiful, and in no way injured by wet. The Japanese Anemones relish the wet thoroughly; the flowering stems are very fine, and the foliage three times the usual size; the heads of bloom are immense, but the individual flowers a little too flimsy to withstand in good form for many days this abnormally wet weather. They are worthy a place in this connection, because of their freedom of growth, grand foliage, and fine flower heads. The two varieties of Day Lily (Hemerocallis flava and H. fulva) are carrying an immense number of flowers, which, though each lasts but a single day, are so numerous that up to the present they have produced a most gay effect, and this, from my point of view, is not the greatest of their merits, that being

the unique perfume the flowers give off. Our plants have been planted a little more than four years, and have had but one good dressing of new soil and manure in that time, and yet they continue to improve in vigour, thus showing the species to be a good doer under the most meagre conditions as to culture.

Early flowering Phloxes.—We have numbers of these, principally dwarf varieties, that began to flower early in June and are still good, and though all have not that strong substance of petal that resists decay from continual rains, by far the larger part have, and I cannot speak in terms of greater praise than by recording the fact that for six weeks at least we have been able to cut large quantities of flowers from plants extending over a very limited area, and still they come. The section is generally known as the suffruticosa, to distinguish it from the later flowering or decussata section, some of which are already flowering freely, and will continue to do so until late autumn. I ought to add that the heat and drought of last summer had no appreciable influence in checking the growth of either flowers or plants, so that these also are worthy of a place in the "all-weathers" list. Antirrhinums and Pentstemons are evidently half aquatics. They are full of flower and extra vigorous in growth, and being such a long season in bloom they deserve a foremost place in the mixed flower borders. Last season they were much crippled with red spider, and, as a consequence, turned out a complete failure, and this decisively brands them as plants to be avoided in dry seasons and climates. White Goat's Rue (Galega officinalis alba).—This has been the gem amongst our taller growing perennials for the last five or six weeks. The flowers are of the purest white and produced in rich profusion on long stems in spike form. The individual flowers are not unlike those of a Pea, and the foliage is like that of a Vetch. Last year it continued to flower till late autumn, so that it may be expected to flower still longer this year. I have also a lilac variety given to me by a lady in the neighbourhood, but which I do not find in any hardy plant list. It is not so vigorous in growth, but the flowers are produced in great abundance and bear wet, lasting as long as those of the white variety. The Œnotheras (Evening Primroses) are also this season in superb condition, the varieties Fraseri, fruticosa major, marginata, and Youngi being more than usually vigorous and free flowering, and to judge by the exclamations sometimes uttered by visitors on first seeing them, one is safe in predicting their increased popularity. A long-spiked, white-flowering Veronica, of which I do not know the name, is now, and has been for a month past, a prominent object in our mixed flower borders. The plant attains a height of 2 feet, and the spikes of flower close upon 3 feet, including stem, and the form of the flower-spike is almost the counterpart of those produced by Actæa spicata. It is a most telling flower for cutting to use in the tall vases that are now so fashionable. The shrubby variety of Veronica Traversi, which always flowers so freely, does still more so this season. No weather damages either flowers or plants, and not the least of its merits is that it is evergreen, and the small twiggy stems can be used with excellent effect in vases of cut flowers during the winter when choice greenery is scarce. In addition to the foregoing list of what may be termed permanent wet weather flowers, there are various annuals worthy of mention, such as Sweet Peas, Zinnias, Mignonette, Poppies, Salpiglossis, Stocks, Cornflower (Cyanus), Indian Pinks, Lupines, and many others, but I mention only such as have come under my own observation.

W. Wildsmith.

Alstrœmerias are amongst the showiest of the Amaryllis family, and in respect to the hardier kinds, as A. aurantiaca, of very easy culture, becoming established quickly if the situation is at all suitable. Others of a more delicate character will require well-drained, dry, and light positions such as may be found on many rockeries and borders. Amongst the best of these Peruvian and Brazilian Lilies, if we may so call them, are A. aurea, the better-known aurantiaca and chilensis. With these, a most showy group of hardy flowers is obtained. The other day large clumps of A. aurantiaca were in full glory in Mr. Ware's nursery, and it does not take many plants to make a profuse display of colour. They attain, under good conditions, a height of 4 feet, and the leafy stems are crowned with umbels of many flowers, the colour rich orange. A. aurea, as seen at Tottenham, is another robust grower of the character of the last named, but brilliant yellow, quite of a different shade to A. aurantiaca. The most variable, perhaps, of the Alstrœmerias is A. chilensis, while it is certainly one of the most charming of all. The plant grows about 2 feet in height, and presents flowers of all shades of colour, from the richest orange-red to the most delicate pink.

Chrysanthemums.

E. Molyneux.

APPLYING STIMULANTS.

Following my notes (p. 603) on the "Preparation of Stimulants," I will now describe what I consider the best way to apply them. Soot water in a weak state is the best thing to apply first to the roots as a stimulant. One bushel of soot placed in a bag to 100 gallons of water will be ample. The water soaking through the soot in the bag becomes charged with the manurial properties. Water used in this manner may be given to the plants every time they require watering for a week, and then it is better to withhold soot water for three weeks, giving them another course after this. The stimulant may be used in conjunction with other liquid manures during the time soot water is in use, but it is not necessary to stop using other stimulants while soot water is being given to the plants.

When using soot water I would advise beginners to be careful. I have seen plants injured through using it too freely. It is far better to use it weaker and often. Chrysanthemums require a change of food, and the stimulants should be varied, using one sort for, say, a week, then have another. To the strongest growing varieties stimulants should be given every time water is required if the plants are well rooted. All stimulants should be used in a weak state to begin with, increasing the strength as the plants grow. If a spell of wet weather sets in for, say, a week together, it is wise to withhold all stimulants for a short time, as extra care is needed in applying water to the roots of any sort. In the case of weak-growing kinds, liquid manure should be given occasionally, as over-feeding brings on premature bud-formation or malformation of the petals, caused by forcing the larger outer petals too quickly, and not allowing the centre of the flower-bud to fill up by degrees, as it should do under proper circumstances. When the soil in the pots is approaching dryness is the proper time to apply stimulants.

It is difficult to define the quantity of manure to use for making liquids, as so much depends upon the requirements of the cultivator. A safer guide is to use the liquid made from animal manures about the colour of brown brandy. Sulphate of ammonia in careful hands is an excellent manure, perhaps unequalled, but the percentage of ammonia contained in the different samples varies so much that it is decidedly risky to use it. It is wise to act safely, that is, give it in a weak state, but often. The cultivator should be quite certain that the pots are full of roots before commencing the use of sulphate of ammonia. The best way to apply it is as follows: Dissolve one tablespoonful in 4 gallons of liquid manure and apply it to the plants once a week; the alteration in the colour of the leaves after its application can be quickly discerned if they were pale before. The colour of the flowers is also much improved. The pink-lilac flowers and darker shades are rendered much richer by the use of this manure. Some growers sprinkle the ammonia on the surface of the soil and water it in, but this is dangerous to the surface roots of the plants, as they often are burnt with the ammonia. The loss of the surface roots by this mismanagement gives a serious check to the plants.

When the flower-buds are forming in the points of the shoots which are considered the best for each particular variety, no matter whether it be crown or terminal buds, the application of stimulants should cease for a time until the flower-buds are formed and swelling, as during the time the buds are in the embryo state a check to the growth takes place. When to finally stop the use of stimulants of any sort and depend solely on clear water for the finishing of the blooms is a matter about which some growers disagree. Some advise that feeding be discontinued as soon as the bloom buds show colour, but in my opinion that is just the stage when assistance is required to develop the flowers. Continue to feed the plants until the blooms are three parts expanded, then cease the use of stimulants, as it will be found that plants in that stage do not require water nearly so often as those plants which are in a more backward condition.

Garden Flora.

PLATE 660.

THE HABROTHAMNUS.

(mexican nightshades.*)

These belong to the Natural Order of Solanaceæ, and are with scarcely any exceptions plants of vigorous and free growth, and well worth cultivating in the most limited collection of greenhouse plants where there is sufficient space at disposal to display their floral beauties in the best possible manner. The Habrothamnus does best when grown as a wall or pillar plant, or, better still, for festooning wire arches of goodly height. In this latter manner it appears to the very best advantage. The graceful terminal clusters of flowers are most effective, and these combined with the exceedingly free-flowering character of the best known kinds, should induce all cultivators to afford them space. To the amateur the different varieties can be especially recommended as plants of easy culture, thriving as they do with far less care and attention than has to be given to many genera possessing less attractive features. I find the Habrothamnus succeeds well in the conservatory, my practice being (with H. elegans more particularly) to never prune the growths of the present season, but after a long continuance of flowering to thin out all the weakly wood and those shoots which have ceased flowering. Our plants are growing on arches, and the growths when of extra length are lightly drawn over them; this invariably causes lateral shoots to break forth in quantity, each of which scarcely ever fails to produce a cluster of flowers. Whilst this is going on fresh shoots to take their place will emanate from lower down the stems, for varieties of the Habrothamnus are almost of perpetual growth if they receive kindly attention. The bright sunshine of the summer which is gained in houses with a southern aspect is not necessary for their successful culture, although

* Drawn for The Garden at Gunnersbury House Gardens by H. G. Moon, March 10, 1888. Lithographed and printed by Guillaume Severeyns.



HABROTHAMNUS NEWELLI.

it might conduce to their flowering more freely later on in the season or the following spring. An easterly or western aspect will suit them admirably, and preserve the foliage in good colour. For ensuring greater success in their cultivation I strongly recommend the planting out system in every practicable case, less attention being thus needed in the way of watering, while the roots appear to delight in rambling about at their entire freedom and are in no wise particular as to the quality of the soil when the plants are thoroughly established. For young plants which are of sufficient size to be turned out of pots I recommend good fibrous loam with the addition of a slight quantity of leaf-mould or peat to encourage fresh root action as quickly as possible. An abundant supply of water is needful when the plants become established, and at no time should they be allowed to get excessively dry at the root unless a severe pruning is absolutely necessary to keep them within bounds. I find green-fly to be the most troublesome insect here; this, however, is easily overcome by fumigation. Mealy bug, the dread of all good plant growers, has no existence with us; we are, I am glad to say, absolutely free from this pest; thus our Habrothamnus, in common with many other plants, does not have to undergo the periodical cleansing process which is almost martyrdom to many fine plants. Where, however, it does exist, some well-tried insecticide should be perseveringly applied until extermination is effected. A free use of the syringe will greatly assist to keep the plants clean as well as be conducive to their well-being in other respects.

The following varieties are well worth cultivation, viz. :—



Habrothamnus fasciculatus.

Habrothamnus Newelli (the subject of this week's coloured plate, most faithfully reproduced from Nature) is a variety of very free growth, promising also to be a worthy companion of H. elegans in its freedom of flowering. The flowers are very distinct in colour and also last a long time in perfection.

H. aurantiacus is an excellent companion to the foregoing; its orange-coloured flowers are also freely produced, and when loosely trained to a pillar or column as I have seen it in Kew Gardens it is a worthy and distinct plant. The colour is quite novel.

H. elegans is perhaps the best known and the most largely cultivated of the whole genus; none surpass it in its freedom of flowering, whilst it is also the hardiest of all, as well as of the easiest possible culture. I have used its flowers with capital effect in table decoration, choosing corymbs with at least 10 inches or 1 foot of growth attached to show it in its natural manner. Almost a perpetual bloomer.

H. fasciculatus is another excellent species (see illustration for an idea of its beauty). When well grown this kind will yield its trusses of flowers of extra size, producing a very fine effect if grown in the way previously advised. It is seen at its best in the early spring months.

There is a variegated form of H. elegans, but I have not seen it so far in a condition to recommend its culture in preference to the type, or even in connection with it.

Propagation in all cases is easily carried out by cuttings of the half-ripened wood.

James Hudson.

Fruit Garden.

RELIABLE STRAWBERRIES.

Of the numerous Strawberries in cultivation, it may be said that about half a dozen furnish the great bulk of the fruit that supplies the markets of our large towns. Since the day when Keen's Seedling was without a rival as the main-crop kind, no Strawberry has attained the position that Sir J. Paxton now holds both in private and market gardens. Probably this will in due time have to give place to a more worthy successor, but a good many Strawberries will no doubt be raised before Sir Joseph is dethroned. As regards flavour, I prefer next to British Queen a well-ripened President. To me there is something very attractive about this Strawberry, the flesh has such a rich appearance, and when thoroughly well grown and allowed to hang until the aroma is plainly perceptible, it takes on a flavour that hardly any other kind develops. I much doubt, too, if we have a more reliable kind than this. It seems to be far less susceptible to variations of soil and climate than any other large-berried variety, and were a Strawberry election held I should expect to see it almost, if not quite, at the head of the poll. I have heard Strawberry growers say that Sir J. Paxton did not yield well with them, but so far as I can remember I have never heard this remark made of President. The great defect of President is only perceivable in a season like the present. The peculiar disposition of the calyx, which tightly embraces the fruit instead of forming a frill to it, affords an easy lodgment for moisture, which in a wet time remains long enough to set up decay in the pulp. For this reason, even under glass one has to be very careful in the use of the syringe from the time the berries are half grown. Copiously sprinkling so late in the day that the water has not time to completely evaporate will be quite sufficient to ruin a crop in the course of a week. Sir J. Paxton, on the contrary, is so hard in the flesh that the berries bear with indifference such a heavy downpour as we have lately experienced. Commercially, Sir J. Paxton ranks higher than any other, Sir C. Napier excepted, and this latter must be exceptionally well grown to command a higher price in the London market. This year, for instance, Paxtons have realised 1s. per lb. more than President, although quality was identical. This year, however, and for the first time, Paxton has been overdone. In the Whitsun week one salesman had a ton and a half of good fruit consigned to him, and a great deal of it was sold at the un-

precedented price for forced Strawberries of 6d. per lb. When one grower alone forces upwards of 200,000 pot plants, the glutting of the market need occasion no surprise. It would indeed be a wonder if such a quantity of fruit could be disposed of at a profitable rate.

Probably no Strawberry stands higher in the estimation of the private grower than Héricart de Thury. Grown under various *aliases* for some years to but a limited extent, it is now generally recognised as being one of the hardiest, most prolific, and sure-bearing kinds. We shall probably never get a Strawberry to excel this in reliability. It appears to thrive in any soil and situation, and will often fruit well where other kinds fail. It is probably the best of all Strawberries for early forcing. It happens, too, to be very bright and firm, and for this reason finds special favour with the jam makers. As regards flavour, the less said the better, and where President and Keen's Seedling do well, Vicomtesse may go to the rubbish heap. A Strawberry that appears to have had its day—for I rarely see any of your correspondents make mention of it—is Princess Alice Maud. For many years this was considered the best market kind both for under glass and in the open, and was brought into Covent Garden out of Essex by the wagon-load at the time when British Queen and the very hardy, bright-coloured, but rather shy-fruiting Kitley's Goliath came in from Bath. Alice Maud is by no means of bad flavour, and is certainly one of the most reliable Strawberries we have. If this and other kinds be grown together, it will invariably be found that Alice Maud outlasts them. Having at one time grown this kind for market, I have never quite got rid of it, and I do not think I was ever more impressed with its ability to thrive under adverse circumstances than this year. Some plants put in several years ago, without previous preparation of the soil or the use of any manure since, have, notwithstanding the two last dry summers, this year given a good crop of fruit. No other Strawberry that I grow would survive under such circumstances on my light soil, so that a better proof of the exceptional value of this Strawberry for unfavourable soils could scarcely be had.

The heaviest cropping Strawberry I know is Marguerite, from which I can always gather one-third more fruit than from any other kind. It bears large berries, but it is owing to its compact habit that so much fruit can be taken from the space. Its great fault is its softness, which causes the berries to rot wholesale in a wet time. It is a Strawberry that I should always grow some of, as it is so early, and one does not have to go far to fill the basket. The Strawberry is, however, full of vagaries; the kind that will thrive and bear well in one place will, perhaps, be equally disappointing but a short distance away. The great point is to find one that can be relied on from year to year, and the trial of the most popular kinds will soon give the grower the requisite knowledge.

J. C. B.

Market garden fruit notes.—When looking over a large fruit garden in West Middlesex a few days ago, I found a very heavy crop of Victoria Plums, the branches bending down with the weight of the green fruit, and the proprietor said he was somewhat surprised to see so good a crop, because the display of bloom did not appear large. Among the Victoria Plums was one that had been planted twenty-four years, and which had never fruited until last year, when there was a heavy crop. This season the tree appears to be dying, and only one small branch is of a vigorous character, and bearing fruit. Prince of Wales Plum, also bearing a remarkably good crop, is said to be a variety that is impatient of much pruning, the cause of death in the trees being the too free use of the knife. The Dove Bank Plum, which is regarded as similar to the Goliath, has also a good crop; it is much liked by fruit growers, and is considered to be greatly superior to the Orleans. Of Pears, the largest crops are on Williams' Bon Chrétien, Hessle, Beurré de Capiaumont, Calebasse, Beurré Diel, Marie Louise (although the last is not so heavily cropped as some of the others) and what is locally known as the Chalk Pear. A few trees of what is known as the New Swan's Egg are also grown. This variety follows the Beurré Diel, but must be eaten within a week of being gathered. Apples are a very poor crop, with the exception of Keswick Codlin and Yellow Ingestre. The trees of these appear to be laden. But the fruit of both Apples and Pears will be larger than last year, and, consequently, fill up the bushel better; and this fact will help to compensate somewhat for the light crop of Pears. Gooseberries, as well as Black Currants, have proved a good crop, and gatherings are being made as soon as fit. Red Currants are not so good, although there was a fine show of blossom, but the spring frosts and biting winds injured the setting of the fruit, and the crop is only moderate. The Northumberland Fillbasket Raspberry is much liked; it is a good cropper and the fruit large and solid. After the Gooseberries, Currants, and Raspberries are over, the striped Juneatings and Red Quarrenden Apples will be getting fit to gather.—R. D.

SCALDED GRAPES AND SHOOTS.

Herewith I send you a portion of a bunch of Grapes together with a point of shoot and leaf. I shall be glad if you can let me know the cause of the disease. The shoots have gone in the same way as the one enclosed both last year and this. The Vines, planted three years ago in a border 3½ feet deep, of good fibrous loam, crushed bones, and lime rubbish, grew well the first season and went to the top of the house. I cut them down to within 3 feet of the bottom. As far as I know, they have received all the attention required for young Vines—night temperature of about 65° with about 10° rise by day. The kinds are Lady Downe's and Alicante.

W. C.

*** The above is one of the worst cases of scalding—a so-called, but preventible disease to which Lady Downe's, at one particular stage, is always subject—which has come under my notice for some years. It does not extend over more than three weeks, sometimes less, just when the berries are finishing stoning. Neither is it confined to berries exposed to the sun, as we frequently find heavily shaded bunches reduced to skeletons, whilst others open to the sun, but near the fresh air ventilators, escape. In hot, dry, settled seasons, when the houses are freely and almost continuously ventilated by day, and do not get too cold at night, the disease rarely puts in an appearance; but this wet period, made up of January cold, a leaden sky, and short bursts of bright sun, having rendered the maintenance of a steady temperature almost impossible, scalding this year has been unusually prevalent. So far, the serious state of the weather has been against the most careful growers of Lady Downe's, Muscats, and other varieties subject to scalding, and "W. C.," as a matter of course, has suffered with the rest; but, judging from his letter, it is just possible his formidable border, 3 feet 6 inches in depth and apparently well made, in this case may have aggravated the disease; whilst allowing the temperature to fluctuate under too much air, or none at all, most certainly would not improve matters. Before advising him as to his preventive management another year, as scalding will be over before these lines appear in print, I would ask "W. C." if he is quite satisfied that the heat and drought of the past year did not send the roots of the Vines down to the bottom of his deep border in search of moisture which may have been denied them on the surface. Also if the lower portion, as a matter of course well drained, is in a thoroughly moist growing condition. The scalding of the berries may be brought about by keeping the house too close, and so may that of the tips of the laterals, in this case quite brown, no matter how satisfactory the roots may be; but here I suspect they have got down into a medium, too dry or too wet, and far away from the influence of solar heat. This surmise proving correct, "W. C." should put his roots right this autumn, not only by working inwards from the front of the border until he reaches that portion in which they begin to rise rapidly towards the base of the stems, but also by adding considerably to the drainage; otherwise it is possible the Alicantes, whose points when in free growth so often scald, will give much trouble in the spring, and most likely take to shanking in the autumn. The examination of the border may be accomplished in an hour; if wrong, it must be put right by raising the roots nearer to the surface; if right, so much the better, as one suspected enemy will have been disposed of, and "W. C." may rest at ease until next stoning time. Then, indeed, before that stage is reached he must put his house under special treatment, and I venture to say he will have himself to thank if he again suffers loss amongst the berries of his Lady Downe's or the tips of the shoots of his Alicantes. First of all, then, the pipes must be kept extra warm through the night to prevent the berries from becoming too cold, a condition in which a sudden rise of temperature causes them to condense moisture. A chink of night air must be kept on the top ventilators to prevent moisture from accumulating, but instead of shutting this off in accordance with our usual instructions for syringing purposes, the first person in the vinery, especially on bright mornings, must increase it. The pipes being warm and the external temperature rising, this additional air will not cause a depression, neither will the temperature rise rapidly, and scalding for that day certainly will be prevented. Should the weather be fine, the air must be gradually increased, and in the same way reduced, but never entirely shut off, at least until all tendency to scalding is over. Condensed into a few words, I may say scalding is caused by late or insufficient ventilation on bright mornings when the house is full of moisture, and being unable to escape, a rising temperature causes it to condense on the cold berries. The remedy is a rather high night temperature, and giving air as freely by day as we would to a warm greenhouse.—W. Coleman.

BARREN STRAWBERRIES.

Barren Strawberry plants in the open ground appear to be of frequent occurrence this year. I think Mr. Fish's experience and mine are alike, viz, that young plants are fruitful, and old plantations barren. I am of opinion that this arises from lack of moisture last summer. I have here several rows of three-year-old plants of Vicomtesse Héricart de Thury which have produced scarcely any fruit, although they look very healthy. On the same piece of ground I have three rows that were planted late in the autumn of 1886, and although these last year only yielded a few fruits, this year they are bearing well. These two lots of Strawberries were treated in exactly the same way last summer, neither being watered after the fruit was gathered, and I observed that the old plants suffered and flagged very much, while the younger ones did not flag at all, not having half the foliage to support. The conclusion I came to was, that if you want Strawberries to fruit do not let them suffer for want of water.

Neither do I think the plants are benefited by shade if they suffer for want of moisture. Observations during the present season justify me in thinking so. I want Strawberries as late in the season as possible, and to obtain this I have a piece of Strawberries planted on a north border with various kinds. My method is to plant a few every season, as Strawberry plants on this light soil do not last many seasons. On this aspect the results are just the same as in the open, namely, old plants barren, young ones fruitful. Our soil is very light, not more than 2 feet deep, with a bed of gravel from 9 feet to 14 feet deep underneath. The Strawberries planted in the north border give us many good dishes of fruit quite late in an average season.

Strange as it may appear, Dr. Hogg, as also Frogmore Pine if fresh plantations are frequently made, will grow and fruit fairly well in this situation, while they refuse to grow in other situations in the garden. I find Frogmore Pine far superior to Elton Pine, and where it does well it should be planted as a late kind. I observe "J. C. C." recommends planting from a fruitful stock. This is good advice, although I doubt if the runners taken from our plants that are barren this year would produce barren plants. Vicomtesse Héricart de Thury is the most reliable Strawberry I grow, although I have tried most of the leading kinds. Pot Strawberries should not be allowed to suffer for lack of moisture in the autumn and winter, as I believe this is the chief cause of barren plants in spring. J. C.

Farnborough.

GRAFTING OLD TREES.

Mr. Coleman in The Garden, July 7 (p. 6), writes in a strain so kindly and courteous, that it is hard to differ from him, and still harder to express that difference. Still some of his references in connection with the subject of allowing shoots to grow upon the stock trees with the grafts merit discussion. Now I take exception to the illustration derived from the rosarian who allows a few shoots to develop beyond the bud on the branch in which it is inserted. No such course can be taken in grafting a beheaded tree, because the grafts must be inserted at the extreme ends of the branches grafted, and no assistance in the way of helping the flow of sap can be given to the grafts as is given to the buds in the Rose stock. Then it is obvious that whilst shoots on the stems of beheaded or grafted trees may help the roots to activity, they cannot help the sap to ascend in the direction of the grafts, but would rather tend to withdraw the sap from the extremities, and thus check the development of the grafts. Naturally the sap will rise in the spring strongly in trees which have been beheaded, even if the roots be only indifferently healthy; and where it is important that the grafts should make all possible growth the first year, it seems obvious that the best course to that end is to allow all the sap to rush to the extremities and thus force the grafts into early and strong activity. If later it be thought that the grafts are making too strong growth, by no means a probable result, some shoots from the main stems may then be permitted to carry off the superabundant sap; but, on the whole, I think the cases are few in which graft growth is found to be too robust. Once shoots are allowed to develop on the main stems in the way suggested, even if cut back hard in the winter, there is always danger that others will break out from the bases left in future years. If, on the other hand, all such shoots be rigidly rubbed off as fast as they show, no such encouragement is afforded for future trouble, and the whole current of the sap is directed to the grafts. The illustrations with respect to plants being allowed to break before being potted, or the letting a Quickset hedge make all the growth possible the first year after planting before being cut back, hardly bear upon the case of old-established trees which have ample root hold and need no rooting encouragement. Again, the beheading and grafting of an Apple tree after all does not produce the shock to which trees which are deprived of their heads or even a part of their leafage may be subjected when in full growth. The beheading takes place when the tree is practically at rest, and if when the head is removed no natural check is given to the roots, these are left in full activity to create a fresh head through the grafts as speedily as possible. With respect to the proposal to bud shoots which may break from the stems of old beheaded trees, no doubt Mr. Coleman is right in believing that the plan would not answer. My chief object in making the suggestion was that when the original inquiry was made the querist was told that the season was past for grafting, and therefore it was practically lost. It was therefore a matter for consideration how far budding the young shoots which would inevitably break out from the old tree if beheaded would save a season. No doubt there would be great danger that strong growth from buds would blow out did high winds prevail. Certainly by grafting any clean old tree with stout grafts and doing it well at the proper season, a wonderful head may be obtained of the new kind in about three years. A. D.

FRUITS UNDER GLASS.

Early Vines,

from which heavy crops of fruit have been cut, will take liberal supplies of diluted liquid whenever the internal borders require watering, and a dressing of soot, guano, and wood ashes cast over the external roots will do good service, not only in forcing laterals, but also in preserving the old leaves until they have properly performed their functions and die off naturally. Last year we were able to give the external roots liberal waterings with the hose, and were glad to retain a heavy moisture-holding mulch; but this season, a close repetition of 1860, we are obliged to resort to the above dry stimulants, which soon get washed in by the heavy rains, and feel safe in reducing the outside covering to an extent that will let in solar heat when the sun's rays reach the earth. If any root or border work in this department is contemplated, the mode and extent should now be decided upon, also the materials likely to be wanted, as it is very important that the Vines have time to become thoroughly re-established before the leaves fall. All houses from which the Grapes have been cleared will require an occasional washing with the hose to keep the foliage fresh and free from spider, and the top and bottom ventilators from this time forward may be left constantly open. I do not approve of stripping early vineries until after the foliage is ripe; but, alive to the benefit derived from exposure of the leaves and internal borders to heavy rains, would suggest the temporary running up and down of all portable lights during the continuance of this showery weather. If young Vines planted this spring have gone on well, and are likely to be good enough for starting, say, in January, an effort should now be made to get the wood thoroughly ripe by the end of September at latest. A little earlier would be favourable to a longer rest; but, considering the cold, sunless month we have just left behind, we cannot overlook the fact that the time lost will have to be redeemed with fire-heat. As the wood ripens the house will require more air and less water—always, be it understood, that the roots never feel the want of the latter, and the foliage is kept clean and healthy until quite ripe by an occasional evening syringing with pure water.

Ripe Grapes.—If Grapes, black ones especially, are expected to keep fresh, plump, and perfect in colour for any length of time after they are quite ripe, they must be shaded by their own foliage from the direct rays of the sun, or, lacking Nature's canopy, a double thickness of fishing net may be drawn over the south or west side of the house and allowed to remain until they are cut from the Vines. White ones, on the other hand, cannot have too much light, always provided the house is carefully and constantly ventilated to prevent condensation of moisture, otherwise the shoulder berries of Muscats and the Frontignan family will be in danger of scalding. Lately we have found it necessary to give just sufficient gentle fire-heat to keep the air in circulation and to prevent moisture from condensing on the berries, but once this stormy weather becomes settled, all with the exception of Muscats should keep well and improve without the aid of fuel. The much needed change for which all are now so earnestly wishing should also suffice for the ripening of autumn

Hamburghs, Alicantes, and the like, which lay on the best colour and bloom when plenty of time, provided the temperature is not too low, is given to them. If a maximum temperature of 80° with full air can be secured from solar heat alone, so much the better, as rest, also with air, can then be given to the Vines through the night, otherwise fires must be lighted if only to dispel the stagnant moisture and to increase the warmth when the house is closed for two or three hours in the afternoon. So far the summer (save the mark) has not been favourable to the spread of red spider, but should it put in an appearance, every known remedy for its destruction should be put in force. Root moisture and liberal ventilation, also the removal or tying down of all laterals before they touch the glass, especially in dry corners, are excellent preventives; but once it forms its web, the sponge dipped in weak tobacco or soap water and plied to the affected leaves, combined with the use of pure soft water wherever a syringeful can be put in without spraying the berries at nightfall, will be found safe antidotes. Last of all, sulphur mixed with skim milk and smeared over the pipes when they are as hot as may be slightly uncomfortable to the hand, may be resorted to. Few, however, care to see sulphur lying about their house, and the better to avoid its use the appearance of the first suspicious-looking leaf should form the keynote for the application of safe and mild remedies.

Late Grapes,

including Lady Downe's, Gros Colman, Mrs. Pince's Muscat, the excellent Mrs. Pearson, and others usually grown for bottling should now be pushed on under Muscat treatment, that is provided they have finished stoning and the critical scalding stage has been tided over; otherwise the house should be very freely ventilated by day and liberally fired through the night, also with air of course, as we find the Lady Downe's and Muscat scald least when kept at an equable temperature and the berries are not allowed to become cold during the night. As the bulk of these Grapes will not be cut before Christmas, the scissors should be passed over the bunches before they commence the last swelling, and the better to allow of a free passage of air through the berries the shoulders should be well looped up with strips of soft matting or short lengths of lead wire bent at each end to resemble miniature pot-hooks. To ensure thorough ripeness by the beginning of October, the season being late, cold, and sunless, a night temperature of 70° with a rise of 10° by day should be steadily maintained, and 90° after closing will do no harm on bright afternoons. By adopting this plan the high closing temperature, whilst increasing the size of the berries, redeems the time lost during the scalding period, and economises fuel when at the eleventh hour it is found the Grapes are none too ripe or well coloured for perfect keeping. All internal borders, both here and in the principal Muscat house, should be well mulched with fresh, but well worked stable litter from which the droppings have not been removed, or lacking this the remains of an old Mushroom bed will answer almost as well. If well damped twice a day the roots will work upward to the surface and the escape of moisture will be prevented, whilst the ammonia set at liberty will prove valuable as an insecticide and stimulant. I have coupled Gros Colman with Lady Downe's, but the latest house, I may repeat, is not the best place for this popular, but inferior Grape, and for these reasons it requires a long season if not a high temperature; the latter, however, with plenty of air does it no harm. It should be thoroughly ripe early in September, and last, but not least, it should have steady and continuous fire heat, with a free circulation of air until every leaf is off the Vines. Naturally large-berried Grape growers vie with each other in feeding the roots with liquid manure in order that they may outdo each other in point of size and weight, apparently, although they know it, unconscious of the fact that gross stimulants greatly detract from its quality for eating. Whereas, were they to grow it in pure loam corrected with lime rubble, charcoal, and bone dust, the berries, although somewhat smaller, would be infinitely superior in flavour and colour, the best tests of merit, and certainly the bunches would keep much longer after removal to the Grape room. Grapes with some are Grapes, but then there are Grapes and Grapes, the best at every point being those which have not been fed to obesity by animal manures.

Peaches.

If the trees in the earliest houses are quite free from spider, and breastwood evinces a tendency to

be troublesome, it must be kept in check by incessant pinching and repinching back to a single leaf, otherwise it will rob and shade the flower buds, now well formed, for another year. Further, this freedom from insects on the one hand, and a cold, wet, sunless state of the weather on the other, will justify considerable relaxation in the force and frequency of the syringe. The trees, as a matter of course, must be kept fresh and clean, and thoroughly moist at the roots; but much as they enjoy their daily douche, there is no rule without an exception; therefore, ripe wood and buds being first factors, liberal ventilation, with just a taste of fire heat on the pipes, will best carry on the work until the sun dispels the vapour with which the atmosphere just now is saturated. Here, as in the early vinery, all renovations, renewals, and alterations must now be decided upon, in order that there may be no delay when the time arrives for commencing operations. When young Peach trees are trained from their youth up under glass they may be lifted at any time when not bearing fruit, but, notwithstanding their accommodating nature, there is a best and a second best period, the first being that which precedes the ripening of the foliage, the second that which indicates the swelling of the buds. House trees can be lifted much earlier than others of corresponding age and size from open walls; hence the advantage of keeping reserves in second and succession compartments for moving forward as they are wanted. A fruiting tree taken from an open wall, say in October, cannot be started before January; consequently its proper place is the latest house, but by moving one of full size from the second to the first in August, or even as late as September, the work being judiciously performed, there exists no obstacle to its being shut up for forcing about the end of November. I once lifted an A Bec Peach from a wall when coming into flower to replace one which collapsed in a forcing house after the fruit had set, and it matured three dozen very fine Peaches. I do not, however, advise this close sailing, but mention the circumstance to show what can be done when the forcing gardener is pressed by accident.

Succession houses.—As the trees in these are cleared of fruit they should be divested of every shoot which can be dispensed with, and when they have been thoroughly cleansed and watered, the young wood intended for another year will require regulating and tying in to ripen. In the rearrangement of the shoots, all old branches should be covered to shield them from paralysis, no uncommon cause of collapse when a cloudless sky succeeds a long spell of dull, sunless weather. The remainder of the shoots can then be placed where they will get most light, where every leaf, which must be carefully preserved, will have full exposure to the sun, and fresh air can pass freely through the trellis. By adopting this method of summer pruning and allowing about 5 inches to each young shoot the bark and petioles of the leaves soon put on a rich plum colour, the latter have room to move and breathe, and the plump hoary buds formed in the axils not only become perfect, but ripen properly. The most common cause of failure in Peach forcing is bud-dropping, and the majority of the unfortunates cry out when it is too late. Let those then who have been caught once prevent a recurrence by summer-pruning, as I have so often suggested, by keeping their trees thin and clean, by giving an abundance of fresh air, and never allowing them to feel the want of water.

Late houses in which the fruit is now swelling on from the stoning stage will now require plenty of air through the early part of the day, copious syringing soon after 6 a.m. and again when the ventilators are closed with sun heat in the afternoon. If speed is the object, the house may run up to 80° or 85° with plenty of moisture after it is closed, but it must have full ventilation through the early part of the day, otherwise colour and flavour will be deficient. The pale, but exquisitely flavoured old Noblesse, even treated to a plentiful supply of oxygen, lays on a delicate suffusion of colour and scents the air with its aroma, whilst notably high-coloured varieties run pale and vapid when coddled in a moist, stuffy atmosphere. Rain, I may observe, should never fall upon ripening fruit, as the most gentle drops often leave their mark, but wherever the ventilators can be opened with safety a free circulation of air may be maintained in showery weather. I offer these remarks advisedly to those who rush off to close every ventilator when warm summer rain is falling, presumably under the impression that the moisture-laden atmosphere is a deadly enemy; whereas a moment's reflection should prove to their minds that it is a life and health-sustaining friend.

Figs.

The weather throughout July was the reverse of favourable to ripe Figs, which in our climate cannot have too much fresh, warm air and brilliant sun. Here we have been obliged to keep the trees carrying advancing crops extra thin of wood by the persistent removal of every bit of side spray, by the partial, and sometimes for days together the entire, suspension of the use of the syringe, and then, although the pipes have been kept constantly warm, the saturated state of the external atmosphere has fostered a tendency to spotting. Where trees are maturing the first and swelling the second crop of fruit direct syringing of late has been so difficult, if not dangerous, that of two evils we have chosen a slight diminution in size in preference to larger fruit which will not keep more than a few hours after it is gathered. The only drawback is the advance of our greatest enemy, red spider, but once the first crop is off, good food, heavy syringing, and plenty of atmospheric moisture will destroy it before the second absolutely requires dry treatment. Meantime we may hope for better weather, as fruits of all kinds are now suffering in bulk and quality. When the second crop has been cleared from the early trees they should be divested of all superfluous and no longer useful shoots by summer pruning as a preliminary to cleansing and regulating. The great point here is thoroughly ripe wood well furnished with embryo figlets as yet barely perceptible, but nevertheless to the practised eye known to be there. In order to assist these and add to their number all intermediate fruits too backward to ripen and too forward to stand should be rubbed off at once, and the better to hasten the hardening or consolidating process the young points may be allowed to ramble upward towards the glass. The roots of the trees for some time to come must have moderate supplies of water, but high feeding and hard forcing must be substituted by a continuous circulation of dry, warm air. If external conditions favour this so much the better, not only for the trees, but for the country at large, otherwise a gentle circulation upon the pipes must be maintained. The Fig being so subject to spider, brown scale, and mealy bug, a word upon dealing with these pests may not be out of place. The first can be exterminated by repeated washings with the hose or a few dressings with soap water. Scale, before it extends to the old leaves, is easily removed by the use of a hard, stumpy brush, but once it gets established on the foliage, hot water at a temperature of 120° must be applied with the syringe, not once or twice, but repeatedly until an examination with the lens shows that every clinging scale is but an empty shell. Hot water also reduces bug, but it does not annihilate it; in fact, nothing short of powerful insecticides will keep it in check even through the growing season. Paraffin, a wineglassful to a gallon of water, or an emulsion of this oil and soft soap plied once or twice a week, will keep the enemy in check and pretty well out of sight, but the final slaughter cannot be accomplished until the trees are at rest in the autumn.

W. C.

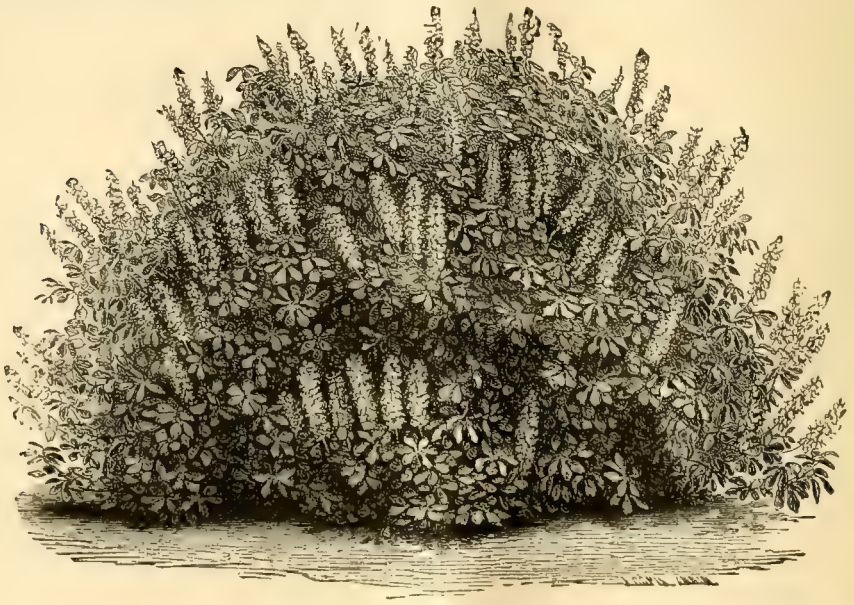
Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Passiflora cærulea (Hardy Passion Flower).—The hardy blue Passion Flower (see illustration, p. 114), so common as a wall climber in the south and mild districts, is one of the chief among our selection of open-air climbers, for apart from its graceful growth and its flower beauty, it is so different from all other out-door plants, that it should be grown in every garden where the climate permits. We have indeed seen it as a trailing shrub in southern gardens, the long shoots being allowed to run over a sunny bank facing south, and in such a position the plant flowered abundantly, and produced a crop of its rich yellow fruits about the size of Plums. It is not so suitable for planting to run over arbours or trellises as for a wall covering, as the heat of the wall seems to aid in ripening its growth, and so enables it to withstand our winters. A southern aspect is always best for it, though it flourishes against west or east walls. The only culture it requires is a good soil, nailing the shoots, and, if necessary, a slight protection during winter. There is now a lovely white-flowered variety, named Constance Elliott, which is quite as hardy as the original form. The flowers are entirely of ivory whiteness, and



Pavia macrostachya.

are very freely produced. Being as yet rather uncommon, it is confined mostly to the greenhouse, but no one need hesitate to plant it against a sunny wall. There is no other variety of P. cærulea so distinct as this, and no other Passion Flower hardy enough for out-door walls.



The red Buckeye (Pavia rubra).

The blue Passion Flower first came from Brazil two hundred years ago.

Pavia (Buckeye).—The Buckeyes are nearly related to the Horse Chestnuts (Æsculus), from which they differ chiefly in having smooth instead of prickly or spiny fruits. There are but



The yellow Buckeye (Pavia flava).

few species of Pavia, and all are now tolerably common, having been introduced many years ago. They are medium-sized trees, and one, P. macrostachya (here illustrated), is but a large shrub. In ornamental planting they are valuable for grouping with trees of larger growth, and particularly with their congeners, the Horse Chestnuts. Being quite hardy they stand exposure, and thrive in nearly all kinds of soil, and make good trees for the park, for which they are as suitable as for the garden. The red Buckeye (P. rubra), here illustrated, is a very handsome small tree, having dense and large foliage and bright red flowers, produced in large loose clusters in early summer. In places where it thrives best it rises from 15 feet to 20 feet high, but often it does not rise above shrub height, and some of its varieties are nothing more than low-spreading, or trailing shrubs. The names P. humilis, pendula, arguta, laciniata apply to forms of P. rubra, and the plants being of low growth are useful for grouping with taller trees. P. flava, the yellow Buckeye, is very common, and is altogether of larger growth than P. rubra, as it sometimes reaches 40 feet high, or more. It partakes somewhat of the habit of the Red Horse Chestnut (Æsculus rubicunda), but the leaves are smoother. It makes a dense, round-headed tree, and in good soil is of rapid growth. The flowers, produced in early summer, are in loose, erect clusters, and of a dull yellow, not very attractive. A variety called purpurascens (sometimes P. discolor) has much showier flowers than P. flava, being larger, produced more freely, and of a reddish tint. The Pavias named in gardens and nurseries, as P. neglecta, hybrida, pubescens, Lyoni, rosea, and pallida, may be included under one or the other of the foregoing species, and some differ but slightly from them. They are all low trees or large shrubs, coming into leaf early and losing their foliage in early autumn, especially in light or dry soils. A very distinct species is the



Fruit of Pterostyrax hispidum.

Californian Buckeye (P. californica), which in this country does not usually rise above shrub size. It has slender-stalked leaves, broad leaflets, and produces in early summer dense, erect clusters of white or pinkish, very fragrant flowers. It is yet but little known, but as it has proved a valuable hardy tree it will become more common. Quite different from the rest of the Pavias is the very beautiful P. macrostachya, a native of North America. It is a handsome shrub, growing from 6 feet to 10 feet high, and invaluable because it is one of the few that flower in late summer. Fully grown, it makes a wide-spreading mass of slender stems which proceed from the suckers. The foliage is much like that of other Pavias, and the fragrant flowers are small and white, produced in long, erect, plume-like spikes terminating the shoots. The elegant growth of the plant and its attractiveness when in bloom combine to render it one of the best of all hardy flowering shrubs, and the fact that it is indifferent in respect to soil enhances its value.

Pterostyrax hispidum.—A deciduous Japanese shrub, but scarcely hardy enough for

culture as a bush in the open. It makes a capital wall shrub, being rapid in growth, handsome in foliage, and very beautiful in flower. The heart-shaped leaves are about 6 inches long and half as broad. The flowers are small, pure white, and very freely borne in drooping clusters about the end of July. Another species, P. corymbosum, also Japanese, is even less common than P. hispidum, and though inferior in flower beauty, is a desirable shrub for walls. Its flowers, white or faintly tinged, are produced in crowded clusters. Both species grow from 8 feet to 12 feet high in this country, but their true character is not seen when growing against walls. They are known botanically under the names of Halesia hispida and H. corymbosa, but they have ever since their introduction been known as Pterostyrax in gardens.

Punica granatum (Pomegranate).—Like the Myrtle, the Pomegranate is commonly grown as a wall shrub. The walls of some old houses 30 feet or 40 feet high are covered with this, and a very beautiful covering it makes with its dense mass of tender green foliage. The ordinary kind is the single-flowered, of a brilliant scarlet, but the best is the double-flowered (flore-pleno), also scarlet, which is that most commonly seen. There is also a yellow flowered sort and a single and double white or almost white, albescens, but these are rare. The flowers are produced plentifully on the young shoots of the previous year's growth, so that in pruning, these young slender shoots must be left. In mild districts the Pomegranate may be planted as an open shrubbery bush, but its real value is as a wall covering.

SHORT NOTES.—TREES AND SHRUBS.

Potentilla floribunda is a shrubby species of a neat, compact habit, and in summer becomes studded with single bright yellow flowers. It might easily be taken for one of the Rock Roses.

Thuja Lobbi forms a grand specimen tree bordering the carriage drive at Rockhurst. The trees are nineteen years old and more than 40 feet high, the branches sweeping the ground, while the stem is well furnished to its full height.

Cut-leaved Walnut (Juglans regia laciniata).—This forms a distinct and most beautiful tree at Maresfield, and it possesses the double advantage of fruiting quite as freely as the normal form. The leaflets are all deeply cut into narrow segments.

The Eagle's-claw Maple (Acer platanoides laciniatum).—This is an old, but rather uncommon form of the Norway Maple, with deeply lobed leaves, the lobes cut into narrow segments, each leaf being truly characteristic of the name applied—an almost exact representation of an eagle's foot with curved claws.

Cupressus Lawsoniana lutea.—Will any reader of The Garden give his experience of transplanting the above? I have moved many of them at different seasons in different soils and aspects. Some of them linger on for a while, but all die in a year or two. This is a pity, for it certainly is one of the most telling yellow-foliaged shrubs we have.—J. Taylor.

Azara microphylla.—We have a splendid plant of this growing in the open air. It has been planted four years, and now stands 9 feet high and about as much through. It is indeed a lovely object, and stands out conspicuously from all other shrubs around it. It is fair to say that it has grown in a sheltered situation, where many other somewhat doubtful hardy shrubs seem happy.—J. Taylor, *Hardwick Grange, Shrewsbury.*

Escallonia montevidensis.—Mr. Tallack, in The Garden, July 21 (p. 64), says this is a difficult shrub to strike from cuttings; therefore it must be taken as an exception to the general rule, which, as I stated at page 515 last volume, is that Escallonias are easily propagated. I cannot help Mr. Tallack in the matter, but if he will send me some cuttings (young side shoots with a firm heel), I will try to strike them, and if I succeed will return a rooted plant to him. But if so difficult to strike, why not layer or graft it?—W. Goldring, *Kew.*

—— This usually grows so vigorously when planted out against a wall or otherwise, that the shoots become so pithy as to be struck with difficulty. If Mr. Tallack will pot up a plant and grow it under glass, and stop it now and then, it will produce a number of rather weakly shoots, which may be cut up into lengths of three or four joints each any time during the autumn, and if placed in the slightest warmth will root freely. Potted off and grown on like Fuchsias, &c., good plants will be made the first season.—T. Smith, *Newry.*

Japanese Stuartia (S. Pseudo-Camellia).—This very beautiful shrub, now in profuse flower in Messrs. Veitch's nursery at Coombe Wood, is a most important addition to hardy flowering shrubs. It does not rival its North American congeners, S. virginica and S. pentagyna, but is as beautiful in flower and quite as hardy and free-flowering, as the Coombe Wood specimens of it show. The flowers remind one of those of a white single Camellia, but instead of the petals opening out flat, they incurve slightly and show the satin-like lustre of the outsides. The flowers are not snow-white, but ivory-white, and the tuft of yellow stamens emphasises the purity of the petals. The foliage is smaller than that of the American species, being narrower and more pointed. In Japan, from whence this shrub was first introduced about ten years ago, it grows to a height of 10 feet or 12 feet, but not being a rapid grower it will be years before it attains that height here. Some fine flowering sprays of it were shown at the last meeting of the Royal Horticultural Society by Messrs. Veitch, and were, of course, among the most attractive exhibits. The committee unanimously awarded it a first-class certificate which it deservedly merited.—W. G.

Kitchen Garden.

REMARKS ON THE POTATO CROP.

Rarely have Potatoes been more promising in appearance up to about the first week in July, but a long-continued spell of cold, wet and sunless weather has seriously militated against the chances of heavy, sound crops being lifted. So bad has been the weather, that the wonder is not that Potatoes should give signs of failing, but rather that they have so long remained in good health. Luckily, all were planted under exceptionally favourable circumstances, this favouring a healthy and vigorous start, which was only slightly checked by frosty nights. Latterly the haulm has failed at places, being either much curled or of a sickly yellow hue. Had the haulm been of a weakly character, the disease (Peronospora infestans) would ere this have spoilt many of the early crops, but in our case it has only shown itself on some of the leaves, and up to the present time (July 23) no diseased tubers have been found. For the early supplies we rely exclusively upon the old Ashleaf, and in spite of the unfavourable season no fault can be found with either the weight or quality of this crop. Either Veitch's Improved or Myatt's Ashleaf form an admirable succession to the old Ashleaf; Myatt's, however, being the heaviest cropper and the best keeper, that is to say, remains much the longest in an eatable condition, being nearly as good at midwinter as now. Mona's Pride is also very early and forms but little haulm, but the crop in our case is rather light. Very few possess the true stock of the latter, and each time I ordered it from a seedsman Veitch's Ashleaf was sent. Carter's First Crop, Early Hammersmith, and Rivers' Royal are all good selections of the Ashleaf, and they invariably do well. In any case seed of the Ashleaved varieties ought to be extensively saved for planting purposes this season, as it is very certain none of the American introductions can be relied upon in our variable climate. In a very dry season they succeed admirably, yielding early and heavy crops of well-formed tubers, but this year they are comparatively useless or uneatable on heavy soils, and are already badly diseased on lighter ground. We hear complaints from all quarters of the very sudden collapse of the Beauty of Hebron, Early Rose, Extra Early Vermont, White Elephant, and other favourites with cottagers and others, and I am afraid many will find they have made a sad blunder in their selection. We are trying Early Puritan, a white form of Beauty of Hebron, and this has cropped heavily, and as yet is not badly diseased. Sharpe's Victor and the Midsummer Kidney are both short-topped, heavy cropping, early maturing varieties, and they may prove worthy of a second trial on a larger scale.

Owing to a comparative immunity from disease, many cultivators have gradually discarded the strong-growing, disease-resisting varieties, and for this they will have to pay dearly this season. It is too early to enlarge upon the merits of the new and old disease-resisting varieties, but I may state there are several very promising sorts being grown here that will come to the front this season. The old Champion, Magnum Bonum, as well as Sutton's Abundance, Reading Hero, Chiswick Favourite, Chancellor, Village Blacksmith, Laxton's Reward, and several unnamed varieties on trial really appear to revel in the very wet weather, and it is to be hoped plenty of such are being cultivated extensively, or a scarcity of Potatoes may result.

In such trying seasons as we are now passing through many are in a dilemma with their crops, more especially as regards lifting and storing. They are afraid to lift before the haulm has died down, and yet if they wait for this to take place there is every prospect of the best portion of the crop of all those varieties with comparatively weak haulm being badly diseased. As a matter of fact, there is no necessity whatever to wait for this ripening process or till the skins are hard set, as, if not lifted very early, neither the cooking nor keeping qualities are much impaired, even if the skins do rub off somewhat. All the time the haulm is erect and very green the tubers are increasing in size and number, but when it falls about the rows, and gives signs of ripening off, the crop may be dug at once. Unfortunately, there is a considerable amount of risk in lifting and exposing the tubers in showery weather more than many seem to be aware of. It is usually considered the correct practice to fork out the Potatoes and leave them on the surface of the ground for a few hours to dry. During some seasons this may be unattended with any risks, but when disease is prevalent, many more tubers are lost from untimely exposure than would have been the case had they been left in the ground much longer. It is no unfrequent occurrence to find large quantities of stored tubers infected by disease only a few days after they were lifted apparently quite free from it. The bulk of these were undoubtedly sound when brought to the surface, but their moist and still tender skins offer a congenial home to the spores of the fungus floating about in the air, and are seized upon accordingly. The tubers ought, therefore, in such a season as this to be sorted over as soon as lifted, and at once stored in a shed, or where they can be sufficiently dried without undue exposure to either the greening influence of the sunshine and light, or the baneful effects of the Potato fungus. Nor should those medium-sized tubers intended for planting next season be exposed any longer than the "ware" Potatoes, or they may become diseased as well as green.

In many instances, early lifting is resorted to in order to again crop the ground, but if the space between the rows can be planted, there is

no real necessity to lift the Potatoes for some time to come, or say till more favourable weather is experienced. In fact, unless there is good room for storing the crops, and more especially the tubers required for planting, all had better be left in the ground till required. In the ground the tubers keep sound and plump, not sprouting prematurely, and consequently are much superior to those kept in heaps or in warm rooms, where they sprout repeatedly. Early in April we lifted several bushels of Myatt's Ashleaf that were left in the ground between the rows of Brussels Sprouts. It was surprising how few were injured by the repeated frosts. All the large tubers had cracked skins, but were of admirable quality when cooked, or much superior to Magnum Bonums and other varieties that had been lifted and stored in the orthodox manner, while the medium-sized tubers which were planted formed exceptionally strong haulm, and the crops are correspondingly heavy. If it is decided not to lift the crops for some time to come, it is yet advisable, most necessary in fact, to draw the haulm of all as fast as it gives signs of ripening, as previously described. This can be done without disturbing the tubers underneath simply by placing the feet on each side of the haulm as it is drawn out, the haulm and rubbish to be wheeled away and burnt. Tubers very near the surface are most liable to disease or injury by frosts, and in some instances it may be necessary to draw a little more mould over them.

W. Iggulden.

KITCHEN GARDEN NOTES.

Winter Spinach.

Although generally admitted to be a most important crop, it is doubtful if this receives such fair treatment as it fully merits. As a rule, the seed is sown too late, the plants in consequence falling an easy prey to slugs and other destructive insects; nor does it often succeed when sown either in close succession to other crops or on land poisoned with manure. Poor ground, however, seldom produces a good crop of Spinach, and what is wanted is a good open position, this being given a liberal dressing of solid manure and then laid up roughly for several weeks. We have treated a breadth of ground just cleared of late Broccoli in that manner, and it is now in excellent condition for the reception of the seeds. Before the bright, dry weather we yet hope to see has made the surface hard and unworkable, the ground will be well broken down and given a liberal dressing of soot and lime. The latter being well stirred in with flat hoes will do much towards checking the ravages of insect pests, and ought to be given in all cases where there is any difficulty in securing a good even bed of Spinach. Shallow drills are drawn 12 inches apart, and the seed sown rather more thickly than is necessary in the case of summer Spinach. If the seed comes up evenly the seedlings are lightly thinned out before they weaken each other, and again later on so as to finally leave the plants not less than 6 inches apart. Should the seed fail to come up regularly, or, what is more probable, be eaten off either at the roots or top when quite small, more seed ought to be at once sown wherever there are blanks, this in preference to attempting transplanting. In showery weather it is necessary to frequently dust over the rows of plants with soot and lime in mixture, surface hoeings oft repeated also doing much to check the increase of slugs and otherwise benefiting the Spinach. In early or favoured localities a sowing made during the first week in August may be too early, and it is advisable, therefore, to sow another breadth a fortnight later on. In any case, there is little danger of too much being grown, and the ground can always be cleared in time for other important crops to follow in the spring. The winter or prickly seeded is generally sown at this time, but the summer or round-seeded is equally as hardy and serviceable, and the seed of this that might otherwise be spoilt may well be sown now.

Late-planted Broccoli.

Owing to the lateness of the Potato crops and other causes, the plants, winter stuff generally and Broccoli in particular, have had to remain far too long in the seed beds. As a consequence they have become very leggy, and unless planted in a different way to that usually followed, will be killed by the first severe frost. Deep planting is objectionable for several reasons, one of which is the certainty that plants with their roots sunk into a cold subsoil cannot form a sturdy top growth. Leggy plants ought therefore to be laid in so as to have their roots near the surface, and yet be well protected at the most vital part, viz., the stem. Fortunately, we are not obliged to put out any late or leggy plants, but have done so in other years with fairly good results. A wide, sloping trench was formed across the breadth to be planted and a row of plants laid in so as to bring the tops or hearts just clear of the soil. A little short manure was distributed about the roots, and then the soil from the next trench was firmly packed against the stems and over the roots of the plants. A distance of 2 feet apart each way is usually enough for these late crops, and the second trench is so formed as to admit of the tops of the next row of plants being that distance clear of the first row. In this manner a large breadth newly cleared of Potatoes or other crops may be quickly covered with Broccoli, Borecole, Savoy, and Chou de Burghley, and unless the winter sets in very early and severe the plants will make fairly good progress and pay for the trouble taken with them.

When to use Potatoes.

The question is often asked, When ought we to commence eating certain varieties of Potatoes? and this in all cases is not easily answered, especially of late years or since the introduction of such a bewildering number of new varieties. Even well-tried favourites vary considerably, climate and soil having so much to do with the quality and maturation of Potatoes generally. Most of the Ashleaved varieties may be lifted for cooking purposes before they are fully grown, but are naturally of superior quality after the haulm has ripened somewhat. Beauty of Hebron and other early American varieties grown on medium and light soils are frequently of good quality almost as soon as the Ashleafs, and also keep well. Sutton's First and Best, Eclipse, and Ringleader are all of excellent quality early in the season, and keep well, and Early Border is very little later. Unfortunately, in but few gardens are large breadths of good early varieties grown, and the consequence often is that the successional supplies are drawn on before they are fit to eat. Not that there is any scarcity of second earlies; on the contrary, their name is legion, and many more are annually forthcoming. Sukreta is usually of excellent quality early in August, and so also are Sutton's Seedling, Early Regent, Reading Russet, and Lady Truscott. All of these may usually be used now, or they will keep good till midwinter or later. Cole's Favourite, one of the best, also matures rather early, and we find it and Sutton's Seedling among the best to follow the Ashleafs. Vicar of Laleham is often good when lifted in August, and the same may be said of Covent Garden Perfection and Cosmopolitan. Lapstone Kidney or any variety resembling it may either be used when first lifted or be kept for some time. Dalmahoy, largely grown in the fields, is usually of good quality early, or it may be stored for late autumn use. Scotch Champion, though not often used early in the season, in reality cooks admirably directly the tubers are fully grown, and it is a mistake to store this and eat such good keepers as Chiswick Favourite, Village Blacksmith, Miss Fowler, Prince Arthur, Reading Hero, Schoolmaster, Chancellor, Magnum Bonum, and Abundance. White Elephant last season was of excellent quality both early and late, but I shall be agreeably surprised if such is again the case this year. Idaho, another American variety, was also remarkably good in every respect, but more especially as regards its keeping and cooking qualities.

Tomatoes under Glass.

There is every prospect of a complete failure with Tomatoes in the open, and for this and other reasons great pains ought to be taken with those under glass. A long spell of dull weather is more conducive to rank growth than fruitfulness, and unless the plants in pits and frames especially receive almost daily attention in the way of disbudding and training, the greater portion of the flowers will fail to set. Not only should all superfluous growth, notably side shoots, be removed as fast as it forms, but in many instances it is also advisable to reduce the foliage somewhat. Many of the leaves may be shortened considerably, and all that are decaying or which may be infested by fungus of any kind ought to be at once cut clean away and destroyed. This will admit the light and air to the blooms and strengthen them sufficiently to render a good set a comparatively easy matter. During dull, sunless weather we go over the blooms daily about mid-day, or when they are quite dry, and distribute the pollen either by gently rubbing the flowers together or by smartly tapping the bunches, and a good set results. Hackwood Park Prolific sets the most freely this season, and is a fine handsome variety. Directly it was seen outdoor crops must under any circumstances prove a comparative failure, we housed a number of pot plants that had already produced an early crop, and also shifted a number of late-raised plants into fruiting pots. The former were set between Peach trees and other positions where the plants could root into a border and form fresh fruiting growth wherever there is room for it. These plants are certain to produce serviceable late crops of fruit. The younger plants given a shift will be fruited in succession to Cucumbers and Melons, these also being allowed to root out into beds of manure and soil.

W. I. M.

Early *versus* late sowing.—The seasons as they pass teach their appropriate lessons for the use of the observant gardener, and I think that the present year, with its backward spring, taught him, among other things, one useful lesson—that the early sowing of seeds in the open ground, as generally followed, is a mistake. I think that late sowing was general this year. The lack of appropriate weather, and the condition of the soil in early spring, postponed somewhat the sowing of seeds beyond the usual time for doing so, with the result that the average of growth of main crop seeds is generally good. As a rule, gardeners are much too anxious to get seeds into the ground, and when this is done in cold and backward springs, the seed lies in the soil waiting for the genial influences which cause germination, but which is slow to come, and the seeds perish in large part; or, if they grow, it is too often of spare and imperfect growth, and the seedsman is too often blamed for a comparative failure that should be attributed to the undue haste of the gardener. A gentleman connected with one of the leading seed-houses, who is now travelling over a portion of the United Kingdom, informs me that he has rarely seen garden and field crops look better than they do at the present time, and he attributes these satisfactory results in a great measure to the fact that seeds in general were sown much later than usual this season. This, then, is one of the lessons taught by the seasons, and I commend it to the attention of gardeners of all classes.—R. D.

Dwarf Peas.—The present seems to be the season for dwarf Peas, where they have ample room and the soil is but moderately manured. I find some cases, however, in which the ordinary field breadths of market Peas have, because the soil is so full of manure, made excessive haulm and produced few pods. Generally, however, field Peas have been very good, because the season has, although producing some blindness in the later bloom, yet promoted cropping very well. In gardens tall Peas have run away from their supports, and have given very much trouble to keep them from tumbling over; indeed, 4 feet Peas, so called, have been best in deep soil and held by sticks, whilst 6 feet Peas ordinarily have gone up to 8 feet. Such excessive growth is by no means conducive to fruitfulness. A dwarf kind, Volunteer, grown for the first time this year in the open field, has proved to be a remarkable cropper, and should make a popular market variety. The seed is round and hard, the pods long and well

filled with Peas of a deep green colour, and in quality very superior to what is usually found in the market second earlies, the class to which Volunteer seems to belong. As cropping here the variety ought to rank as one of the most prolific dwarf Peas in cultivation. To succeed this kind none excels Triumph, really a grand dwarf Pea, very prolific, pods long and filling well, the Peas sweet, pleasant to eat, and not large. A market grower who came here to look at Triumph the other day was delighted with it, and regards it as a first-rate market variety. Many hundreds of acres of Peas are grown in this district for market, one grower having 150 acres, and, therefore, any fine new kind which will secure more bushels to the acre, and obtain even but 6d. more per bushel, is of great value.—A. D.

FERNS.

W. H. GOWER.

A FEW ORNAMENTAL PTERIS.

PTERIS QUADRIAURITA (*M. C.*). — This is the species sent to us for a name, and although a somewhat common and variable species, it is a very ornamental plant. It is found in almost all tropical countries, and has from time to time received many names; one plant named P. felosma, however, which is frequently classed as a variety of quadriaurita I fancy must be distinct, from its disagreeable odour, and it can be recognised by this with closed eyes, and upon this account I do not look upon it as a desirable plant for amateurs to grow, when so many fine forms of this genus are obtainable which are destitute of this peculiarity. P. quadriaurita in its normal condition is a bold plant with fronds from 2 feet to 4 feet long, 1 foot, or more, at the base being bare, the rachis being pale brown or straw coloured. The pinnæ are opposite or sub-opposite, broad and deeply lobed, and of a cheerful green, the lowest pair being again branched on their lower side. The most desirable varieties of this plant are :—

P. ARGYREA, well known for having a broad central band of white along all the pinnæ, rendering it extremely ornamental. It was introduced some years ago by the Messrs. Veitch, of Chelsea, and at once became popular, and deservedly remains so. The fronds attain to some 5 feet in height and 2 feet in width on well grown specimens, and as it does not object to a somewhat low temperature, it is useful for all purposes where bright foliage is desirable.

P. TRICOLOR, said to be another form of quadriaurita, is one of the most beautiful Ferns ever introduced, but at the same time, it must be admitted, it is one of the most difficult Ferns to keep long in good order; it appears to like strong heat, but does not like watering overhead. It was introduced upwards of thirty years ago by M. Linden, of Brussels, from Malacca, and although at that time it spread into all the Fern collections in the country, it has never become common. The fronds are much dwarfer than those of P. argyrea, but similar in shape; the centres of all the pinnæ are ornamented with a broad band of silvery white, and the remaining portion of the frond when young is rich deep crimson, which becomes paler with age. When the frond is mature it becomes deep green, with the silvery central band tinged with pink.

P. LONGIFOLIA is another very common, and when well grown an extremely bold and beautiful species. It will grow well in the cool fernery. Some of the finest examples I have seen of this species are just now in fine condition in the interesting garden of Mr. Schwann at Oakfield, Wimbledon. It will also thrive well as a window plant in a sitting room. The fronds, erect and gracefully arched, from 1 foot to 2 feet or 3 feet high, bear from two dozen to three dozen pairs of pinnæ, each some 6 inches long and deep green. It is found wild in all the warm parts of the globe, varying considerably in size according to the locality in which it is growing.

P. SEMIPINNATA.—This is an elegant Fern which has been allowed to become somewhat scarce in cultivation. In its normal condition it is both distinct and handsome, producing fronds from 1 foot to 3 feet in height; the pinnæ are opposite and obtusely lobed on one side only, hence its name; the texture is firm and the colour deep bright green. It appears to be found wild in various parts of India and in the Philippine Islands. These Ferns require stove temperature. It also occurs about Yokohama and various parts of Japan, and the seedlings from these plants form handsome ornaments in a cool-house fernery.

P. ARGUTA.—This is a noble, bold-growing greenhouse species, which, however, requires abundance of root room to develop large-sized and handsome fronds. The rachis is bright chestnut colour, and the fronds, triangular in outline and bright shining green, attain to a height of from 2 feet to 4 feet by a foot or more in breadth. It is a native of the Canaries, Azores, and Madeira, &c.

P. KINGIANA is another beautiful species, forming a conspicuous object in a cool fernery. It is an evergreen plant, producing spreading, half pendent fronds from a short creeping rhizome. The fronds are from 1 foot to 3 feet in length. A peculiarity of this plant is the short sori, which extend only a short distance from the base of the pinnules. It comes from Norfolk Island.

P. TREMULA.—This variety is largely grown for market, and forms a beautiful window plant and thrives well in the cool fernery. It soon spreads and requires to be kept under, or it is apt to smother other more delicate kinds. It comes up more freely from seed than any other Fern I know, and this fact has led those who supply the markets to adopt it for general cultivation. Its fronds, varying from 1 foot to 3 feet or more in height, are three or four times divided, and light green in colour. It is abundant in Australia and New Zealand.

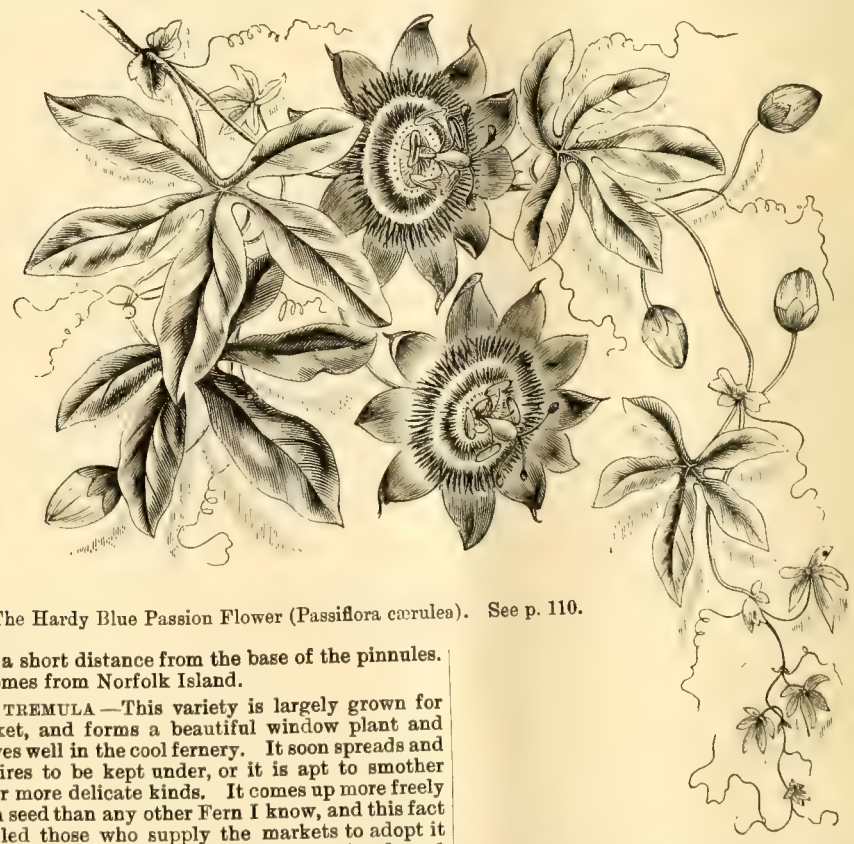
P. UMBROSA.—A most elegant Fern from Australia, and consequently adapted for the cool fernery. It somewhat resembles a gigantic form of P. cretica, but it is far more graceful in habit, but to grow it to perfection it requires ample space for its roots to spread. The fronds, of weeping habit, attain to some 3 feet or more in height.

P. STRAMINEA.—This, if I mistake not, was introduced from Chili by the Messrs. Veitch, of Chelsea, through their collector Pearce, and first appeared in English gardens under the name of Pteris crispa, which name, however, was already occupied by our native Parsley Fern. It resembles arguta somewhat, but its fronds are more spreading and the pinnæ are turned inwards, giving it a somewhat crisp appearance. The rachis is straw-coloured, and the fronds vivid green. It is a most desirable greenhouse evergreen Fern.

The above are a few of the large growing Pteris, which are extremely handsome when well grown, and which deserve a place in every collection of Ferns of any pretentions. The majority of the kinds here introduced may be either grown into handsome specimens if planted in the border of the house, or as pot plants; in the latter way large pots should be used for the majority, as they require plenty of root-room; for soil two parts loam and one part peat and decayed vegetable mould made sandy will suit them admirably. The pots should be well drained, as the plants enjoy copious supplies of water, and they cannot withstand anything stagnant or putrid about their roots. Liquid cow manure applied about once a week will materially assist them to form large fronds, but if very strong plants are not desired then do not apply the stimulant.

EXOTIC FERNS.

I HAVE been much interested in Mr. Gower's articles in THE GARDEN on exotic Ferns, and trust that many persons will be induced to cultivate this beautiful class of plants. Tender sorts, such as Adiantum cuneatum and a few others suitable for decoration, are common enough, but the rarer kinds are seldom to be seen. Hardy exotic sorts have been even more neglected, owing probably to their not being known, except a few such as Struthiopteris germanica and two or three Osmundas which have long been grown in our gardens. I have upwards of forty exotic species growing on rockeries and in the borders here from various parts of the globe—North America, India, China, Japan, New Zealand, Madeira, Chili, &c., and there are probably as many more in cultivation under glass in this country that will yet be found to be hardy in most parts of Britain. The great majority of my plants have been in their present position for eight or ten years, and their hardiness has therefore been thoroughly tested. Mr. Gower speaks of Woodsia polysti-



The Hardy Blue Passion Flower (Passiflora cærulea). See p. 110.

choides, from Japan, as being "probably hardy." It has been so with me for ten years, and is at present a healthy plant, with about two dozen fronds each 7 inches long. One is enclosed. Plants hardy in Edinburgh are likely to be so in almost any part of the kingdom, and there is a wide field for the cultivation of hardy exotic Ferns. My plants have had no protection whatever, and I am sure that many of the sorts at present grown under glass would succeed if planted, say, under the shelter of a tree or at the base of a wall in a dry place. Many persons throw out greenhouse Ferns when they get too large. Instead of doing so, it would be worth trying the experiment of planting them out in some sheltered position and giving us the results. A correspondent lately sent me the frond of an unknown Fern found growing on a hill in Dumbartonshire. This turned out to be one of the forms of Asplenium furcatum, usually grown in a greenhouse and sometimes in a stove. It must either have been planted there or grown from a spore. P. Neill Fraser.

Murrayfield, Edinburgh.

SHORT NOTES.—FERNS.

Dicksonia antarctica.—Although this noble Australian Tree Fern is just now at a discount as a tree, it is largely grown for window decoration on account of its hard fronds. I recently noted a large stock of seedling plants being pushed forward for this purpose in Messrs. Dixon's nursery at Hackney.—W. H. G.

Doryopteris palmata and D. sagittæfolia are two pretty Ferns which we recently noted growing well at Burford Lodge. The first named grows about a foot or more high, the fronds deeply palmate, the segments being long, leathery, and bright green. The last named bears simple, erect, sagittate fronds, which are leathery in texture, deep green, and supported on a jet black foot-stalk. They are Brazilian Ferns, and require the heat of an intermediate house.

Stenochlæna scandens.—This Fern is largely grown by Messrs. Dixon, of Hackney, for the purpose of decoration indoors, and is said to find a ready sale in the West-end on account of its fronds being hard and therefore lasting well. It is a bold-growing plant, bearing two distinct kinds of fronds, the sterile pinnæ being long and broad, leathery in texture, and dark green, the fertile ones being much contracted, while the sori cover the whole under surface.

Gymnogramma Pearcei robusta, described on p. 44 of The Garden, will have a great future, as it is far more robust and free-growing than the type, and its lovely lace-like fronds are of extreme delicacy and beauty, both in appearance and colour. In the Chelsea nursery of the Messrs. Veitch, who recently received a certificate from the Royal Horticultural Society for it, there is a large stock of it, and we there noticed its free growth in a young state.

Gymnogramma gloriosa.—Fine examples of this gem amongst Ferns are now to be seen in Sir Trevor Lawrence's garden, where it is grown as a pot plant. Some gardeners decry this system of cultivating it, but although it does make a fine basket Fern, the finest specimens I have yet seen have been grown in pots. Its superb vasiform habit and long, delicately-cut fronds constitute it a universal favourite with the ladies, although it is of no use in a cut state. It delights in a warm and very moist atmosphere.—W. H. G.

Asplenium japonicum.—Walking through the new Fern collection at Kew the other day, I could not help noticing this Fern. It seems so robust and sends up so many fronds from its spreading crown, that it should be a most valuable acquisition for cutting purposes. Could we have some account of it that might be a guide to others besides myself? Ferns that will give a good supply of fronds such as can be used for a fortnight if need be in a vase are very valuable, and if we could have a short list of such it would be a treasure to many.—A.

Trichomanes exsectum. — This is another Juan Fernandez Island Fern, although it is not peculiar to that locality, being also found in Southern Chili and also on the island of Chiloe. It is an extremely elegant plant, having a slender creeping rhizome and pendent-lanceolate fronds, which are three times divided into narrow, distant segments, which are bright green. It is useful for Wardian cases, or for a cool fernery where an abundant supply of moisture is maintained in the atmosphere. Nice specimens of this species were in the Backhousian collection at York.

BEAUTIFUL FERNS.

At the last meeting of the Royal Horticultural Society Messrs. W. and J. Birkenhead, Sale, Manchester, exhibited a most charming collection of Ferns, containing many delightful and uncommon species and varieties, of which want of space prevented special mention at the time. Gymnogramma Parsoni, a tropical American Fern, is conspicuous for its crested gold-powdered fronds; it is handsome and distinct in its way. Scolopendrium cristulatum is an exceedingly distinct crested variety of our common Hart's-tongue Fern, of which there are several excellent crested varieties. This was certificated and fully described in The Garden (p. 92). There was also the beautiful Lastrea montana ramo-coronans, described at p. 92, and a noble specimen of the Welsh Polypody, Polypodium vulgare cambricum, and one named Prestoni, a very dense form, the fronds much divided, and quite constant. A beautiful Fern amongst the British kinds that were exhibited is P. vulgare trichomanoides, with finely divided fronds; P. vulgare elegantissimum is also worthy of notice. The collection was rich in varieties of the Lady Fern, containing the form acrocladon, one of the best of all; and such as Applebyanum, Craigi, and Victoriæ, all of which can well be named amongst the finest of this class. The Scolopendriums were also most representative, including the one certificated, and vulgare ramo-marginatum, excellent as a specimen, and v. crispum, both showing bold and distinct characters. A crested form of the Royal Fern named Osmunda regalis cristata is worth noting for its distinctness, and so is the pale green-coloured Onoclea sensibilis. An Athyrium that must not be omitted is A. Filix-fœmina plumosum multifidum, the fronds finely divided and of a cheerful green. There was a well-grown plant of Nephrolepis rufescens tripinnatifida, and two of the exceedingly beautiful and interesting Gleichenia dicarpa longipinnata. Pteris tricolor was remarkable for its brightness, and Todea superba for the silky seaweed-like texture of its magnificent fronds.

Amongst the stove and greenhouse kinds were several interesting Nothochlænas, viz, N. Mulleri, described in The Garden (p. 92); N. sinuata, N. rufa, illustrated in The Garden, December 1887, and other forms. Adiantums were also included, and there were excellent plants of the beautiful Victoriæ, a bold, richly-coloured, and vigorous Fern, quite a contrast to A. Bausei, also exhibited. Gymnogramma schizophylla gloriosa is an exceedingly elegant variety, the fronds graceful, drooping, and cut into very narrow segments. It is recommended for a basket, and its charming grace fits it for such a purpose. There were shown besides these the noble Lygodium dichotomum, the fronds quite 2 feet across and glossy green; Davallia tenuifolia Veitchiana, one of the most beautiful of the Davallias; and specimens of the Stag's-horn Fern (Platycerium alcicorne). The exhibition of a few collections of Ferns like this occasionally would give a new life to the culture of this most interesting and, we scarcely need add, beautiful section of plants. Ferns have been completely overshadowed during recent years, but it seems an interest is again arising in them, and we hope such is the case. Those, at any rate, who are in near proximity to Kew Gardens have splendid opportunities of becoming thoroughly versed in the British species and varieties, as there is the Carbonell collection there, which, as has been mentioned before in The Garden, does not comprise mere scraps, but large, well-grown, and representative specimens.

A good combination for a lawn group is the old Fuchsia Riccartoni and Hyacinthus (Galtonia) candicans. The abundant crimson bloom and low bushy growth of the Fuchsia is in strong and beautiful contrast to the tall spires of pearly bells of the Hyacinth, and as the two plants flower together, the effect is good for a considerable time. As both plants are of about the same degree of hardiness, they may be afforded protection if necessary during severe frosts in winter.

Orchids.

W. H. Gower.

TRICHOCENTRUMS.

In the above-named genus are included some dwarf-growing large-flowered plants of great beauty; they do not attain to much size, and are too frequently passed by for plants of greater proportions. On account of their size they are best accommodated on a block of wood, or in small baskets, either of wood or earthenware; these should be nearly filled with pieces of broken pots and charcoal; upon these the plants should be made firm, and their roots covered with a layer of living Sphagnum Moss. A mistake is frequently made with these Trichocentrums in burying their roots in too much soil, and the moment this becomes tainted with sourness the plants begin to suffer, and if not speedily removed they rapidly deteriorate. These plants are for the most part natives of South and Central America at various altitudes, and one or two species which I have grown succeeded well in the cool house in the summer months, suspended near the roof glass and fully exposed to the light. During the winter and spring they were kept in a similar position at the cool end of the intermediate house, and saving in exceptionally hot seasons, this temperature would in all probability suit them best all the year round. They are plants which enjoy a moderate supply of water during the hot season, and they must not be dried off during the cooler months, or the plants will suffer. At the same time care must be taken that the water does not lie about the roots. Trichocentrums require careful watching in the matter of watering, and in keeping them free from a small white scale (which at times is very troublesome) in order to keep them healthy, and to induce them to produce their lovely flowers. These plants are somewhat erratic in their season of blooming, and some of the species produce insignificant flowers. These are certainly not worthy of a place in a limited collection, but the kinds enumerated below are well deserving a place in every amateur's or connoisseur's Orchid house.

T. albo-purpureum is a tufted plant with small pseudo-bulbs bearing a single leaf. The peduncle is pendulous, and bears a solitary flower about 2 inches across of a fleshy consistence. Sepals and petals are brown within, tipped with yellowish green on the back; lip white, veined with rosy-purple on the disc, and bearing two large showy purple spots on the sides near the base. It comes from near the banks of the Rio Negro.

T. orthoplectron.—A beautiful species, which I have only seen in the now dispersed collection of Mr. Lee, of Leatherhead, and in Mr. Williams' nursery at Holloway, and in both establishments I saw it blooming in the month of October. The plant is about the same size as the preceding. The peduncle bears from one to two flowers, which are from 2 inches to 3 inches long; sepals and petals light cinnamon coloured, paler towards the tips, where they are more or less dotted with bright brown; lip flat, nearly square, deep crimson-lake, which becomes paler towards the edges, with a yellow disc. It comes from Brazil.

T. porphyrio is a somewhat similar plant to the preceding, yet it is quite distinct. The flowers are upwards of 2 inches in length; sepals and petals nearly equal, slightly incurved, dull brown, bordered and tipped with yellow; lip of a uniform magenta-purple, with a narrow white border and a broad pale yellow blotch on the disc.

T. Pfaui.—This is a smaller-flowered kind than any of the previously named species, and, if I

mistake not, was introduced from Central America by M. Linden, of Brussels, through M. Pfau. The peduncle is mostly two-flowered; the sepals and petals are white, each bearing a blotch of soft brown at the base; lip white, with a crimson disc.

T. TIGRINUM is a truly beautiful plant, bearing a somewhat distant resemblance to Oncidium Lanceanum in its fleshy, dark green spotted leaves, and to Cattleya Aclandiæ in the colour of its flowers. The peduncle is one to two-flowered, each blossom being nearly 3 inches across; the sepals and petals are yellowish green, transversely barred with irregularly-shaped blotches of purplish crimson; lip broad and bilobed in front, white, blotched on either side at the base with purplish violet, whilst the disc is bright yellow. It is a native of Ecuador. W. H. G.

Odontoglossum vexillarium.—I recently noted a charming form of this species entirely different to anything I had previously observed, and to which the name of The Fairy appears very suggestive and appropriate. It is a large plant laden with flowers; the sepals and petals are white flushed with lilac; lip white in front, bearing a blotch of crimson on the disc, from which diverge numerous faint rays of lilac. It is a charming and delicate variety, and contrasts well with the variety Chelsoni standing beside it. This is a very large flower, the lip blotched in front with fuscous-brown ornamented with numerous radiating lines of magenta.—W. H. G.

Odontoglossum crispum.—From Mr. Evans, of The Gardens, Lythe Hill, Haslemere, comes a gathering of the above flowers, which, judging by the notes attached, would appear to be very fine. No. 1 is the finest of a spike of fifteen blooms; the flower measures some 3½ inches across, the sepals and petals broad, prettily undulated, all spotless; the petals faintly, the sepals more deeply tinged with rose; lip large, undulated, and spotted with chestnut. No. 2 is a similarly marked flower, but not quite so large, neither is it quite so full; it comes from a plant bearing twenty-seven blooms, and must be exceedingly handsome. No. 3 is a form wholly pure white, saving a few spots of chestnut on the sepals and on the lip. It is more starry than the others, although a large bloom; it was cut from a plant with four spikes and fifty-two blooms.

Sobralia macrantha.—It is often said that Sobralias have been cast aside for some years because their flowers soon fade, and there is much truth in this, as they seldom last more than two or three days, but it is forgotten (or at least not said) that there is a great succession of bloom, so that the plant is seldom without flowers. As an example of this, we may mention that a plant of a dwarf variety of macrantha named atro-rubens in The Woodlands collection has since it commenced blooming produced forty-five of its large and handsome flowers. Sobralias are somewhat like miniature Bamboos, producing slender, cane-like, leafy stems. They enjoy a good share of moisture all the year round.

Huntleya albido-fulva.—I have been acquainted with this species for some years, but have long lost sight of the plant. I recently observed a nice importation of it with Messrs. Shuttleworth and Carder at Clapham, and hope it may become established in our gardens. The peduncle is erect, bearing a single large spreading flower, the sepals and petals of which are nearly equal, the basal half white, the remaining portion tawny yellow; lip small, white, rosy red in front. These plants require a great deal of attention to grow them satisfactorily, but they are truly beautiful when in flower, and well deserve any extra care that may be necessary. Intermediate house temperature appears to suit them best.—W. H. G.

Eulophia guineensis purpurata.—This is a lovely Orchid belonging to the terrestrial section, and comes from the western side of the Dark Continent. The species hitherto introduced have been for the most part few and poor-flowered, so hat the genus has been much despised; few plants, however, are more beautiful than the one here named. The pseudo-bulbs are small and roundish, bearing several oblong-lanceolate, strongly nerved leaves. The scape rises from the base and is erect, bearing a many-flowered raceme of large and charming flowers. Sepals and petals deep rosy purple; lip large and flat; the side lobes white, the anterior lobe bright magenta, with numerous radiating veins of deep crimson on the disc, these passing into rosy purple towards the base, where it is pure white. It appears to enjoy strong heat and moisture when growing, but the water supply must only be moderate when at rest. The soil should be a mixture of peat, loam, leaf-mould, and sand. A figure of this charming plant was given in THE GARDEN for March 26, 1881. The plant does not appear to be much known at present.

Lælia Amesiana.—This is a Veitchian hybrid of surpassing purity and beauty now flowering with Mr. Measures at Streatham. It is the result of a cross between Cattleya (Lælia) crispa and C. maxima, the result being of a similar, and to my mind a superior, flower to the famed C. exoniensis The sepals and petals are white, with a flush of amethyst, the latter being much the broader and undulated on the edges; lip large, bold, and well opened. The interior of the throat is pale yellow, flushed with purple in the centre. The front portion of the lip is large, beautifully crisp, and of a uniform deep rich magenta-purple. The general appearance of the plant is that of C. crispa, but I myself fail to see the influence of the other parent (maxima). I should rather have hazarded the other parent to have been L. purpurata. It seems to do best grown in a hanging pot close to the roof-glass, a position which suits nearly all Cattleyas if the sun is kept from burning their leaves.—H. G.

SHORT NOTES.—ORCHIDS.

Oncidium nigratum is an interesting species, but not particularly attractive. Its flowers are small, the sepals and petals being richly barred with almost black on a white ground; the lip is yellow with cinnamon spots.

Cattleya Leopoldi.—This is an extremely useful and beautiful plant for flowering during late summer; one form in particular which we recently saw is specially notable for its large, richly coloured flowers, fifteen of which were on a spike.

Saccolabium Blumei and its varieties are now gay in various Orchid collections around London, their long densely-flowered spikes being very graceful and the combination of colours charming. I am quite at a loss to understand why these ornamental plants have fallen so much out of cultivation during the past few years, for they are very graceful and ornamental when well grown, either in or out of flower.—G.

Oncidium Jonesianum.—This plant, which everyone admires, but so few grow well, is now flowering freely with Mr. Measures at Streatham. I think that the majority of people keep it too warm, and I am the more convinced of this by seeing the condition of a quantity of this species growing and rooting splendidly near a back wall of a cool house in Mr. Cannon's garden at Merton. Of this beautiful species a coloured figure appeared in THE GARDEN, Feb. 12, 1887 (p. 148). —W. H. G.

Oncidium phymatochilum.—To obtain a true idea of the beauty of this Oncid a large flowering specimen must be seen. Its slender panicles, crowded with small flowers like little butterflies, are exceedingly beautiful, especially when moved by the wind. The sepals and petals are greenish yellow, with a few brownish orange spots at the base; the lip white, and the crest yellow. It commences to bloom in May, and lasts through June and a good part of July. It is in bloom in Messrs. Veitch's nursery.

Cœlogyne cristata.—This old plant is wonderfully free-flowering, and the old dark form originally introduced by the Messrs. Low, of Clapton, is much the finest. Of this form I recently noted an especially fine variety flowering in Messrs. Horsman's nursery at Colchester, the flowers being almost double the size of those of the ordinary variety, the white tip to the lip contrasting well with the deep blackish brown fringes on the basal half. It is a plant which appears to be nearly always growing and flowering. Native of Java.—W.

Epiphora pubescens.—This may be called a perpetual blooming Orchid, the same plant having bloomed continuously for thirteen months in Mr. Measures' garden at Streatham, and after a few weeks commenced again, being now in full beauty. The spikes are erect, bearing numerous sweet-scented inverted flowers, which are golden yellow with a few purplish crimson lines on the sepals and petals. It thrives either in the cool house or in an intermediate temperature.

Books.

PALLAS'S SAND GROUSE.*

In this little book will be found a description of the new game bird, Pallas's sand grouse, which has lately made its appearance in England from the wilds of Central Asia. Mr. Tegetmeier is anxious that country gentlemen and gamekeepers who may see it or come across its nest should not kill it, but encourage it to breed in this country. The general appearance and form of the sand grouse are admirably shown in a coloured lithograph.

The general colour of the plumage may be described as sandy or ochrous, barred with brown and black; the sides of the neck and throat are orange; there is a narrow band of black-edged feathers on the breast and a second broader and darker band on the flanks and across the abdomen; the back scapular feathers and upper tail coverts are marked with black and dark brown bars. The primary wing or quill feathers are delicate lavender with dark tips; they are unusually pointed, especially the first, which is the longest, extending far beyond the others, and giving the wing its remarkably pointed form. The tail is formed of sixteen feathers, the central pair of which are most remarkable, as they become elongated into mere pointed filaments at the tips, and extend in the males at least 3 inches beyond the others. The total length of the male, from the beak to the extreme point of the tail, exceeds 15 inches. The female is somewhat smaller. The weight of the birds, when in good condition, is from 10½ ounces to 11 ounces. The female is generally duller in colour, without the golden orange on the sides of the neck, with a very indistinct chest band, and with the central feathers of the tail less elongated. The legs in both sexes are very short, and closely covered with buffish white feathers down to the toes. The shortness of the legs causes the birds to move in an exceptional manner when on the ground, proceeding with a waddling gait, and swaying from side to side as they proceed.

THE ORCHID ALBUM.

The July number of this work, being the first part of the eighth volume, is just to hand, and contains excellent portraits of

HOULLETIA BROCKLEHURSTIANA, a pretty and singular Orchid which was introduced into cultivation nearly fifty years ago, but has never become common. The figure was taken from the collection of Mr. Grose Smith, of Ryde, in the Isle of Wight, where Orchids apparently thrive admirably. It appears to be a very fine variety of the species.

VANDA LAMELLATA BOXALLI is a representative of one of the smaller growing, and very desirable species of the genus, more especially as it is a winter-blooming kind and lasts in perfection for such a long time. It is a very free bloomer, and the spikes bear upwards of 20 flowers, which are borne upon long white footstalks; the sepals and petals are slightly reflexed, creamy-white, the lower half of the lateral sepals being of a reddish-brown with a tinge of purple; lip rosy-purple, streaked with creamy-white. This is the portrait of a fine form which flowered last autumn with Mr. Schofield at Rawtenstall, near Manchester.

DENDROBIUM MACROPHYLLUM.—This is an illustration of a curious species, which is, perhaps, better known in gardens as D. Veitchianum; it is a remarkable plant, but more curious than beautiful. It flowered in Mr. Tautz's collection at Shepherd's Bush.

CYPRIPEDIUM AMESIANUM.—This is a member of a race of hybrid Slipper Orchids, which are said to thrive best in a cool house, and are therefore decided acquisitions, especially when they produce

* "Pallas's Sand Grouse." By W. B. Tegetmeier, F.Z.S. London: Horace Cox, 346, Strand, W.

such charming flowers. It is the result of a cross between C. villosum and C. venustum, and appears to combine the characters of both plants in a charming manner.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

Trials at Chiswick.

A MEETING of the fruit and vegetable committee was held at Chiswick on July 26. Present: Mr. Harry J. Veitch in the chair; Messrs. Lee, Warren, Pearson, Ross, Rivers, Marshall, Norman, and Denning.

The collection of Peas growing in the garden was further examined. Dr. Hogg, from Messrs. J. Veitch and Sons, was noted as a very fine stock. Midsummer green was condemned as worthless. Optimum (Laxton), a tall green Marrow, with large handsome pods resembling those of Telegraph, was approved. Prince of Wales was noted for its extraordinary cropping qualities. Pride of Kent (Divers) and Gloria Mundi (Yates) were considered to be NePlus Ultra. The Abbot (Hurst & Son), a wrinkled green Marrow resembling Telegraph in appearance, but of superior quality, was greatly approved, and received a first-class certificate. Reliable (Laxton) a dwarf green wrinkled Marrow of the Scimitar type, was approved for its free cropping qualities and well-filled pods. Empress (Eckford), a tall green wrinkled Marrow, was approved as a good cropper and of good quality. Ne Plus Ultra Seedling (Culverwell) was considered a good stock of the old variety.

A collection of autumn-sown Onions was inspected The various types and selections of White Spanish autumn-sown, were noted as superior to the Tripoli section this season. Bailey's selected White Spanish (Veitch) was highly commended by the committee, being considered the best selection.

Tomatoes were inspected. Messrs. J. Veitch and Sons submitted examples of Raspberry Superlative, referred from the meeting at Westminster, together with examples of Lord Beaconsfield and Semper Fidelis for comparison. They were considered quite distinct. Superlative, being far superior, was awarded a first-class certificate.

Mr. T. F. Rivers submitted examples of a seedling Peach and Nectarine raised from the Nectarine Peach. The Nectarine was remarkable for its enormous size, being 10½ inches in circumference and 10 ozs. in weight.

Scientific Committee.

Malformed Cypripediums.—From Mr. Kimball came a drawing of C. Lawrenceanum, in which the parts of the flower were arranged in crossed pairs. The most peculiar flower was one of C. barbatum exhibited by Mr. O'Brien.

Passiflora kewensis ×.—Dr. Masters showed drawings of this hybrid, as also of P. hybrida floribunda, to show how closely similar they were. P. kewensis × was known to be a hybrid out of P. Kermesina by cærulea, and P. hybrida floribunda in all probability had the same origin.

Growth of Philadelphus.—A drawing of a plant of Philadelphus raised from a cutting in a pot was exhibited. On shifting the cutting into a larger-sized pot it was found that a dense leash of roots had proceeded from one single point only of the callused end —not from the entire circumference. One lateral shoot only was, in the first instance, produced from the side of the cutting, and this shoot was on the opposite side to that whence the tufts of roots issued. Not till this one shoot had grown to a large size, and produced three or four pairs of leaves with internodes of considerable length between them, was a second shoot produced. From the base of the original cutting, opposite to the first, a third and a fourth were also produced regularly, first on one side, then on the other side of the plant, and nowhere else.

Araucaria brasiliensis.—Professor Henriques, of Coimbra, sent a photograph showing two fine trees of this species growing in the open air in the Botanic Gardens of the University of that city.

The Plymouth Strawberry.—Dr. Masters showed ripe fruits of this curious monstrosity, grown from plants presented to him by Mr. G. F. Wilson. It is an alpine Strawberry, in which all the parts of the flower are more or less represented by leaves. The plant was mentioned by old botanical writers, but afterwards disappeared or was so completely overlooked that its very existence was assumed to be a myth. Of late years, however, the plant had reappeared in several gardens, and the correctness of the old writers has been vindicated.

Hybrid Clematis.—From Mr. Noble came specimens of his C. Jackmanni alba. The ordinary Jackman Clematis produces its purple flowers in late summer on the young wood of the year. The white variety, however, produces flowers in the spring on the old wood of the preceding year, and which are more or less irregular in character, and again flowers on the herbaceous shoots later in the summer, thus showing in one and the same plant the characteristics of two distinct sections of the genus, and affording evidence of the hybrid origin of the plant in question.

Stag beetle.—From Mr. Roupell came a specimen of Lucanus cervus, stated to be very abundant this season in certain localities. While the perfect insect, in spite of its formidable appearance, is harmless to plants, its larva is very destructive to the wood of trees.

SURREY FLORICULTURAL.

THIS is one of the oldest established societies in the country, and the annual two days' show was held in the grounds of Mr. Gover, Cosmo House, Herne Hill. The exhibits occupied three marquees, and were of far greater excellence by far than have been seen for several years. Ornamental-leaved plants were staged in quantity and well grown. Amongst these were very fine Caladiums, Dracænas, Palms, and numerous Ferns, the handsomest Fern in the show being a well-grown plant of Microlepia hirta cristata, and the most beautiful Palms were Geonoma gracilis, Cocos Weddelliana, and Kentias. Table plants were numerous, some good and some bad, the best of all those shown being Geonoma gracilis and Cocos Weddelliana in a small state. It is my opinion (and, I think, worthy the attention of those whose duties require them to study table decoration) that green foliage should be used for this purpose in preference to variegated. Silvery variegation is spoiled by the plate and the white table-cover; whilst yellow variegation usually presents a sickly appearance, and if gas or any other artificial light is employed during the feast, the yellow becomes white. Certainly the best effects I have seen were produced by green plants. Begonias, both the tuberous flowering kinds and those with ornamental leaves, were numerous and good. Fuchsias the society is noted for, but these, however, I have seen shown finer on the same ground. Orchids, represented by one collection of four in the amateurs' class, were very good, and consisted of Cattleya Gaskelliana, Masdevallia Chimæra (a very large and dark-flowered variety), Odontoglossum Schlieperianum, and the lovely Gold-chain Orchid (Dendrochilum filiforme). I may also remark that amateurs showed largely and in great force in the various classes. Cut Roses were neither so numerous nor so good as usual, owing to the bad season. Amongst the best flowers, however, were Countess of Oxford, Mme. Victor Verdier, A. K. Williams, General Jacqueminot, Helen Paul, Fisher Holmes, Mrs. Turner, American Beauty, Annie Wood, Baroness Rothschild, Margaret Brassac, Lady Mary Fitzwilliam, Louis Van Houtte, and Marie Baumann. Fruit and vegetables, the latter especially, were shown in quantity and of great excellence. In the collections there were seven competitors for three prizes, and the most inferior of these was well deserving of an award. In this district there are many pretty gardens and enthusiastic plant growers, and therefore I noticed the total absence of flowering stove and greenhouse plants as a notable feature, and it is a feature that was much required to give a little more brilliancy to the show. Groups arranged for effect were numerous and fairly good all round, but there is too much crowding, and the plants are not set up with a free hand to form what, to my mind, would be an effective group; a few of them, however, were well done.

The Gardeners' Orphan Fund.—The usual monthly meeting of the committee took place at the Caledonian Hotel, Adelphi, W.C., on the 27th ult., Mr. George Deal presiding. The hon. secretary reported a balance of £736 14s. 4d. at the bank, and it was resolved that a further sum of £500 be invested in 2¾ per Cents, making £1500 in all. The accounts of the late dinner at the Cannon Street Hotel were laid before the committee, and passed as very satisfactory. The chairman stated that Mr. N. Sherwood, of Messrs. Hurst and Son, 152, Houndsditch, had generously offered the sum of £100 for the purpose of placing an additional child upon the funds in accordance with the requirements of Rule XII., and this offer was most gratefully accepted. Mr. Sherwood having desired that the committee should nominate a child, they unanimously agreed to nominate for Mr. Sherwood's acceptance Kate Harriet Brooks, of Holmsworthy, Devon, one of a family of ten fatherless children, the case being strongly recommended by the vicar of Holmsworthy. The child is four years of age, and will, if she lives, enjoy the benefit of the Fund for a period of ten years. It was resolved that payments from the Fund to the ten recently elected children should date from July 1. A form or contract with the guardians of the children, and also one of a receipt, were considered and approved, and it was stated that in the cases of the ten children, one would be under the care of the grandmother, two of uncles, and the remainder of their mothers. The chairman and hon. secretary were elected a sub-committee to carry out the foregoing arrangements, and the committee then adjourned till the last week in September.

Quassia chips.—In a large saucepan or kettle with close-fitting lid, boil 4 ozs. of chips half an hour in soft water. Keep on the lid, allow the liquor to cool, and it will be fit for syringing over the most delicate plant or fruit, save Grapes, as it does not discolour. If a large quantity is wanted put in a greater weight of chips and reduce with pure water. For Roses and hardy fruit trees we generally add a mild emulsion of soft soap, made by pouring 1 gallon of boiling water over 4 ozs. of the soap. This we work with a switch until the soap is dissolved, then put the two liquors together, and increase the quantity to 4 gallons by the addition of soft water.—W. C.

BOOKS RECEIVED.

"The Tuberous Begonia: Its History and Cultivation." *Gardening World* Office, 17, Catherine Street, Strand, W.C.

"Illustrations of the Indigenous Fodder Grasses of the Plains of North-Western India." Part II.

"Bulletin of Miscellaneous Information." No. 19. Royal Gardens, Kew.

"Notes on the Cultivation of Dutch and Cape Bulbs," &c. By Ant. Roozen & Son, Overveen, near Haarlem, Holland.

Names of plants.—*A. T.*—1, Sidalcea malvæflora; 2, Lysimachia punctata; 3, Geranium phæum; 4, Spiræa filipendula; 5, Gaultheria Shallon; 6, Cotoneaster frigida.——*John W. Wilson.*—1, Lathyrus grandiflorus (not rare); 2, Corydalis lutea; 3, Dicentra formosa; 4, Mesembryanthemum polyxanthum (not rare).——*W. Tamplin.*—Spiræa ariæfolia.——*W. L.*—1, Cypripedium barbatum; 2, Stanhopea insignis; 3, Cattleya Walkeriana; 4, Maxillaria venusta.——*R. A*—1, Cimicifuga racemosa; 2, Echinops ruthenicus; 3, white Goat's Rue (Galega officinalis alba); 4, common double form of Helianthus multiflorus.——*H. Kruse.*—1, Oncidium stelligerum; 2, Orchis mascula.——*Begonia.*—1, Begonia nitida; 2, B. semperflorens var.; 3 and 4, varieties of Tydæa.

"The Garden" Monthly Parts.—*This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price* 1s. 6d.; *post free,* 1s. 9d. *Complete set of volumes of* THE GARDEN *from its commencement to end of* 1887, *thirty-two vols., price, cloth,* £24 15s. 6d.; *whole calf,* £32; *half morocco,* £28 18s.

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WOODS & FORESTS.

THE BLACK KNOT IN TIMBER.

In The Garden, July 21 (p. 70), I notice an interesting note on this head by J. T. Levett. It appears complaints had been made to that gentleman about knots inside his Oak trees cut on a certain part of his property, and in order to verify the statement, he had a butt end of a tree about 150 years old cleft up to enable him to satisfy himself of the truth of the assertion. This is the practical way of going to work in all cases of the kind, and if planters would take a lesson from J. T. Levett, there would be far less mystery about pruning trees and the way in which the work should be performed. The evil of allowing dead stumps of branches to remain upon the stem is here clearly illustrated, as they never unite with the fresh wood, and when the tree is cut up into hoarding or scantlings the knot gets loose, falls out, and leaves a hole in the timber. But the evil does not altogether rest here, as I have occasionally cut up trees of this class where the dead wood contained mould; consequently the spores of fungi must be present and thus lay the foundation for rot in the timber. No doubt a live branch produces a knot in the timber, but as such knot is always fresh and united with the wood of the trunk, it is not to be dreaded further than rendering the timber of less value and unsuitable for a great many purposes. After trees attain a considerable size and begin to form heart wood, the wound where a branch even of small size has been cut off never heals so quickly as wounds upon trees of younger growth and in vigorous health; consequently when it it necessary to prune a tree of large size the safer and better plan is to cut back any strong unwieldy branch at the base of a lateral twig, by which means the uniformity of the top will be preserved, the sap directed to the formation of wood in the trunk, and no risk of laying the foundation for rot be incurred. When a large branch has been cut from a tree, the vessels which convey the sap from the root for its support are suddenly rendered dormant and inactive; consequently when cutting up such trees for use, I have found these vessels to consist of a series of blackish longitudinal lines extending sometimes for a considerable distance from the base of the wound. When carpenters detect such a flaw in timber they generally, without giving the subject any consideration, conclude that pruning of every kind is pernicious and never ought to be practised at all, and from this misconception a great deal of misunderstanding has arisen about the utility of pruning trees under any and all conditions. It is only when trees are mutilated by cutting off large limbs and branches, as well as where the snag system of pruning has been carried out and the stumps left upon the trunk until they are enveloped by the growth of the stem that the timber is permanently injured. Practical experience, therefore, tells us that in removing a branch or double leader from a tree they ought to be cut off close to the stem in order to prevent the formation of a dead knot in the timber. In cases where it is necessary to cut back a branch or leading shoot, a few lateral twigs should be retained to draw up and elaborate the sap and prevent the formation of a dead stump. In growing trees, however, for utility and profit, they should be grown in such a way that they prune themselves or nearly so; but a great many estates in this country are of such a size that the trees are planted for utility and ornament combined. As the trees in such cases require space for the development of their tops, any stumps left upon the stems soon get carbonised and quite hard, and if not removed, lay the foundation for the black knot in the stem. On the other hand, when trees are grown in large blocks and kept rather thickly upon the ground, the atmosphere, to a certain extent, is confined, and causes the dead stumps and branches to rot and fall to the ground of their own accord, thereby lessening the risk of the formation of a black knot or blemish of any kind in the trunk. J. B. Webster.

MIXED PLANTATIONS ON PEAT BOG.

In renovating a neglected plantation on peat bog some years ago in the north of Ireland, the following particulars concerning it may be worth recording: By counting the concentric rings of the trunks the trees appeared to be about eighty years old. They consisted of Larch, Spruce, Scotch Fir, Alder, Oak, Beech, Lime, Horse Chestnut, Birch, Spanish Chestnut, Sycamore, Poplar, Gean, Ash, and Holly. The trees had never been properly thinned, and were growing in an irregular manner, sometimes to within 3 feet or 4 feet of each other, while others had a clear space of some 10 feet or 12 feet. A couple of groups of common Laurel had been planted as underwood, each of which contained about an acre, and as these had never been pruned or cut down they formed a complete thicket, some of them being upwards of 20 feet in height, while others had been laid prostrate by snow in winter, and the tops and branches having rooted themselves into the soft bog they presented an impenetrable thicket, so that in cutting down and reducing their dimensions we had to work our way from the outside to the interior. These Laurels were sold at 10*s.* per ton, the purchaser to take all shapes and sizes from branches of 1½ inches in diameter up to the largest sizes, and also to take their delivery on his own hands from the plantation. The quantity cut from the two groups amounted to 40 tons, and realised £20 net.

In places where the Larch and Spruce were confined they were drawn up into fine clean poles with very little taper, and had attained an average height of from 70 feet to 80 feet; they were very valuable for masts and other purposes where clean, well-matured timber free of knots is requisite. In places, however, where the trees were less confined and had room for development, they had grown into fine clean boles with a circumference of about 4 feet above the swell of the roots. They carried their thickness upwards according to their height in a remarkable degree, and for the most part were quite as straight, and surmounted by a fine canopy of spray and branches at their tops. Some of the Spruces were of larger size than the dimensions given above. All the trees of both species were perfectly free from disease. The Scotch Firs had also attained a fair average size, and were in perfect health. Ash and Oak were both small in size and inferior in quality; they are not adapted for planting on deep peat bog; but in places where the bog is but a few feet in depth, and where the roots can reach a clay subsoil, they both do fairly well, and the quality of the wood is excellent.

Birch and Poplar had both attained a fair size and were perfectly at home on bog land, and but a few trees of both kinds were affected with heart-rot. Spanish Chestnut does well in bogs, and when allowed plenty of room for development it makes a fine specimen tree in such situations. There were, likewise, some fine trees of the common Alder, some of which had attained a height of fully 60 feet, the stems being straight and free of branches for a distance of 40 feet and 50 feet, and as they girthed from 4 feet to 5 feet at a yard from the ground, and carried up their thickness in fine proportion to their height, they were very valuable. None of these showed any trace of disease.

The Beeches like plenty of room for development, and in places where not too much crowded there were really some good trees, the largest of which had a clean straight stem of 23 feet in length, and a diameter of upwards of 22 inches at the small end, and was large enough for the making of two beetling beams. These beams are generally 11 feet long, and 22 inches in diameter, and are commonly sold at £2 10*s.* each, so that the tree was good value for £5, independent of the top. This tree, however, was not cut and is in perfect health and still making wood. Common Lime and Horse Chestnut are both suitable for bog planting, and in places not too much confined there were some good trees, well furnished with branches and in perfect health. The Sycamores had attained a fair average size, and, except in places where they were too much crowded, presented good timber trees, free of disease and the timber of good quality. This species propagates itself quite freely in such places by natural reproduction, and is a valuable tree for bog planting. The Gean, or common Cherry, is quite at home on peat bog; some of the trees, however, had contracted heart-rot, so that, like the Birch and Poplar, it should be cut when at maturity before decomposition commences. Common Holly thrives admirably on bog, and as it retains its verdure and healthy development in thickets and under the drip of other trees it was quite at home in this plantation, and has proved to be invaluable for planting as underwood in such positions.

The site of this plantation is about 60 feet above sea-level, and previous to planting, the bog had been cut over for fuel, but not to such an extent that the roots of the trees could reach the clay upon which the bog rested, at least with the exception of some trees along the margin, but these we have not taken into account in the foregoing remarks. The foregoing list may be useful as an index of hardy trees suitable for planting on such situations; and although the extent of barren peat bogs in Great Britain and Ireland is of vast extent, still the trees capable of growing and giving a profitable return on such soils will be found to be equal to the requirements. J.

Plane tree pollen causing influenza.—A German resident of Barcelona recently published the fact that severe attacks of influenza—exactly like those which we call in this country "rose" or "hay colds"—have afflicted the members of his family year by year in spring, and that he has at last traced them with certainty to pollen dust from the Plane trees which surround his home. A German scientific journal thereupon declares that the evil influence of Plane tree pollen upon the stomach, throat, eyes, and ears was a well-known fact in antiquity, both Dioskorides and Galen having called attention to it. That German scientific men will acknowledge that an influenza may be produced by pollen dust of any kind will surprise many American travellers; for many must remember their experience with German physicians, who have laughed the idea to scorn, refusing to believe in the periodicity of the attacks from which their foreign patients suffer, or in the potency of the cause to which those patients attribute them.—*Garden and Forest.*

Mountain White Pine (Pinus flexilis) occupies naturally the sub-alpine belts of the Rocky Mountains and the Sierras. It differs very much in size. At 10,000 feet altitude it is a tree of 130 feet high, and is from 2 feet to 3 feet in diameter; but on the high exposed crests of the Sierras and Mount Shasta it is reduced to a mere straggling shrub, creeping on the ground. The cones in consequence vary considerably in size. Where the tree has attained a stately size, as is the case on the mountains of an elevation of 10,000 feet, a little east of Little Yosemite Valley, its cone measures from 4 inches to 5 inches; but where it is reduced to a mere shrub, the cone is only about 1 inch to 2 inches long. It is a fine tree with tapering trunk and conical outline, branching almost from the base; the lower branches are horizontal, the upper ones ascending. The wood is white and soft; the annual rings from one-eighth to one-half line, on an average one-fourth line wide. In the Rocky Mountains it occurs from New Mexico to the forty-ninth parallel, never forming entire forests. There it associates with P. contorta and P. aristata. On the high crests of the Sierras it is found growing along with P. contorta and Abies Pattoniana. The species sometimes described under the names P. albicaulis and P. cembroides is P. flexilis.

No. 873. SATURDAY, Aug. 11, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ALPINES: THEIR PAST, PRESENT, AND FUTURE.

EVERYONE seems to have agreed that the spring which is past has been exceptionally good for the flowering of herbaceous plants generally, and especially of alpines. The hot suns of last summer ripened their growth well, and the sunlight, whilst the leaves were ripening, enabled them to store away in their winter buds materials for a good spring display. I never before had such a display here; hardly a plant or shrub of any kind suffered during the long winter, and May and June were flowery beyond all my past experience; indeed, in spite of the wet, the good effects of last summer still go on, and the flowering of herbaceous plants continues to be good, though some flowers are much damaged by incessant rains, and the mixed borders are somewhat over-grown. But the dwarf plants on the rockeries, even where the flowering is over, are beautifully luxuriant. Never did the Androsaces show such abundance of green tufts. Gentiana verna rivals G. acaulis in the size of its leaves. Adonis pyrenaica, which ought to have ripened seeds and be going to rest, has everywhere made a strong new growth, and many plants are now coming into flower. These appearances, however, please only the inexperienced, and those who have watched plants for many years know too well what is coming. A dry August and September may do something to remedy the danger, but it is probable that alpines will be in the worst possible condition for enduring the rains and fogs of an ordinary English winter, and I am losing no time in making preparations accordingly. Frames for the protection of alpines in winter should be covered over in time to get the ground beneath them well dried before autumn, and a good supply of cuttings and divisions of the more delicate plants should be at once potted so as to be well established by October with the luxuriant growth which they show at present, restrained by judicious starving. It is only by taking such precautions that a good stock of the choicer alpines can be kept up from year to year, excepting, of course, in most favoured climates and soils such as Mr. Ewbank enjoys in his happy garden at Ryde; but I am speaking of gardens like mine where the soil is retentive and the wet accumulates and stagnates.

Several of my friends have boasted lately of their success with Androsace sarmentosa, which, they say, is sometimes thought a difficult plant, but is now making luxuriant tufts all over their rockeries; but if it looks as fresh and happy there in November—indeed, if every tuft left exposed has not turned brown and died of damp—I will commend their skill. In this garden, I am sorry to say, some of the wet-abhorring plants look very unhappy already. Onosma tauricum hardly has a green leaf left, and some cuttings I took when the July floods began seem to have sympathised with the parent. Omphalodes Luciliæ has a black edge round all its leaves, and the buds can scarcely open for damp. The flower-stalks of Campanula isophylla, where not under the shelter of a projecting stone, have a bare and unhappy look. What will happen to Daffodils, many of which have their leaves still as green as they were in April, we can only guess till next spring comes. As for ripening seeds, most of the pods which ought to contain ripe seeds are now full of water.

Still, a wet July is not without some compensation. Himalayan plants, which rejoice in a moist atmosphere, do better than usual. We hear on all sides how well Cyananthus lobatus and Meconopsis Wallichi are flowering; Phloxes are flowering with fine trusses; Lychnis chalcedonica, a plant unsurpassed for colour, has umbels of bright scarlet as large as those of Elder Flower. I find this plant does far better from seed than from divisions, but it takes two years from sowing to make a good plant. Monarda didyma is far more showy than it was last year. As for the Japanese Anemones, I never saw such growth as they have made, though this is hardly a merit in their case.

I will mention one plant by the way which Mr. Ewbank says is flowering well with him from being left alone. I own to being one who has found that by moving the right things at the right time better results are often obtained than by leaving them alone; but no one must lay down rules for the treatment of his neighbour's garden where conditions are different. I have had Silene Elizabethæ for ten years, and I have moved it three times; the last move was to a perpendicular face, turned to the east, between two large stones. There it flowers profusely, but at the best it is a very coarse edition of the flower of Ragged Robin on short stalks, and will not bear close inspection, though it makes a show at a distance. C. WOLLEY DOD.

Edge Hall.

Narcissus calathinus.—May I say a very few words about the figure sent by Mr. Rawson, and reproduced in THE GARDEN July 28 (p. 90)? If my statements seem dogmatically positive it is because I have gone carefully and thoroughly into all the original authorities, and to reproduce all these researches would require pages of explanation and reference. The engraving on page 90 is certainly not N. calathinus of Redouté's "Liliaceæ," described in that work by De Candolle; but certainly is N. triandrus of Linnæus—syn., N. reflexus (Brotero). The name calathinus, as applied to a variety of N. triandrus, must be confined exclusively to bulbs found in the Isle of Drénec, off Brittany, and be extended to no other variety. It may turn out that the distinction between these two is so slight as not to justify the retention of different names, but, if so, the name calathinus must be dropped, and not the name triandrus. As regards the name calathinus, I will refer only to Herbert's "Amaryllidaceæ," page 313, merely adding that I have verified from other sources every statement made there. I have grown thousands of N. triandrus from different parts of Spain and Portugal, and a good many of N. triandrus var. calathinus collected in the Isle of Drénec; and though it is possible the two may be found in a long series to overlap one another, the general differences between them, both in leaf and flower, are obvious at first sight. In var. calathinus, the crown, compared with the perianth, is much longer and wider than in triandrus; and though I am aware that large-crowned specimens of triandrus may be picked out surpassing small-crowned specimens of var. calathinus, still the growth of the leaf is different in the different varieties, and the Drénec bulb is far more tender and difficult to keep. Until further and more extended investigations have been made, it is certainly better not to mix the names, as there is no botanical authority for doing so. The two are at least as distinct as N. juncifolius is from N. rupicola, and I think Mr. Baker elects to keep both these names.—C. WOLLEY DOD, *Edge Hall.*

ENGLISH FLOWER GARDENS.

IT is pleasing to see the increasing love and extended cultivation of hardy flowers, but the improvement of English flower gardens by their use proceeds very slowly. In many places the flower garden is still sacrificed to bedding out and presents the same meagre assortment of plants, the natural consequence being that in summer English flower gardens have great similarity of aspect with few features of real interest. Each season brings the same monotonous form with perhaps a little variation of style. It may be that a lack of interest in the garden has been a motive for the curtailment of support of which many gardeners complain, for it is only natural that people who think or are accustomed to take notice of the display made by Nature must see the scanty charm of the average garden.

Pattern gardening was and is the greatest enemy to both gardeners and gardens; to gardeners, because, owing to the lack of material that would readily lend itself to this, many present-day gardeners are under the idea that beautiful flower beds cannot be made with hardy flowers; to gardens, because in all situations and on different soils, each of which is capable of supporting some distinct types of vegetation peculiar to itself, the same subjects have been used. Hence the ultimate outcome, formality and sameness. We do not meet with so many of the complicated carpet enormities as in former days, but there is still needed a radical change; there is still room for vast improvement. It is too much to expect owners of gardens to undertake the work, although there are a few exceptional cases where this has already been done. Nevertheless, there are plenty of wealthy people who think and admire, and without a doubt would appreciate a change which tended towards the improved embellishment of flower gardens by the use of an increased variety of hardy plants. Before this can be done a much wider knowledge of plant life will be needed. This is the one thing needful, and when obtained will help to surmount many difficulties, and will of itself engender feelings of dissatisfaction with present methods. We want originality and the capacity to evolve new ideas. It is the lack of knowledge of the inexhaustible resources of Nature that is the root of the evil, and how can it be otherwise while young gardeners are trained under glass alone, and are scarcely brought into contact with hardy flowers, trees, or shrubs.

A judicious and proper selection is of great importance. A few beautiful bedded-out gardens have been made, against which little reproach could be urged, but they have been carefully planted, and they have been beautified with a greater variety of summer garden plants. The mass of flower and gorgeous colour has been

toned down by graceful foliage and refreshing greenery. To one beautiful garden of this kind there are hundreds sacrificed to about half-a-dozen subjects, that were grown twenty years ago and are still grown now. During the present summer I was shown over a place which had the reputation of being fairly good, and after having walked all round the flower garden and been asked to admire the usual scarlet, yellow, and blue monotony, I found only one feature of real interest, and that in the kitchen garden mixed border. It was a large group, covering several square yards, of a very fine form of the white Campanula persicifolia. The distant effect was very charming. The flower garden is the true home for all such flowers as this, and many more might be easily selected.

The present inclement season is probably the most striking evidence that could be brought forward against the use of tender summer plants. Places can be seen where there are many blanks and some conspicuous failures. The hardy flowers are none the less pretty, displaying their charms under most uncongenial conditions. In the mixed borders of hardy flowers which are to be seen in some kitchen gardens may be found buried among coarser, commoner things many fine hardy plants that would well repay more care.

The beautiful garden of the future will be adorned with hardy flowers planted in open natural groups instead of the old dot-a-plant-everywhere system that rendered the mixed border so unsatisfactory, and did not give a true idea of the capabilities of many of the subjects planted therein. An ideal garden should have beautiful flowers for at least nine months out of twelve. We want lasting interest, a garden with vegetation that changes with the seasons, but is not defined by them. Week by week, month by month, some fresh charm should appear, some new picture unfolded to view. The garden of hardy flowers is equal to this.

A. H.

PROPAGATING.

Camellias.—Where it is intended to propagate any of the Camellias from cuttings this is the best time of the year for the purpose. Such a method of increase is seldom resorted to, except in the case of the single red, which is often propagated in this manner, and, when large enough, used as a stock on which to graft the double-flowered varieties. The single red being a robust and vigorous grower, most of the varieties do better when grafted on it than on their own roots. The cuttings should be formed of the current season's shoots, taken off at their base, and dibbled into well-drained pots of sandy soil, which after a thorough watering may be placed either in a cold frame, kept close, or in a propagating case in a warm house. These last will root by the winter, while those in the frame will, if thoroughly protected from frost, callus by the spring, when a little heat will greatly assist the formation of roots. Besides this method of increasing the single red Camellia, seeds of it are sometimes imported from Japan. These should be sown as soon as possible after being received, for many of them quickly lose their germinating power. The seed, if sown in boxes or pans, will do well when stood underneath the stage in a greenhouse till the young plants push through the soil, when they must at once be removed to a lighter situation and potted off directly they have formed two or three leaves, for it is necessary that the stocks be clean, healthy, and established in small pots. Grafting is best carried out when the stocks are as thick as a straw or a lead pencil, and though it may be done more or less successfully at almost any time of the year, the present season is a very suitable one for the purpose, as the scions are in a good condition, being firm, yet not too hard and woody. As the plants after grafting do better if they are kept in a temperature warmer than that of an ordinary greenhouse, the stocks should be placed there about a fortnight before grafting is performed in order to cause an increased flow of sap. Unless standards are required, the point of union in grafting should be as near the ground as possible, but, of course, sufficient space must be left to tie the graft securely in position, as if the point of union is quite level with the surface of the soil, it is very difficult to tie the graft in its place. Such being the case, the bottom of the scion when in position must be at least an inch above the surface of the soil. The scion should consist of a shoot of the current season, with three or four leaves and a terminal bud; then, for side-grafting, which is generally employed, the scion is formed with a sloping cut, extending from 1½ inches to 2 inches from side to side, the bottom portion being then cut level. In the stock make a slight horizontal incision, then as much above it as the cut portion of the scion extends make a gradually sloping cut down to the horizontal one. The effect of this will be to remove a piece exactly corresponding with the cut portion of the scion, which must be fitted therein and tied securely in its place. No part of the stock need be shortened back before grafting, unless any of the branches are too tall or straggling, in which case they can be cut back to the height required. After a union is complete the head of the plant can be removed by degrees. When grafted the plants must be placed in a close propagating case, and if it is perfectly air-tight no clay or grafting wax will be necessary, but if none too secure, it is better to cover the point of union with either the one or the other. The grafts must be thoroughly well shaded till a union is complete, when air can be gradually given.

Coleus.—There is no difficulty whatever in striking these plants, and my object in mentioning them is to call attention to the fact that good clean short-jointed cuttings, put in now and wintered either in their store pots or singly in small ones, will pass through the winter with far less loss than older plants. As the object is to encourage a short sturdy growth, the cuttings should not be placed in a close propagating case, as if there only a few days they will grow weakly, while they strike just as well in the ordinary atmosphere of a structure kept at an intermediate house temperature.

Toxicophylæa spectabilis.—This free-flowering stove plant will strike from cuttings put in at any time during the summer months, and concerning it I have found that quite large pieces will root; indeed, I have struck branching shoots a foot long without difficulty. They were simply taken off at a joint about this time last year, a few of the bottom leaves removed, and the cuttings put singly into small pots. They were plunged in a gentle bottom heat in a close propagating case that is employed for striking such things as Crotons, Dracænas, and so on. In a short time roots were produced, and the plants being hardened off, were shifted into larger pots, and they flowered well during the latter half of the winter.

Double-flowered Brambles.—These, as well as the single-flowered kinds, will readily produce young plants if the tips of the shoots are brought into contact with the soil and held in position by a peg. By this means several plants can be obtained from a single specimen without cutting or mutilating it in any way.

Antirrhinums, Phloxes, Pentstemons, and a host of other subjects may be struck in quantity now from cuttings formed of the young growing shoots and dibbled into a shaded border. If the soil is at all heavy it should be lightened by an admixture of sand or some other material. The cuttings strike more successfully if they are covered by a hand-light or frame, but it is by no means necessary, for a sheltered border alone will yield good results. The cuttings must all be formed of the good, growing shoots, and none of the old hollow and exhausted wood should be employed.

T.

Dyeing Pampas Grass.—In answer to "J. B.," it is a very simple matter to dye the large plumes of the Pampas Grass. The dye can be obtained from the chemist. Crimson, purple, and green are the three most effective colours, but any other colours may be selected if desired. The dye may be dissolved in boiling water according to the instructions received with it, but more satisfactory results are obtained by boiling for a few minutes the Grasses in the dye, as a greater depth of colour is obtained when this is done. When not boiled, the plumes must remain in the dye from seven to ten minutes. As I write I have some before me that were dyed more than twelve months ago, and they are very little faded.—J. C. C.

CHRYSANTHEMUMS.

E. MOLYNEUX.

RIPE AND UNRIPENED WOOD.

Owing to the continuous wet weather, plants of Chrysanthemums, grown to produce large flowers, are somewhat apt to grow vigorously at the present time. Plants with soft, succulent stems are generally considered by those persons not well acquainted with the difference between properly ripened and improperly ripened growths as looking well, and as such are set up as the standard of growth excellence. Plants that have only this point—greenness—to recommend them are liable to prove fallacious when the pinch comes round in November.

Ripening the wood of the plants is not paid sufficient attention to in order to attain the best results. In some seasons—like the last, for instance—the wood may be over matured to the extent of the sap vessels being so contracted that they cannot perform their natural functions. In this case the flowers are sure to be irregular, ill-formed, and also small. The effects of having the wood sufficiently ripened are more apparent in the incurved section than in the Japanese family, as in the former case depth and solidity of blooms are essential points which cannot be had from unripened wood. Flowers produced upon ill-ripened branches are large enough in diameter, but they lack that depth and form so quickly recognised by good judges. Many blooms have been placed in the front position at the first glance owing to their large diameter, and not until the flowers had undergone a close individual scrutiny was the difference in the quality of the blooms discerned.

In such a season as the present one, more particularly when the position in which the plants are located is low-lying, and consequently wet, much care and attention are necessary to prevent the shoots becoming too thick, and thus producing weak stems and imperfect leaves. A free circulation of air amongst the plants with full exposure to the sun all day, if possible, contributes very much to substantial growth. Training the branches out singly will be found an excellent plan this season. Where this has been done I notice a much less amount of mildew on the leaves than where one branch is crowded over its neighbour. When plants are ripening their wood properly as growth proceeds, it should be nut-brown in colour with a rough uneven surface. If this gradually creeps up the stem and branches alike, proper maturation of the wood is being effected. Towards September the leaves of the plants assume a bronzy appearance, which is more marked in some instances than in others, Hero of Stoke Newington being specially noted for this seasonable tinting of the foliage, which I look upon as promising to be an advantage when the blooms are developed. There is no such thing as growing the plants strong and succulent up to this stage and then ripening them at once; the solidity and ripe texture of the stems, combined with perfectly formed and thoroughly matured leaves, must be built up from the commencement of growth. Directly after the cuttings are struck,

all phases of the growth must go hand in hand with the natural steady progress of growth to acquire the best results. I attach very great importance to having the wood properly ripened. In a season like the present there is no such thing as having it too ripe, but if the position is favourable it may be had ripe enough to achieve good results. Growers in low-lying districts are placed at a disadvantage this year compared to those who reside on high-lying, and consequently drier situations. Last season's weather was all in favour of the first named locality; this year, so far, has been favourable to high and dry districts.

NOTES OF THE WEEK.

Spiræa palmata alba.—This beautiful Spiræa improves wonderfully when well established. A marked contrast was shown at Tottenham in the superiority of established tufts compared with others planted last season.

Cyclamen europæum is now flowering freely on the rockery at Tottenham. It is a gem among the hardy kinds, and is very sweetly scented. The foliage is handsomely marbled, and the little rose flowers are abundantly produced from late summer, and continue all through the autumn.

Campanula collina is a distinct Harebell now in flower on the rockery at Chiswick. It is a tall grower of the pyramidalis type, the upper portions of the shoots being hidden by a profusion of the most delicate mauve-blue flowers, which are open, but rather more tubular than those of C. pyramidalis.

Lilium longiflorum.—After reading the interesting note by "H. P." in THE GARDEN (p. 100), I should like to say a word for a favourite of mine, the old form of L. longiflorum, as it is blooming well here just now. I have a stem with five flowers, the beauty of which it would be hard to beat.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

Alstrœmerias.—I send you a few blooms of the Alstrœmerias, A. aurantiaca, dark and lemon, and A. chilensis. They are fine this year, but getting past their best. Last year I could not gather a single flower, much less a truss of them, which was not damaged (I believe by earwigs); this year they are untouched. They look very handsome out of doors.—A. RAWSON.

The white Willow Gentian (Gentiana asclepiadea).—The type, Gentiana asclepiadea, with its spikes sometimes 2 feet long of charming blue flowers, is well known, and the white variety is quite as beautiful, fully as vigorous, while the colour is clear and pure. It is indeed a fitting companion, and should be added to every collection of such plants. Both were recently flowering freely on the rockery at Tottenham, the white especially being conspicuous.

Gooseberries from Maidstone.—We have received a selection of Gooseberries from Mr. G. Bunyard, of Maidstone, amongst them the varieties Green Walnut, Early Greengage, White Champagne, Red Champagne, White Shiner, Ironmonger, Superb, Green Gascoigne, and Yellow Bath, all excellent in flavour and came to hand neatly packed. The Gooseberry, although a delicious fruit, is the most neglected in England.

Dianthus Atkinsoni.—I send you a small spray of the yet rare Dianthus Atkinsoni. You may imagine the effect of a clump 1½ feet in diameter. The flowers individually last three weeks.—J. WOOD, *Woodville, Kirkstall.*

*** A beautiful Dianthus, of which a coloured plate was given in THE GARDEN, January 12, 1884. This Pink was said to have been raised by Mr. Atkinson, of Bacton, Norfolk, about forty-eight years ago. The colour of the flowers is deep crimson, and in a mass must be exceedingly rich.—ED.

Veronica virginica.—This Speedwell is noticeable in one of the borders at Chiswick. It attains a height of about 3 feet, and has linear leaves borne in whorls of seven. Towards the tops of the shoots and from the axils of the leaves are thrown out long spikes of lavender-blue flowers, while the shoot is crowned by a large terminal spike which is also surrounded at its base by smaller spikes, which retain the same whorled arrangements as the leaves. This is a very beautiful species, and appears to flower at a time when most of the Speedwells are past.

Self Carnation Fair Maid.—I send you a bunch of flowers of a very pretty border Carnation of a pleasing soft salmon colour which I have named as above. It is of the medium sized flowered French strain, and is wonderfully free. A plant in an 8-inch pot which I exhibited at the Hounslow flower show on the 1st, where it received a certificate of merit, had fully sixty expanded blooms. It is one of the soft colours so much in favour now and will become yet more popular.—A. DEAN, *Bedfont.*

*** A very pretty sweetly scented flower, which we should like to see more of.—ED.

Tuberous Begonias.—Herewith I send you some flowers of seedling Begonias from seed saved by myself. Kindly say in THE GARDEN what you think of them. I have about 500 tubers in a frame and will have about 80 per cent. double-flowered. I expect some very good ones among them. The flowers I send were the first to come out, and the plants are weak as yet, being planted out in the frame.—J. KEEHAN, *Clifton Gardens, Cork.*

*** As far as we can judge, the flowers received were not better than we have already in cultivation, but send some carefully packed from stronger plants.—ED.

Hæmanthus Katharinæ.—This is without question one of if not the finest of all the species of Hæmanthus, or Blood Lilies, being noble in growth and most beautiful in flower. It has a large bulb and the leaves are long, broad, and of a bright green. The flower-stem, from which the stamens protrude, rises erect to a height of about 2½ feet, surmounted by a large and dense globose cluster of bright scarlet flowers. It lasts a long time in perfection, as the flower-head opens gradually. It may be seen now in bloom in the Palm house at Kew, where in the warm and moist atmosphere it thrives to perfection. It is a native of West Tropical Africa, and is quite a plant for general culture in stoves.

Eichornia (Pontederia) tricolor.—Though not new, this very pretty tropical water plant has not, we believe, flowered at Kew before this season. It is not such a fine plant in bloom as its relative, E. azurea, figured in THE GARDEN, March 6, 1880 (p. 220), though it strongly resembles it in growth and foliage. The leaves are large, heart-shaped, bright green, and the stalks rise about 1½ feet high. The stout erect flower-stems overtop the foliage and carry on their upper parts numerous flowers about an inch across. The lower petals are a rich purple, the upper pale blue, while in the centre is a pale conspicuous blotch of lemon-yellow. It is an interesting and beautiful plant to grow when there is a convenience for growing water plants in a stove. It is a native of Tropical America, whence it was introduced a few years ago.

Romneya Coulteri.—I send for your inspection half a dozen blooms of this glorious Poppywort, which is now blooming profusely with me in the open ground and which must be seen to be appreciated. In THE GARDEN of July 28 I see that "K." says of this plant, "It never assumes a robust habit, and only here and there produces a flowering shoot." My plant is more than 4 feet through and about the same in height, and at the present time has more than 100 buds on it. It is blooming exactly like a Chrysanthemum does that has not been disbudded, that is there is one terminal bud on each shoot, and then there are buds on long stalks at every leaf-joint down the stem, and some of the strongest and most forward of these side shoots have again one and some two smaller buds, so that, provided it likes its quarters, it can hardly be called a shy bloomer. I have cut ten blooms from the plant in the last two days.—DEVONIA, *Hamslade.*

*** Beautiful flowers of this fine plant, which was figured in THE GARDEN for November 8, 1884.—ED.

—— It may interest some of your readers to know that Romneya Coulteri has grown well with me and flowered freely. Though not everywhere hardy, a plant from Ipswich in 1887 stood the winter in our heavy soil with only a covering of leaf-mould over the roots. It threw up in the spring stems 4 feet high from the roots, and these are covered with bloom. The blooms stand several days. Many more shoots will doubtless bloom. Another plant from York this spring has had fine blooms, but only terminal on shoots about 2 feet high. Strong shoots are now coming up from the roots all round, but too late to bloom. It has doubtless enjoyed the wet season, though the rain has spoiled some buds. If they stand the winter again they will doubtless be fine plants. The blooms are not so large as in THE GARDEN illustration.—J. R. DROOP, *Stamford Hill.*

—— This is now in flower at Broxbourne. After several trials, Mr. Paul has planted it in the open air against one of the nursery buildings. Its large single white Poppy-like flowers are very chaste, and intensified in purity by contrast with the dark cushion-like bundle of stamens in the centre of the flower.

Theropogon pallidus is so much like the Lily of the Valley in flower, that it would readily pass for a near relative. It is a Liliaceous plant with fibrous roots (not bulbs) and has long broad Grass-like foliage (like Ophiopogon) amongst which the slender flower-spikes rise, carrying numerous small bell-shaped blossoms, white tinged with purple. It if a beautiful and interesting cool greenhouse plant, so persistent in flower, and so easily grown that we wonder nurserymen have not taken it in hand. It comes from the Himalayas.

Marsdenia erecta is a climber very little heard of, but one that deserves a note because it is so different from others. It is a half hardy climbing shrub, belonging to the Asclepias family and comes from South Europe and Asia Minor. Its foliage is peculiar, being of a very pale green, almost silvery in fact, and the small, white, scented flowers are in crowded clusters, borne at intervals all up the stems, which rise about 8 feet or 10 feet high. It is in bloom against one of the walls at Kew, and attracts attention, because of its distinct appearance.

Canary-yellow Torch Lily (Kniphofia hybr. Canari).—Referring to the article on p. 104, I think it will not be immodest if I claim the right to be recognised as the raiser of this plant. Since the introduction of Kniphofia Leichtlini by the Botanic Gardens, Carlsruhe, and its consequent distribution by myself, now about twelve years ago, I have tried to cross these plants, having grown here all the species then under cultivation. I failed to raise seeds for several years, owing to various circumstances, especially the state of weather and temperature about the flowering period. But then came several years when all was favourable, and I was able to harvest quantities of seed. Among hundreds of seedlings a few of the most distinct were selected, and among them those referred to above. What the *Revue Horticole* "wishes to point out" as desirable is already realised; with the help of benevolent nature I have been able to diversify the colours and forms to a remarkable degree. Here at Baden-Baden have been raised the glorious K. Leichtlini distachya, also the forms distributed, namely, M. Godefroy Lebeuf, Canari, Sceptre d'Or, La Perle, Le Géant. I wish that these facts be known in order to testify that however insignificant my exertions may have been, I have done something to advance the interests of floriculture. A number of new forms of striking appearance are to be sent out this season, the lovely K. Leichtlini aurea taking the lead among these.—MAX LEICHTLIN, *Baden-Baden.*

The Amboyna Lily is the popular name for the very beautiful bulbous plant, Eurycles amboinensis, which is nearly related to the Pancratium, and resembles in flower the Eucharis. It is now in bloom at Kew, in company with the only other species of the genus, E. Cunninghami, or the Brisbane Lily. Both species resemble each other in growth, the foliage being much like that of the great white Funkia, F. grandiflora, the same pale green, and of a similar size and shape. The flowers of the Amboyna Lily are produced numerously in a crowded cluster on a stout stem rising above the foliage. Each flower is about 2 inches across, pure white, and with a distinct cup or crown. It

is therefore a most attractive and beautiful plant in flower, and deserves as much attention as the Eucharis. The other species (E. Cunninghami) has pure white flowers, much smaller than those of E. amboinensis, of different form, and are less numerous in the cluster; therefore it is not such an attractive plant. It is a native of Queensland, growing wild in the moist Araucaria woods near the Brisbane River. The Amboyna Lily is a very old introduction, and was grown during the last century. It is a native of various islands in the Eastern Archipelago, and requires similar cultural treatment to that given to the Eucharis.

Rose Garden.

TEA ROSES AT OXFORD.

It is impossible to think of the name Prince, of Oxford, without associating therewith pleasant recollections of Rose shows and the many beautiful Teas that have been exhibited from Oxford; blooms unsurpassed in delicate purity and high quality. The present season has been a bad one for all Roses, but especially the Tea varieties; yet, in spite of the wretched season, the like of which has not been recorded for many years, the Tea Roses at Oxford have been very good, and many have been surprised at the wonderful blooms Mr. Prince has been exhibiting, and which throughout the season have won for him the leading prizes. But Mr. Prince is doing a nobler work than merely treating us to a transient display at a flower show, for he has done more than anyone to explode the fallacy cherished by so many that Tea Roses cannot with safety be cultivated in the open ground. Mr. Prince's Rose grounds are at Longworth, and even if there were no Roses in flower they would be interesting, for there is such a fine stock of healthy Teas, so strong, fresh, and green, that it is not surprising Mr. Prince is rewarded with such magnificent blooms. It may be asked, What is the secret of such successful culture? Some may think recourse is had to some system of rich feeding. It is not so, for the Roses are grown with much less manure than rosarians usually give. He only uses what is necessary to restore to the ground something equal to that which is extracted and keep it up to its natural standard of fertility. Longworth is not favoured with an exceptional soil, for there are many places in the kingdom as well adapted for the purpose, and probably some better.

As a good foundation is necessary upon which to build, so is a good stock to work upon. The seedling Brier, exclusively, is used by Mr. Prince, and he is perfectly satisfied with it, in fact, will not have a piece of Manetti in the nursery in spite of the merits its champions claim for it. He is, moreover, confident that attempting to grow Tea Roses on the Manetti is only courting failure. The Brier in its seedling state was seen in countless thousands and at the time of our visit the budding hands were just finishing a plot of 60,000 stocks worked with Teas alone. It is quite unnecessary to question the suitability of the stock, for it is certain that in no other place in the country can be found such strong plants of reputedly weak growers. The Teas are the true Perpetuals, blooming continuously throughout the season, and as the plants were perfectly studded with buds, it was surprising to see how rapidly some of them opened during the day of our visit (August 1).

Those who rely upon the so-called Perpetuals have even in the best years but a short season of flower, while the Teas keep on flowering till late in autumn. Mr. Prince has a reputation for Comtesse de Nadaillac alone, and none can grow it as he does. It is indeed a lovely Rose, with a full and globular flower, in which at times the blending of soft colours defies description; salmon deepens into warm rose, which again is lost in a combination of copper and apricot. The new Princess of Wales is a Rose of this type, free in habit, abundant in the production of flowers, some of which Mr. Prince says are even better than those of the Comtesse de Nadaillac. The new S. A. Prince we did not see, but a great stock is being worked up. The Mme. de Watteville variety has been praised so much, that it needs no further commendation here. It seems almost superfluous to praise Mme. Lambard, but this variety richly deserves it, having been especially good this year. It is so free and variable that from a large batch of plants there could be cut quite half a dozen blooms of such distinct shades of colour that would lead a novice to believe them to be different varieties. Marie Van Houtte is a host in itself, and this year comes fresh and pure in colour, contrasting remarkably with the blooms of last year, whose outside petals were very highly coloured, and the fully expanded flowers deepened into a warm rose when fading. Edith Gifford is a variety that should be in every garden, it is so free and hardy, and the flowers, which are of fine form, are so pure and delicate. A Rose that was doing well in a bad position shaded by large trees was Monsieur Furtado. The flowers have great substance, open well, are large, globular, and in colour of a sulphur-yellow. The richest and deepest of all the yellows is Etoile de Lyon, but it must be admitted that this Rose is capricious, for it is only on the warmest soils that it will open well, and fortunate indeed is the man who can do it well. Perle des Jardins, though not so deep, is more reliable, and Amazone, so pretty in the bud, is free and hardy. A Rose that rarely comes up to the exhibition standard, but is withal good as a garden Rose, though rarely seen, is Comtesse Riza du Parc. In colour it much resembles the old China, having a centre richly blended with copper and rose.

Francisca Kruger is free, of good form, opening well, the outer petals being white, bordered with flesh and fawn, the inner ones passing from yellow to rose. Sunset is very good, the flowers being rich and deep in colour, of Safrano and Mme. Falcot type, but having more substance than those of either of these two, which are only good in the bud state. Comtesse de Frigneuse sustains the good opinion formed of it, and is a nice canary yellow, but has one defect, viz., that of the blooms hanging down. Marquise de Vivens will prove most useful as a button-hole Rose, although it is still pretty when fully expanded. The buds are large, the outside of the petals pale rosy carmine, which inwardly brightens and deepens to rosy cerise, while the tips of the petals are warm rose, which in some flowers becomes almost crimson, and the centre of the flower again fades away to pale yellow. This Rose is rather new, but at once recommends itself. What enormous buds are borne by Jean Ducher, and they open well. The yellow outer petals suffused with salmon, and the inner petals overlaid with peach, constitute a flower beautiful beyond description, of good form and great substance. Mme. Cusin, when well grown, is pretty in shape and colour, but it must be well grown or the flowers have a dingy purplish shade, which has already led some to condemn it. Tea Roses are generally remarkable for the immunity from mildew, but this variety also is very susceptible, and if mildew is about, it is sure to be smothered.

Madame Angele Jacquier is a variety of merit, passing from white, suffused with rose externally, to deeper rose with blendings of other tints. Early in the year we admire the great white forced buds of Niphetos, but few are aware of the hardiness of this Rose. Catherine Mermet and The Bride were doing well, the last named kind being very chaste and pure.

Anna Ollivier, again, is a free and hardy kind, interesting and variable the whole season through, the autumn bloom being quite distinct in form and colour from that of early summer. The early buds are of urn-like form, the reverse and base of the petals being rosy-flesh fading to blush. As the season advances, the secondary blooms produced on the season's wood are quite globular and of a salmon colour.

Rubens, old, but still good, is almost sure to furnish the first flower of the season; and although the variety Adam has been grown for over fifty years, it still maintains its character. Other old kinds that cannot be dispensed with are Caroline Kuster, Boule d'Or, Alba rosea, Devoniensis, Madame Margottin, and last, but by no means least, the free-flowering Souvenir d'un Ami.

The kinds have been enumerated at some length, but all the varieties may be seen doing well, and fully bearing out their claim to hardiness. As yet Tea Rose growing out of doors is in its infancy, for old creeds and prejudices die hard; but if any are in doubt about the matter they should go and see for themselves. When the hardiness of most of our best Teas is taken into account, and they are planted in good situations in the flower garden, then we shall have Roses from early June to late October, and by the aid of warm walls where these are at command, we might have them from May to November. We do not wish to speak disparagingly of the rich reds and glowing crimsons of the Hybrid Perpetuals, but we do plead for the extended cultivation of Teas, so that they may be placed on an equal standing with the others. Put them side by side, and they will soon assert their superiority and amply repay for past neglect.

A. H.

SHORT NOTES.—ROSES.

Rosa rugosa.—The large specimen of this Rose on the rockery at Tottenham has flowers deeper in colour than usual. There is an abundance of heps, as yet green, but when coloured will create a great show of scarlet.

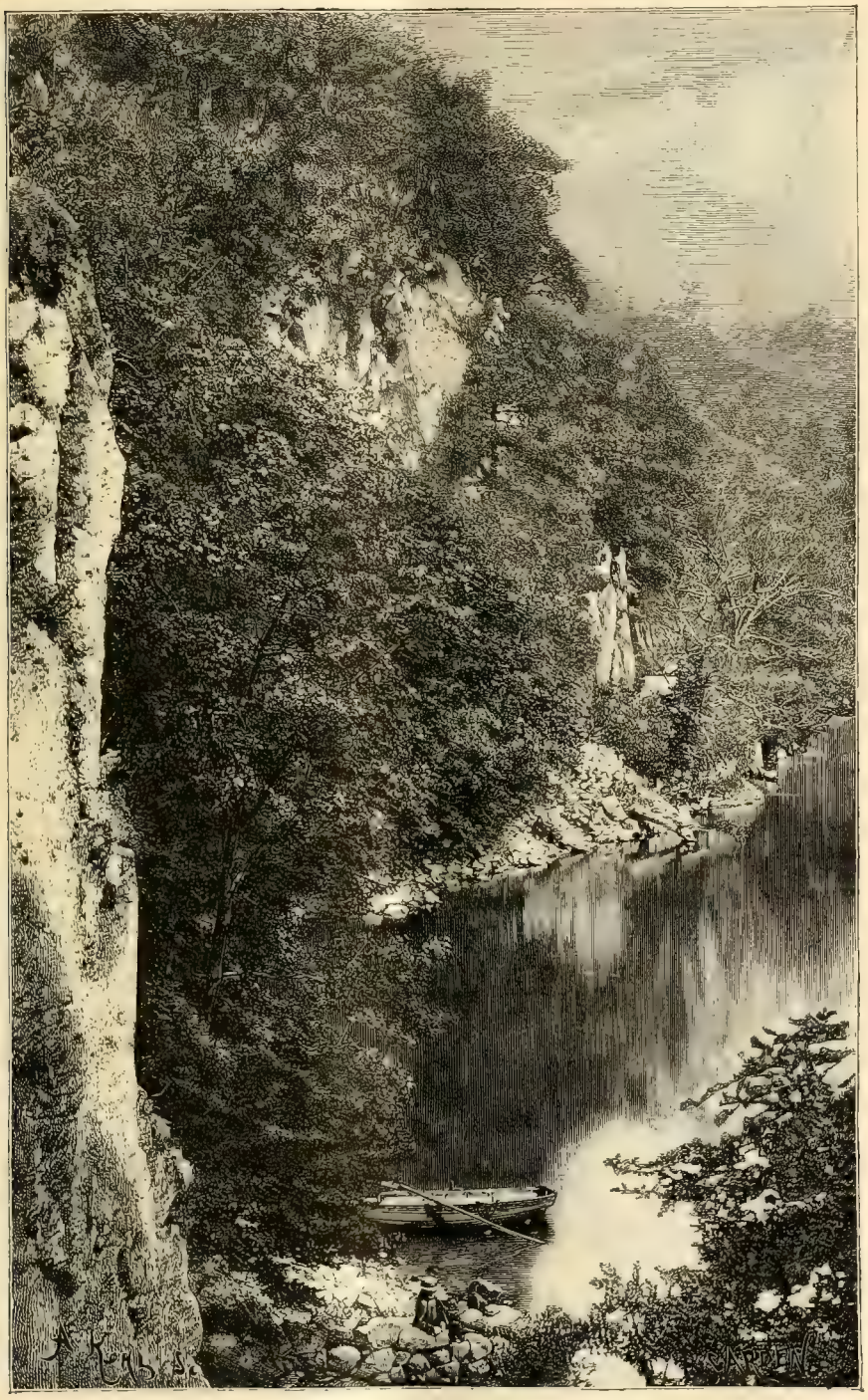
Souvenir de Victor Hugo, H. P. (Pernet, 1885), is a very free-flowering bright carmine-red of Victor Verdier family, making a gay group in the garden. It has been well shown once or twice this year, but whether it is quite full enough to stand the ordeal of exhibition in a hot season may be doubtful.

Wash for Roses.—For Roses and other flowering plants I have found nothing so cheap, convenient, and satisfactory as the kerosene emulsion. One or two applications have saved our Roses in perfect condition, which had been entirely ruined for some years previous to its use. The emulsion is made by beating together one part of kerosene to two of milk—sour milk or buttermilk is best—then diluting with water and applying with a watering-pot. It is best to use an egg-beater for mixing it, and when it is thoroughly done it will not injure the plants in the least.—Wallo F. Brown.

Hardiness of Tea-scented Roses.—A paragraph on this subject in The Garden of August 4 may mislead young rosarians, and deprive them of a great enjoyment, by dissuading them from planting Tea Roses, as being too delicate for our climate with but few exceptions. As one of the first who grew these, the most beautiful of all Roses, exclusively out of doors, and this for years in the clay soil of a midland county without any loss whatever even in the terrible winters of 1880-1-2, I would assure the amateur novice that Tea Roses, budded low on the Brier and well covered with farmyard manure during the time of frost, will bloom as abundantly as other Roses, having the advantages which all Roses ought to have of situation and of culture.—S. Reynolds Hole, *The Deanery, Rochester.*

STYBARROW CRAG.

Persons engaged in gardening, or interested in landscape gardening, may with advantage see, when they can, what we may call the beautiful natural gardens of our own country. Of course, all are pleased to see



Stybarrow Crag. Engraved for The Garden from a photograph.

these places for their own picturesque beauty, but we claim that they are specially instructive to the gardener who thinks of the true beauty of garden design, for the laws that must for ever govern true work in that way are evident in the natural landscape. More than anywhere else, one may profit where rocky ground breaks out on hills, keeping cultivation or formality away, and letting the natural vegetation group itself. Our own hilly and varied country has in many parts beautiful rocky scenes from the great Cheddar rocky valley to Speyside. Few, however, are more beautiful than the crag here shown.

Visitors to Ullswater Lake are well acquainted with Stybarrow, or Stybrow Crag, and will recognise the justice of the following description, written by the Rev. Mr. Gilpin, and quoted in Hutchinson's "History of Cumberland," published 1794 :—

Having now almost skirted the two woody promontories, in our route to Patterdale, we found the conclusion of the grandest part of the whole scenery. It is a bold projection of rock, finely marked and adorned with hanging woods, under the beetling summit of which the road makes a sudden turn. This is the point of the second promontory, known by the name of Stybrow Crag.

This remarkable crag was formerly the property of a family of the name of Mounsey, who were the most important people in Patterdale. They protected the inhabitants of the vale from the frequent incursions of the Scotch, and the last border fight which ever took place is said to have been the stand made by one of the Mounseys with only about a score of shepherds at the narrow pass of Stybrow Crag, against a large troop of opponents, whom they defeated. "In reward of such eminent service the people called him King of Patterdale." The Mounsey family have ceased to live in the neighbourhood, though they still hold some property there. Stybarrow Crag was sold by them, and it is now the property of Mr. Henry Howard, of Greystoke Castle (of which an engraving appeared in our issue of June 2); but the property of Mr. Walter William Marshall, of Patterdale Hall, enters like a tongue in the centre of the crag, bounded on one side by a wall, and on the other by the water-shed, or, in accordance with the local expression, "as Heaven the water deals."

The view given in our engraving of this noble "Oak-crowned" crag is taken from Ullswater Lake.

FLOWER GARDEN.

DELPHINIUMS.

The Delphinium is the flower of the season in the hardy garden, and it is in a miserably wet summer as the present has so far been that the Delphiniums, Aconites, and many other herbaceous plants show their vast superiority over "bedders" of the ordinary class—that is, Pelargoniums, Verbenas, &c. These are bedraggled, almost flowerless, and weather-beaten, but the herbaceous border has not suffered to any great extent, as may be seen from the noble clumps of perennial Larkspurs and things of this character in the borders at Kew, Pendell Court, and other places we could name. With the returning love for hardy flowers has also come an improvement in the Delphinium. The massive, splendidly finished spikes exhibited by Messrs. Kelway and Sons, of Langport, tell us this, and there is now at our command a selection of varying colours from the most delicate porcelain-blue to the richest possible depth of purple. In many of the flowers there is a most desirable fulness of form, and in the single kinds they are large, open, and well finished, not too crowded on the spikes, but shown up individually. Those varieties having a white centre and deep blue outer petals give a brilliant contrast. It is unnecessary to mention any varieties that have been exhibited recently, as what were good received notice in the reports, but there were also a few flowering at Kew the other day that deserve a note. One named Zalil has a special paragraph devoted to it in The Garden (p. 91), so no description is needed here. Improvement is a variety about 5 feet high, the flowers purple, shaded with a bronzy hue. It is very robust and handsome. Another fine kind is Fanny Hope, tall in growth, erect, and with symmetrical spikes of deep blue flowers.

Brilliant justifies its name, as it is of an extremely bright blue colour. These were the principal features in the narrow strip of border in the herbaceous ground, and in a bed hard by were several kinds seldom seen except in a garden like that at Kew. D. grandiflorum, a Siberian kind, figured in the *Botanical Magazine*, is dwarf in habit, with a fine spreading head of blue flowers. There are several varieties, the finest the beautiful D. chinense, and there is one named chinense pumilum in bloom at Kew; it has grassy growth and pale blue flowers. D. formosum is fairly well known. A variety named lilacinum has pale blue flowers, and grows over 3 feet in height. D. Brunonianum was introduced from Thibet about 1864. It is rare in cultivation, dwarf, and has large flowers of a very pale blue. D. laxiflorum, a native of Siberia, produces its blue flowers in loose racemes; it is tall in growth and handsome. D. urceolatum has large blooms of a rich deep blue, the growth robust. The red-flowered D. nudicaule needs no description, neither the old Siberian Larkspur, both of which are excellent garden plants. The great value of the Delphinium is in its easy culture. It will thrive almost anywhere if only the soil is fairly good and the position sunny. Even stakes are unnecessary if the growth of the variety is robust and the situation not too exposed, whilst few plants are easier to propagate.

NOTES ON HARDY PLANTS.

Seedling Anemones.—I know nothing more troublesome in raising single Anemones than the green fly, but if a constant system of prevention is followed the fly may never be seen on them, for, fortunately, owing to the way in which the young leaves expose their under surfaces when coming through the soil, they may be kept clean by ordinary waterings, provided a little tobacco juice is added to the water. This I prepare in a handy way by soaking the tobacco paper commonly used for fumigating. I have used it for years, and, as far as I can see, it does no harm even when used daily. There is another point needing care, that is when the Anemones have to be potted it is better they should be in the pots just as they are making their first rough leaf, because even then the roots are proportionally large, at any rate, in the case of those of the fibrous-rooted section, such as vernalis, alpina and sulphurea. Wireworm, if it exists, will rapidly clear off the little plants, and as it is impossible to get rid of the pest by picking over the compost, the next best thing is to expose it thinly for a day or two for the birds to pick at. And there is yet another way to eradicate the wireworm from pots. In about a week after the potting has been done turn out the soil carefully without breaking the ball, when the wireworms way often be found either at the sides or the bottom. For some reason or other they make their way to the sides of the pots shortly after the potting.

Campanula abietina.—I believe many have discarded this after a short trial because of its supposed shy-flowering character. If given rich soil and a moist position, it will not only flower, but its whole character will be changed. It will grow a foot high, and have quite large foliage. It is too good to be put aside, as just now it is simply grand; the flowers are reddish purple, star-shaped, and nearly 2 inches across. They strongly remind one of the flowers of C. grandiflora (Platycodon). I feel sure this has only to be once seen in order to secure for it a place in our gardens.

Rock Soapwort (Saponaria ocymoides).—Pleasing as the type may be, I think it should give way to the much improved varieties. A few years ago a large and brighter kind was raised, and somebody called it S. o. splendens; that kind, however, has been superseded by a still deeper coloured one, and which, as far as I know, has no special name, and, for that matter, may not require one. The colour is a near approach to crimson. By high culture, seed raising, and selection of the finest, anyone may improve upon the type in a short time. Seed is abundant, and early autumn or summer-sown seed will in many cases produce flowers the following year.

Primula Rusbyi must before long surely rank among the most admired of alpine Primulas. It is very hardy, and there is nothing whatever of a miffy character about it. I have grown it for three years fully exposed and under more than ordinary trying conditions. It is now in flower. On scapes 8 inches high are one-sided clusters of rosy crimson flowers a little bigger than a sixpence; the tube, of the same colour, is long and thin, and the sepals are also long, finely pointed, and beset with farina, which extends well down the scape. The eye is a dark or orange-yellow, though no doubt the colour of this will vary in different soils or exposures. The perfume is delicious, and something in the way of that of the Auricula. From this description it will be seen that there are some distinct and desirable qualities about this Primrose. It is a capital grower in almost any kind of soil, but I think it should be kept rather cool in summer. J. Wood.

Woodville, Kirkstall.

SWEET WILLIAMS.

In spite of the continuous heavy rains, these fine hardy flowers have borne up bravely and flowered very freely and continuously. Where the soil is wet and close there has been some collapse from damping, the plants beneath decaying, whilst the trusses have continued to flower, but it is very doubtful whether a few hot days would not knock them over altogether. However, having regard to the abnormal rainfall, matters might have been much worse. One good result has been that not only has the bloom been prolonged, but the pips have been unusually fine; indeed, I have never seen them so large before, showing that many of our hardy yet summer blooming plants too often fail to give their best form, because of too much heat and drought. The way to have a good show of Sweet Williams is to sow seed early and get out the plants now in beds about a foot apart. Thus the stems will next year be so close together that they will sustain each other and make a fine, but varied mass of colour. Too often it is advised that seed be sown during the summer. That is a mistake as far as all hardy biennials are concerned. The month of April is the best time to sow all such things, and if the seedlings are being planted out into their flowering places at the time some would advise that the seed be sown, then fine plants and large heads of bloom are ensured. Sweet Williams specially, if put out late, seldom throw up more than one or two stems, but strong plants will throw up seven or eight stems and carry huge trusses, and if they are of a fine strain, few border plants can during July excel in beauty a well-flowered Sweet William. No special culture is needed for these plants, as they do admirably in any ordinary garden soil, but of course, like all other things, preferring that which is occasionally dug and manured to border soil which is starved by being eaten up with tree, shrub, or plant roots. Ordinarily these biennials are, with Wallflowers, Stocks, Canterbury Bells, &c., planted out singly into borders. Far better is it to plant in trebles to make a good clump, and, better still, in masses or beds.

One special charm in the Sweet William is that in any varied, as well as fine, strain there are so many diverse markings and colours that the flowers are all the more interesting and enjoyable when they can have close scrutiny. Out of hundreds of plants no two, perhaps, will produce flowers hardly alike, at least such is my experience, although some selections seem to favour the ringed forms only, the northern strains being peculiarly of that class, very fine indeed and handsome, but wanting in variety. I am not sure whether in selecting these ringed strains too much has not been sacrificed to secure almost uniformity of marking and smoothness of edge in the pips. The serrated edge is no objectionable feature in these flowers, especially when allied to good size and rich colours. The serrated edge marks the Auricula-eyed especially. These have white eyes, rich coloured grounds, with generally very narrow laciniated edges. As a rule, the pips are not so large as are those of the ringed strains, but the colouring is so beautiful that it is unwise to strive to eliminate it. Without doubt size of pip in the Sweet William commands material attention. There are a boldness and character about these fine trusses with pips as big as Polyanthus flowers, also very flat and rounded, that even rich colours cannot counteract. Generally the greatest size is found in light flowers, though never in pure whites, and again less so in deep red and crimson selfs. This latter form is one which much needs developing, as whilst we have superb colours and beautiful quality in the dark selfs, there is room for increase of pip. Fine as Sweet Williams were a few years ago, the advance made in the quality and size of pip in these dark hues is remarkable. Some of the most striking flowers are to be found in those which are mottled, speckled, or flaked. These show wonderful diversity and beauty, but seem to some extent to be governed in their colouring by weather, as cold wet weather will in some cases produce self flowers, whilst warmth will bring out the mottled or marked colours. That variation, however, applies more to the mottled flowers of the Auricula-eyed strain than to those of the bolder ringed strain. It is impossible to describe the various markings found in mottled flowers. That they are very beautiful, as well as interesting, must be taken for granted by those who have not seen them. No doubt in time these varied markings will increase wonderfully. These forms add very much to the interest of any strain, as so many diverse colours make a bed of flowers so much the more beautiful. Sweet Williams have two special enemies—grubs when newly planted, should the weather be dry, and fungus in the late autumn, should too much moisture prevail. In the former case the grubs should be sought for when plants collapse and be destroyed. In the latter case it is well to put out the plants in fresh soil the following year.

A. D.

A FEW GOOD DOT PLANTS.

The idea of utilising dot plants as an essential feature in summer bedding has found so much favour, that there are now few places in which they are not extensively used. Perhaps they are more generally employed in carpet beds than in any other way, but there is no doubt that they might be used to advantage in almost every description of bed, especially those of large size, as the flat appearance of such beds is thereby pleasantly and completely relieved, and an irregular and broken outline presented instead of a table-like surface. For scarlet and pink Pelargoniums, or for large beds of Heliotrope or dark Petunia, perhaps two of the best subjects are the night-scented Tobacco (N. affinis) and Hyacinthus candicans. The former is now so well known that it is unnecessary to sound its praises or enter into details as to its treatment. I may say, however, that it should be sown early, grown on quickly, and be ready for hardening off by the end of April, so that it may come quickly into flower after being planted out. The large Lily of the Valley-like flowers of Hyacinthus candicans are striking and beautiful, and the white bells hanging over a bed of scarlet Pelargonium or dark Heliotrope are very effective. The only drawback to this plant is its rather scanty foliage; the carpet underneath, therefore, should be rather more dense than is required for the Tobacco. For beds of variegated or tricoloured Pelargoniums, the white Centaurea, the green Acacia lophantha, or a few plants of the common Borage will be found very effective. This latter may seem rather a strange thing to recommend for the flower garden, but it is at once novel and very pretty; indeed, when seen standing up from a bright bed of Pelargoniums, with its large heads of blue and white flowers, it is a plant by no means to be despised. I generally scatter a few seeds on any beds where they may be required, and thin out the seedlings before filling in the remainder of the bed. Again, for large beds of blue or dark Viola, scarlet or purple Verbena, Ageratum, &c., two very pleasing plants are the lovely Spiræa filipendula and Sisyrinchium californicum. The proper place for the former is doubtless in the herbaceous border; but it looks very lovely in a large bed of blue Violas, the white feathery flowers and the Fern-like foliage being very telling against

a mass of colour. The Sisyrinchium is a plant of easy culture; its creamy-yellow coloured flowers, produced in great profusion on tall stalks, last a considerable time in bloom, and add greatly to the attractiveness of the plant. The above are but a few of the many good things of a similar character that help to beautify the flower garden, and which, whilst adding to the beauty, are highly instrumental in doing away with the table-like flatness that was at one time such a special characteristic of summer bedding. E. Burrell.

Claremont.

EARLY-FLOWERING GLADIOLI.

What are known as early-flowering Gladioli comprise a somewhat numerous and interesting group, probably of the Colvillei and ramosus sections. They are, like Colvillei albus, singularly well adapted for cultivation in pots for early blooming; they are very free-flowering, and produce fine spikes of bloom. New introductions are constantly being made, Guernsey producing some of the most striking. Many of them are richly coloured, crimson, vermilion, and scarlet flowers, with white markings at the throat, being prominent. Some are of delicate tints, rose, pink, blush, &c. They could doubtless be grown in the open border, but it should be a warm, dry, and sunny position, the border raised so as to secure good drainage. They require as nearly as possible the same treatment as Ixias, and the beds, if planted in autumn, should be covered during severe weather. If frost reaches the roots, whether in pots or in the open ground, it is fatal to them. When grown in the open the plants bloom in July and August; when cultivated in pots they flower earlier, and according to the treatment they receive. Some of the most showy and charming are Ardens or Fire King, fiery scarlet, with pink and magenta flakes, very bright and showy; Delicatissima or Blushing Bride, pure white, with pink and carmine flakes on the lower petals, an excellent variety for pot culture; Duke of Albany, rich crimson, flaked with white, extra fine; General Grant, bright rose, flaked with magenta and suffused with carmine; Insignis, crimson, flaked with purple; Mme. Blanche Bourdin, mauve-purple, very distinct; Ne Plus Ultra, delicate rose, white flakes, shaded with magenta, a vigorous grower and very pleasing; Pink Perfection, bright pink, with deeper flakes, a very fine variety; Prince Albert, scarlet, flaked with white, extra fine and early; Prince of Wales, rich shining scarlet, flaked with white, a very fine variety; Rosy Gem, delicate rosy pink; and Sarnian Gem, rosy salmon, flaked with white and crimson, extra fine. It is really difficult to say too much in praise of these charming Gladioli. R D.

Spiræa astilboides.—After seeing this new Spiræa well grown in various gardens, we think that it well deserves all that was said respecting its merits when introduced a few years ago. It was at first considered to be a variety of the common S. Aruncus; but there cannot be a doubt but that it is a very distinct plant, so different, in fact, that no one would confuse the two. Both have large leaves divided into leaflets, and both have branching spikes of feathery white flowers. But S. astilboides, so far as we have seen, will never grow so tall as Aruncus. It is different in the foliage in tint and substance, and the spikelets are cylindrical, and being stiffer, do not droop so much. It is as suitable for pot culture in greenhouses as for the open border, and in each case it must have liberal treatment—that is, rich soil and good attention to watering in order to develop it finely. It is now in full beauty in many gardens about London, and, like S. Aruncus, lasts a long time in perfection.

Mariposa Lilies (Calochortus).—Since these charming bulbous plants have been more generally cultivated, their treatment has become better understood, and it is not an uncommon occurrence to find them in gardens and nurseries where little expected. The present season, sunless and damp days are not at all favourable for these delicate bulbs, but where they have been attended to they have succeeded. During the week I noticed in Messrs. Cannell's nursery at Swanley several of the most beautiful species in bloom in a raised bed in company with Ixias, Tritonias, and other Cape bulbs, but these unhappily have this season been a failure. Among the Calochorti that have grown and flowered well here are C. macrocarpus, one of the rarest species, having tall stems and large cup-shaped flowers of a delicate lavender colour; C. luteus, also with large cup-shaped flowers of the richest yellow imaginable, and the interior of the petals studded with purplish hairs; and C. venustus, one of the best of all, as it is one of the showiest. Its large white cups, heavily stained with crimson, are truly charming. No one would begrudge any extra attention which these genera of the Californian flora require could they be made to grow strongly and flower freely every season. I am glad to see that such nurserymen as the Messrs. Cannell are taking them in hand. It may lead to the discovery of some simple plan of growing them.—W. G.

THE CARNATION AND PICOTEE.

I was greatly pleased to read the remarks in The Garden, July 28 (p. 93), on the Carnation and Picotee blooms exhibited at the Drill Hall in James Street. The exhibition was the smallest held by the society during recent years, but not so small as some of the earlier exhibitions. Most of the exhibitors were taken by surprise, not contemplating that the weather would continue so cold and sunless all through the month of July. The plants were placed in the houses about three weeks before the show, but the buds would not open as usual, owing to the want of sun and the cold nights. In ordinary July weather a Carnation or Picotee bloom under glass takes about ten days from the time the colour can be seen until the flowers are perfectly developed. In very hot weather the process of development may take less than seven days. I watched some flowers this year, and found that after three weeks some blooms were only half open from the time of showing colour, and some of the very double varieties that were not placed in an artificially heated house would not open kindly at all. If the exhibition had been one week later it would have been quite up to, if not over, the average.

It is impossible to anticipate the nature of the weather when the date of the exhibition is fixed in November or December of the previous year. All that can be done is to fix a date that will in ordinary seasons give us the Carnation and Picotee at its best out of doors. That date is usually July 20, and it is not safe to fix the date earlier than the 15th or later than the 25th, which gives a range of ten days. This season is quite an exceptional one, and a good show could have been made, if the weather lasts as it is now, on the 7th of August. On the other hand, when a date is once fixed, it is scarcely fair to alter it, even if it were possible to do so. Growers who have been at considerable pains to get their flowers in by a given date will be taken at a disadvantage, while those who have not done anything will beat those who have been more diligent. It is interesting to notice how steadily improvement goes on in the various classes. Last year a quite new Carnation of the scarlet flake class named Alisemond was decided to be the best bloom in the show. This year another of the scarlet bizarre class named Tom Power won the premium. So it is with Picotees; the heavy purple edge Muriel, a new variety, has been placed first more than once, and, in fact, the Picotees produced during recent years are far in advance of those raised ten years or more ago. Many new colours have also been produced out of the range of the florists' colours, the flakes, bizarres, broad and narrow-edged Picotees. There are very lovely varieties in buff and yellow, selfs, edged, and flaked.

There is still room for considerable improvement in the yellow Picotees, and in the search for improvement many distinct and beautiful varieties are obtained outside the regulation type of yellow ground, with a narrow or broad margin of rose or red colours of various shades. The variety Janira, for instance, has a buff coloured ground, with a margin of narrow lines closely placed together. I have been anxious to improve this variety if possible, and have tried to obtain seedlings from it crossed with similar colours, but so far nothing like it has been produced from seeds; but as I have said in the search for something better in this colour we have obtained very distinct and beautiful selfs of a cherry and rosy scarlet colour. The yellow Picotees should be kept by themselves and an effort be made to improve the varieties Agnes Chambers and Annie Douglas. The one with a light red edge and the other a heavy rose edge are the best in cultivation at present. There are now a large number of these yellow ground varieties of vigorous constitution, and some of them produce seeds very freely. Of quite a distinct type are the buff ground varieties, represented by Apricot, Dorothy and Colonial Beauty. At exhibitions these should have a class to themselves. The nearest approach to a Picotee in this class is Janira; but unfortunately it is not sufficiently vigorous. It requires very careful management to get it to grow at all, and in a season like this the stock scarcely increases. The layers are also of very small size. The others I have named are quite a contrast; they produce growths from the base equal in vigour to those of the strongest growing Cloves or border Carnations. This is a new field, and the interest is vastly increased if a correct record is kept of all the crosses. It is important, too, that only vigorous varieties be chosen as seed-bearers, for if the parent is weak and in a declining state it is not possible to get a good progeny from it. J. Douglas.

SHORT NOTES.—FLOWER.

Alsine vera plenissima.—This very pleasing hardy plant makes a charming subject for pot culture. I think that perhaps this is the best mode of treatment in order to have its blossoms in all the pride of their snowy purity. But it bids fair to make a delightful rock plant also in somewhat elevated positions that will suit it, and where it cannot be crowded out and smothered by more robust-growing companions.—R. D.

Agathæa cælestis compacta.—Mr. Davidson has, at Highfield, a very pretty dwarf, compact form of Agathæa cælestis, which grows to about 4 inches in height, having creamy white foliage, and produces the pretty blue flowers, sometimes called blue Marguerites, in the most profuse manner. It was originally raised at Highfield. It should make a very effective summer bedding plant.—A. D.

Large-headed Centaury (Centaurea macrocephala) is a robust and noble perennial, most useful just now, as it is in full bloom. A large batch of it at Tottenham showed what a vigorous growth it makes, and the yellow heads, like those of an enlarged Sweet Sultan, are exceedingly handsome as seen in the distance. For a wide herbaceous border there are few better plants than this Caucasian hardy perennial.

Lilium giganteum.—I have a plant of Lilium giganteum with eighteen blooms on a stem which is 10 feet high and nearly 3 inches in diameter just above the ground. Ought this stem to be allowed to remain to die down or be cut off? Some people tell me that this bulb will never bloom again.—G. F.

*** We should certainly not advise you to cut the stem off. Let it die off of its own accord.—Ed.

Pulmonaria saccharata grandiflora.—Apart from the uses of this plant as a spring-flowering subject, producing as it does then its charming shot-silk flowers, it is well worthy of note as a hardy foliaged plant, the large leaves being finely spotted and blotched with silver, in which form they are very handsome and highly ornamental. The wet weather has caused the plant to grow luxuriantly, and a strong plant forms a large, circular, and very effective tuft.—R. D.

Trollius asiaticus superbus. — One of the novelties among hardy plants seen this season in Mr. Samuel Barlow's garden at Stakehill, Castleton, near Manchester, was this remarkably fine plant. Mr. Barlow informed me that it originated with an Oldfield botanist, named John Mellor, of Royton, near Oldham, who died in 1849, and that its culture gradually spread, though it has ceased to be as plentiful in the Lancashire district as it formerly was. It is said to be frequently found in Scotland. It is a good grower in the light soil of the borders at Stakehill, and the flowers are of a rich deep orange colour.—R. D.

Ramondia pyrenaica.—I find some persons have grown this charming plant in the open ground in unsuitable soil and in improper positions, with the result that the plants have died. I think that unless it

can be placed on a fitting spot in the rock garden where it is fairly moist and cool, and be grown in a gritty, peaty, free soil, there is but little chance of successfully cultivating it in the open. It is, no doubt, safest to grow it in pots. I saw it in excellent form in the gardens of the Royal Horticultural Society at Chiswick in the spring growing in pots in a gritty soil and placed in a cold frame. The plants were in rude health, and the flowers, which are not unlike those of a Solanum, very fine. This charming Mullein is always a pleasing feature in the groups of alpine plants at the Whitsun show of the Manchester Botanic and Horticultural Society.—R. D.

THE ARRANGEMENT OF HARDY FLOWERS.

Though hardy plants may be well grown in formal borders, and are beautiful everywhere, I have never yet liked planting them in what are usually long narrow strips with a path running between, this arrangement usually constituting what are known as the herbaceous borders. The most enjoyable gardens are those in which, amid a pleasant groundwork of trees and shrubs, are innumerable nooks and recesses of various sizes, some of which are in shadow and others in full sun. Here in sheltered spots may be grouped together the plants and bulbs which dislike being disturbed. Suitable positions will be found for everything worth growing. Some in masses of one colour, others in mixture—gorgeous Lilies, Roses of all kinds, both the dwarf Hybrid Perpetuals and Teas, as well as the old-fashioned climbers; brilliant Pæonies, both the herbaceous and also the Moutan or Tree varieties. Very few planters in this country know what a mine of floral wealth there is in this family when it is judiciously used, as it certainly will be in the future. At present new varieties are expensive, and the plants sent out are so small, that it will require years to do much with them; but the effect will come with patience. Then there are tall, stately Larkspurs and Hollyhocks (the latter are making their way again), Pampas Grass, Yuccas; and for fragrance, large masses of the old summer Roses, the Moss, and the white and red Provence, Lavender, Rosemary, Southernwood —or Lad's-love, as it is called here in the midlands —Pinks, Carnations, especially the Clove-scented, white Jessamine, Sweet Brier for hedges, Honeysuckle, Wallflowers, banks of early Violets and Primroses, Lily of the Valley, Mignonette, and Winter Heliotrope. And among lowly things should be patches of hardy Heaths, London Pride, and Musk of the old-fashioned type. Plenty of scope will be found for the display of creeping and climbing plants, including numerous representatives of the large families of Ivy and Clematis. I do not pretend to the gift of prophecy; but, in thinking much upon this question, and in trying to penetrate the future by the glimmering of the light vouchsafed in the past and the present, it appears to me that, though the days of reckless expenditure in a few great gardens are over, gardening is still in a healthy condition, and that the love for all that is best and most beautiful in connection therewith will penetrate to the lowest stratum of what is called society. The days when some wealthy or eminent persons set the fashion, and humble folk follow them at a respectful distance, are, as regards gardening, on the wane. The time is near, I trust, when all who have gardens, whether large or small, will quickly work out their own positions, and reap to the full all the enjoyment such a position of things is sure to bring. — E. H., in *Field*.

The scarlet Indian Cress.—That it is possible to grow this beautiful climber well in the south of England I had ample evidence the other day when at Highfield, near Heckfield. Mr. Davidson, the gardener, showed me this Nasturtium growing strongly and blooming profusely on the north and, of course, shaded side of a dairy adjoining his residence. The wall had been covered with a large mesh wire up to 3 feet, and over this the creeper was running luxuriantly. Above that, some string run up to the roof carried the growth capitally. I have no doubt but that one secret of the success which has attended Mr. Davidson's efforts to establish this Tropæolum in Hampshire is, that it is planted in the shade and where the soil is cool. Of course, all this success was not the result of one season, as it has taken three or four years to secure so much success, and last year with its drought was safely passed through. The root pieces came from Sandringham, and Mr. Penny will be interested to learn that they have done so admirably.—A. D.

FLOWER GARDEN NOTES.

Flower gardening and the excessive rainfall.—For the month of July our register of rainfall totals 5·33, the largest amount ever recorded in this county for the same month—at least, so far as I have been able to ascertain. Such an abnormal rainfall has necessarily rendered gardening of all descriptions a difficult matter, and, with the exception of those flowers mentioned in my last notes, flower gardening has been specially difficult, and, as a whole, at present has a very woebegone appearance, which, however, would quickly change if sunshine and heat would but deign to smile upon us. Except the most tender, the plants, as a whole, have made good growth, and only await warm, dry weather to cause them to flower even more freely than they do in an average season. There is generally some bright speck amidst the deepest gloom or failure, and there is in respect of flower gardening this season, which brightness is that, as a whole, those plants that give us the least trouble or labour to procure and grow have stood the wet best, and the lesson will not be too dearly bought (the loss of one season's flowers) if it leads to a more general recognition of the idea that flowers are worthy of value for their own sake, and not by reason of their rarity and tenderness, or because they happen to be fashionable. All will, I think, admit that it is better to have a garden well furnished with what we are wont to designate as common plants rather than with plants that, by reason of their tenderness or weakly growth, cause in the best of seasons no end of anxiety as to their filling out the allotted space, and in a season like the present fail outright. My former notes as to the "best wet weather flowers" indicate the direction that I think we should follow in our selections of suitable gardening plants, because we may safely take it for granted that any plant that does fairly well under weather conditions so unfavourable as have prevailed this season will do well in any. Therefore, my advice is, note all such, and use these only, to the exclusion of any that have hitherto proved unsatisfactory.

Shrubs.—The rain has suited these, the growth is splendid, and, so far as regards flowering shrubs such as Rhododendrons, Azaleas, and Kalmias, if we do but get fine weather to ripen up the shoots and buds, there will next year be as grand a show of flowers as has ever been known. The growth of Rhododendrons has been so profuse that, contrary to our usual practice at this time of year, we have had to cut them back where they encroached on the walks, and some few other straggling growths also. Of course there will be no flower-buds on the new shoots that will be made from the parts to which they have been cut back, but a thick bushy development of plant is as desirable under some circumstances as are flowers, and this is certain to result. Portugal and common Laurels, Bays, Laurustinus, and Aucuba also require similar curtailment of growth, and will have it as soon as time permits. The small Japanese Retinosporas that we use in the flower beds have already had the points of the leading growths cut off, this being a necessity to ensure a dense (not formal) development of growth. The cutting out the points of the shoots of all such shrubs is necessary twice a year, namely, in March and June; the third cutting back has this season been necessitated by the wet and dull weather. Thujopsis borealis, Cupressus Lawsoniana, Thuja Warreana, Thuja gigantea, all require a similar amount of trimming up, and if time permits they will be done. I ought perhaps to add that shrubs planted last winter and spring should not be cut back at all this year, because they need all the growth they make to help make roots in sufficient quantity to get a firm grip of the soil before winter sets in.

Lilium auratum.—These are flowering extra well, and the petals being stout the rain injures the flowers but very little indeed—a point of some importance, and worthy of note by all, and specially so by those sceptical as to the hardiness of this Lily, as the fact that our best flowers are being produced by three-year planted bulbs, that have been left in undisturbed possession of the ground in which they were first planted, the only attention they have had being a thick protecting mulching of Cocoa fibre refuse during winter and a coating of well decayed manure in spring and summer. In presence of such results and the severity of last winter's weather, no one need ever again doubt the hardiness of this Lily if the precaution be taken to apply protecting matter during winter, and, as a matter of course, free drainage, for a sodden state of the soil in winter will destroy the hardiest Lily. Bulbs of the same Lily that we grow in pots are always wintered in the same pots, the only shelter being a cold frame, and the pots plunged in ashes to prevent injury by frost. They are allowed to remain in this state till the first signs of growth are visible, when they are partially shaken out of the soil, repotted in good loam with bone-dust and well decayed cow manure added. The vigour of both plants and flowers at the present time bespeaks the treatment to be of the right sort.

Summer-flowering Chrysanthemums.—These are already very gay; the dull wet weather seems to have had quite a contrary effect on these to that of most other plants, as they are in good flower quite a fortnight earlier than they were last year, the heat of last July notwithstanding. This is another horticultural puzzle, *i.e.*, as to why such should be the case, and if anyone will explain the puzzle, others besides myself would be very grateful. Our plants, growing naturally, have never been pinched, and are now nice bushes, not large, but as full of flower as it is possible for plants to be, and they have had no special treatment, but were simply planted in the herbaceous borders and amongst Roses. The varieties now in good bloom are La Petite Marie, Lyon, St. Mary, Mme. Desgrange, Nanum, Précocité, Mme. Jolivart, and Mr. W. Piercy. W. W.

Glory Pea of New Zealand (Clianthus puniceus)—This is becoming a favourite with cottagers in many villages in West Somerset. I have seen several plants in perfect health, and flowering freely on low and generally south walls in the open. No attempt is made to grow the plant to a great height, generally from 4 feet to 5 feet. This is wise treatment, as if the plants were allowed to grow very tall it would be inconvenient to protect them during the winter, which all of them do. Some cover them over for weeks together with straw, others with old carpets or mats, and most of them manage to save their plants. This Clianthus is undoubtedly the most brilliant creeper grown, when the climate suits it. I can plainly see the mistake I and many others have made in cultivating this plant has been in attempting to make it cover too much space, and thus making it more difficult to cover it effectually in frosty weather. I have had it reaching to the top of a wall 16 feet high; but, for the want of proper protection, the frost killed the plants.—J. C. C., in *Field*.

Pentstemons are amongst the most attractive flowers of the season, and though the storms of wind and rain have dealt somewhat hardly with them, they are, on the whole, surprisingly good. Considering the easy culture and propagation of the Pentstemon, we might suggest that a few more should give them attention. Cuttings strike readily in August if made from stocky shoots, and well-drained soil, together with an open position, will suffice. Messrs. H. Cannell, of Swanley, exhibited some recently at the Royal Horticultural Society's meetings. The spikes were large, well flowered, and the colours good, but too many dreary purples we venture to think. The best were J. Robertson, scarlet, creamy white centre; Bertha Koch, pale pink; and Dr. Tuke, deep red, white throat, pencilled with the same tint. In Mr. Ware's nursery, at Tottenham, W. Britton, deep maroon; T. Bevan, scarlet, good habit; Racine, deep purple-lilac; Norma, scarlet; Mazeppa, deep red; Fleuron, rich red; Eleonora, bright pink, were the finest. One

great object should be in the mind's eye of the raiser—it is to encourage a bushy dwarf habit. It wants plenty of strength thrown into both flower-spike and growth of the Pentstemon.

Stove and Greenhouse.

CLIANTHUS DAMPIERI.

After numerous futile attempts, I have at last succeeded with Clianthus Dampieri—a coloured drawing of which appeared in The Garden, July 23 (p. 86)—and have it splendidly in bloom. My object in writing, however, is to say that, though so extremely difficult to manage, it is a plant which soon comes to perfection. I have any amount of literature about it, and am constantly reading "how easy it is to manage," and when I apply for particulars I am as constantly put off by excuses. I have even seen in a nurseryman's catalogue that "its culture in the open air is attended with no difficulty." Let people try, and judge.

I can give you particulars about my plant. The seed was sown singly in a 3-inch pot, in heat, in February. As soon as it began to grow freely it was very carefully transferred to a 4½-inch pot, and then, before any symptom of root had appeared on the side of the pot, it was finally transferred to a 9½-inch one, in which it is now 2 feet high, and with three spikes of bloom open—more coming forward.



The Glory Pea of Australia (Clianthus Dampieri)

Now for treatment. I understand that in Australia it grows on the very poorest stony soil, but here we live in the Antipodes, and I am growing it in nothing but old rotten manure, plenty of charcoal, and plenty of sand. The drainage, of course, is perfect. Every night the leaves are wiped with a sponge to stop red spider, which, I believe, is its great enemy. In the daytime it is placed under a handlight behind a north wall, on an inverted pan in water, to keep slugs off, and at night is brought into the greenhouse for its ablutions. I find it at once resents the heat of sunlight in the greenhouse by day, and its leaves flag directly, inviting red spider. Under the north wall it seems to luxuriate. Perhaps some people will say, "What a fuss about a plant!" but let them grow it and see what a splendid thing it is and they will not mind a little trouble. Nothing delights me more than to get hold of an obstinate plant and beat it. I have been doing this with Clianthus for twenty years and hope I have beaten him.

The remarkable point about my plant is its early blooming, for it is but five months since the seed was sown, and I find all the authorities speak of Clianthus as a biennial. I hope to try some crosses now I have it in bloom.

Windermere. A. Rawson.

Hibbertia dentata.—I was extremely pleased to see a coloured plate of this beautiful greenhouse climber in The Garden, for it is one of those subjects whose merits are not sufficiently known and appreciated, as among plants of this class how many are there that will flower during the first three months of the year? I have had this Hibbertia in bloom by the middle of January, and a succession of flowers kept up till April; added to which the beautiful bronzy tint which overspreads the young foliage and bark of the growing shoots furnishes a very distinct and pleasing feature. Though a very satisfactory subject to grow, it is not so vigorous as many other climbers, and for rapidly covering a given space it cannot be compared with Passifloras, Tacsonias, and Cobæa scandens. It is more fitted for association with such things as Kennedyas, Hardenbergias, Jasmines, and others of this class. I once grew Hibbertia volubilis, and the large yellow flowers were freely produced, but they were so disagreeably scented as to lead to the removal of the plant.—H. P.

Crassula jasminea.—This can be highly recommended both on account of the purity of the flowers, the profusion in which they are produced, and the dwarf, compact habit of growth of the plant. It can be grown to great perfection in an ordinary greenhouse, requiring only protection from frost. The best results are obtained from plants that have made a season's good growth. If the plants are kept moderately dry during the winter, for, like all things of a succulent nature, the roots are very sensitive to an overdose of water, especially when growth is at rest, and shifted in spring into 6-inch pots, they will make fine specimens carrying a dozen or more heads of bloom. Repotting should be done early in April, as this allows plenty of time for the roots to get possession of the compost by the autumn. It is indeed highly important that the pots become well filled with roots before the plants go to rest, as then they are sure to pass the winter well. As soon as they begin to show signs of blooming, weak doses of liquid manure may be given them. Good fibrous loam with plenty of sand and a little leaf soil is the best compost. This should be firmly pressed in, otherwise when the plants are put in the open air for a couple of months to mature their growth they are apt to suffer from heavy rains. There is no place so good for this Crassula as the foot of a south wall, the position that in past days growers of Kalosanthes used to select during August and the early part of September for the purpose of thoroughly hardening their plants. A roasting sun with a free circulation of dry air and exposure to night air doubles their blooming capacity. At this time the plants should be well cared for, for if they do not get enough water the lower leaves drop. The plants should be housed by the latter end of September, for they are none the better for the cold heavy rains that

we are apt to get in October. Propagation is easily effected either by means of cuttings, which strike easily during the summer, or by pulling the plants to pieces in spring or directly after flowering. Roots are thrown out all down the stem even from the old wood, so that this is the best way of increasing this Crassula.—J. C., *Byfleet.*

TUBEROUS BEGONIAS AT FOREST HILL.

If there is one flower more than another that shows the persistency of effort in the florist, that one is the tuberous Begonia. The first variety raised by Mr. Seden in the Chelsea nursery of Messrs. Veitch was to be the forerunner of a race of flowers that we have seen fill the position of the Pelargonium in many gardens. It is this double use—for greenhouse and outside garden—that has brought the Begonia such enduring fame. It flourishes in a season when "bedders" of the stereotyped class fail, and gives an unending range of colours irresistible in their intensity, yet amongst them tints as soft as those of a Blush Rose. No other race of flower so easily grown can supply the colours the tuberous Begonia affords us. We can well understand how it is that the plant under consideration has sprung into the position it now holds amongst our popular flowers. It is one the amateur may grow with ease, and, we are glad to say, does grow, with infinite credit to himself and a marked effect to his greenhouse or window. We remember at first the tuberous Begonia was decried as a garden flower; it was said not to be proof against the summer sun or summer rains. But it withstands them both, and many a bed in the garden once annually filled with Pelargoniums is now given up to the gay Begonia. There are few to whom so much is due for the improvement of this flower than Messrs. Laing and Co., of Forest Hill, who have an immense stock of the finest varieties, the result of a patient and successful endeavour to obtain flowers of faultless quality as regards both shape and colour. It has not been the happiest season for the tuberous Begonia. It would have to be something very indifferent to weather conditions to be proof against the unnaturally cold, wet, and sunless July. An acre of the bulbs in the open, comprising in all about 100,000, was, however, surprisingly good considering the weather we have had; and if only the sun, that almost burnt the garden up last summer, would shine, this acre of bulbs would soon be a blaze of colour. These are all seedlings of this year, and amongst them we could see many promising kinds that will doubtless appear an advance on those now considered the finest. The large show house, that measures 100 feet, is the great feature, and here we can see the immense value of the tuberous Begonia as a greenhouse flower. It needs no heat at all except for starting the tubers, and a little to keep them safe from frost, and its season comprises several months—one endless succession of brilliant flowers. Suspended from the roof are baskets filled with the variety pendula, that was figured in The Garden of October 29, 1887. This is essentially a tuberous Begonia for a basket. It is pendulous in growth, each stem loaded with a bunch of deep rose-coloured flowers that are individually of a great width. It would not require many of such plants as these to give colour to the greenhouse. It is the single varieties that are the most showy, although the double kinds are not behind in this respect, but they are a trifle more delicate. In glancing at a great array of plants as here presented, we cannot help noticing that the scraggy growth that once marred the habit of the plant has almost disappeared. We have now a bushy, dwarf growth, quite a different thing to the legginess that once prevailed, and necessitating the use of fewer sticks, which are always objectionable. Among such a profusion of excellent varieties it is a matter of some difficulty to choose the best, but the following in the single-flowered class were noteworthy for the shape and colours displayed in the flowers. Duke of Edinburgh is certainly a splendid colour, the darkest velvety crimson we have seen, and of a fine bold expression; Mrs. Petch is of a different kind, it is white broadly margined, and flushed with rose-red; and something of the same tint is Blushing Bride, white just coloured with pink, a beautiful hue, of which we have none too many amongst the varieties of tuberous Begonias. But we note that there are great improvements arising both in the pinks, pure whites, roses, and allied colours. Queen Victoria, for instance, is a splendid rose-coloured flower, of the largest size, flat, and very broad. A distinct colour is that of the variety Prince Albert Victor, which has a handsome bloom of a brilliant orange-scarlet, but far more telling, in truth, almost painful in its intense brilliancy, is the Earl of Rosslyn, which is also of an orange-scarlet shade. Duchess of Edinburgh has blooms of a deep yellow colour, shaded with orange, a useful addition to its class; Earl of Chesterfield, crimson; Golden Queen, golden yellow, the form exceedingly handsome; Her Majesty, soft blush, rosy-pink centre; Lord Crewe, dark crimson; Stanstead Surprise, rich crimson; and White Perfection, white, are also rich in quality, and well worth a place in a selection of single-flowered Begonias.

Those who have visited the shows this season need not be told of the steady, but sure advance of the double kinds. Such varieties as alba magna, pure white, and alba rosea, rosy pink, besides many of the most recent additions of the Messrs. Laing compel us to ask, When shall we see the climax to this wonderful development? Some of the flowers approach the size of those of Camellias, quite as perfect in symmetry, finish, and expression, and though perhaps too formal, stiff, and heavy to some, have many ardent admirers. Besides those that have been certificated this season, and fully described in our reports, alba plena, white; Glory of Stanstead, deep rose; Lady Hulse, good yellow, passing to cream colour; Mme. Arnoult, salmon-rose; Mme. Crousse, rose-flesh with a salmon-buff shade; Mrs. G. A. Partridge, yellow; The Czar, bright crimson, and Mrs. Brissenden, salmon-pink, stand in the front rank of double-flowered tuberous Begonias. E. C.

Begonias in bloom.—Besides those of the tuberous section there are a few very pretty Begonias now in bloom, some of which belong to that class known usually as winter-blooming, though in the case of some of them perpetual-blooming would be the better title. One of the most continual blooming of all Begonias is the old B. semperflorens and its white and rose-coloured varieties, as they may be had in flower at any time of the year, provided the plants are grown with that end in view. So free-flowering are they, that in order to get them to grow freely, it is necessary to pinch off any flower buds that may appear during their earlier stages. There are some beautiful flowering Begonias, usually regarded as varieties of B. semperflorens, of which one or two have been awarded first-class certificates by the Royal Horticultural Society, but they bloom principally throughout the winter and early spring, while at this season they do not flower with the freedom of the typical kind; indeed, in general characters they suggest a nearer affinity to B. Lynchiana than to B. semperflorens. B. Weltoniensis, raised many years ago by Colonel Trevor Clarke, is beautifully in flower. This variety resulted from intercrossing B. Dregei and B. Sutherlandi, and is more valuable from an ornamental point of view than either of its parents. It forms a free-growing yet neat bushy plant with cheerful green leaves set on red stalks. The flowers are of a pretty pink tint, and borne in great profusion. Both of its parents bloom freely during the summer, the flowers of B. Dregei being white and those of B. Sutherlandi orange-red. B. Carrieri, a cross between B. semperflorens and B. Schmidti, is a most useful variety. The flowers are pure white, and borne in such profusion, that the whole plant is quite a mass of them. B. Carrieri villosa is altogether more hairy than the type, and is besides a more vigorous grower, but it does not form so handsome a plant when at its best. B. fuchsioides trained up a pillar is flowering profusely, the large pendent panicles of bright scarlet blossoms rendering it one of the best pillar plants that we have, for the small deep green foliage is also very pleasing. The whole of these Begonias are as easily propagated and grown as Fuchsias; indeed, much the same treatment will suit them all.—H. P.

WORK IN PLANT HOUSES.

Greenhouse.—Pelargoniums for early flowering.—Young plants of the early-blooming Pelargoniums that were propagated in spring should now be moved into 6-inch pots, which will be large enough for them to bloom in the first season. There is nothing gained by giving them too much root-room, for although this section of Pelargoniums are free growers with a naturally strong habit, still, in common with all the family to which they belong, they like their roots being somewhat confined. Good rich turfy loam that has been put by for some months is the best soil for them; a liberal amount of rotten manure passed through a fine sieve and some sand should be added to it. Drain the pots well, and in potting ram the soil so as to make it quite solid. These early kinds of Pelargonium are short-jointed, but to have them in the best condition, they should be kept through all the stages of their growth as close to the glass in a light house as they can be got. The sturdier they are, the better able they will be to bear the extra warmth that it is necessary to subject them to during the dull winter months when they are required to flower early. In most cases the plants will branch out of their own accord sufficiently without any stopping, but if any produce a shoot that seems to run away with an undue share of the strength, it will be better to pinch out the point. See that through all the stages of their growth the plants are placed far enough apart to allow plenty of light and air to reach them on all sides.

Old plants.—Old plants of the early flowering varieties that after blooming were cut back will now have made sufficient growth to admit of their being shaken out and repotted. They should be turned out of the pots, and have three-fourths of the old material removed, also a portion of the old roots at the bottom of the balls and in the drainage taken away. They may be put in pots a size smaller than those they have flowered in, moving them into others that are larger when the roots have got well hold of the new soil now given them. The treatment after potting will require to be the same as that recommended for the younger stock, giving them plenty of light and air after the roots have begun to move.

Carnations, winter-flowering.—The successful cultivation of these plants so as to have them in flower at the time they are wanted mainly depends on the selection of varieties that are perpetual bloomers. A large percentage of the varieties that have been sent out with high-sounding characters for pot culture cause no end of disappointment, through the fact that they have no pretensions to being perpetual in their habit of flowering, only coming in during the spring and summer. Supposing the plants to be strong and generally well grown, there is still a matter connected with their cultivation that often prevents their blooming at the time they are required; this is stopping too late in the season. Carnations are comparatively slow growers, and after having the points of their shoots pinched out require a considerable time to make new growth that will flower. Beginners in the cul-

tivation of this section of Carnations often make mistakes in this matter by stopping the plants they want to bloom in the winter later in the season than allows time enough for them to make new flower shoots. Some varieties do this in less time than others; consequently no stated time can be named as necessary to intervene between the plants being stopped and their coming into flower. Plants that are to bloom during the latter part of autumn and in winter will now be pushing up the shoots that are to flower; therefore no more stopping must be attempted with them. Such as are wanted to give successional bloom next spring may now have the points of their shoots pinched out. These remarks apply to plants that are grown in pots as well as those that are planted out. Young plants that require moving into larger pots should have a shift; it is not well to delay this, as the time will soon be at hand when the roots will begin to move more slowly, and it is necessary that they should fully occupy the soil before autumn. The same holds good with older stock that had their old flower-stems cut away at the bottom after blooming. They will now have made new growth, and if not already repotted should at once be turned out and have a portion of the old soil shaken away. Put them in pots a size or two larger according to the condition they are in. Give them good rich holding loam with a little leaf-mould, some rotten manure, and sand. Pot moderately firm, as when the soil is left loose it holds more water than the roots like. The plants must be kept free from aphides.

Cinerarias.—Plants that were raised from seed sown with the object of having them in flower about the beginning of the year and that are now in small pots will shortly require a shift. Where Cinerarias are regularly supplied with manure water from the time the roots have fairly taken to the soil in the pots in which they are to bloom, there is no necessity for giving them as much root-room as is often supposed necessary. Six-inch pots are large enough to grow the plants in for all ordinary purposes, as by liberal and regular feeding in the way named Cinerarias can be grown to a large size. The plants should now be put in pots of this size, as if kept in those first given them until the roots get cramped, they receive a check from which they never afterwards recover. Cinerarias like rich soil as well as rich liquid stimulants. The best material to grow them in is good turfy loam, with a liberal addition of rotten manure, some leaf-mould, and enough sand to keep the whole sufficiently open and porous. Drain well, and make the soil moderately firm in the pots. Smaller plants that have come from later sowings so as to give a succession of bloom will now be large enough for picking off in boxes, or they may be put singly in small pots. By following the former method much time in watering will be saved, and the plants will grow quicker in boxes than in pots. Soil of a like description to that recommended for potting the older stock in will answer for them. Cold frames are the best place for Cinerarias at this season, standing the frames so that they will face northwards. By this means no shading will be required except for a few hours in the middle of the day. The plants should be stood close to the glass. By treating them in this way, the leaves will acquire much more substance and form short, stout stalks. When the bottom leaves decay before the plants bloom, their appearance is destroyed. It is a good plan during the late summer and early part of autumn to draw the lights off at night. When the plants are thus exposed to the dew, it helps to keep them free from insects and invigorates them. In dry weather a slight dash with the syringe in the evenings will benefit them.

Mignonette.—The large specimens of this favourite plant grown in standard or bush form that usually have the name of Tree Mignonette that used to be much grown have now all but given way to smaller examples, which when well managed are more satisfactory, and give a larger quantity of flowers with less attention as well as occupy less room. To have a regular supply from early in the spring, say from March up to the time when the plant can be had in bloom out of doors, three sowings require to be made. The best results are obtained by allowing only one plant in a pot. It is advisable to sow in small pots and to shift them on into larger ones afterwards. Rich loam of a holding nature is the best, and to this add some rotten manure; both should be passed through a fine sieve; a little sand must be mixed with it. The pots should be well drained, and as the plant is a spare rooter the roots are too delicate to bear stagnant moisture near them. Put about half a dozen seeds in each pot, and thin the seedlings out to one as soon as they are an inch high. Cover the seeds slightly and stand the pots in a frame, which should be filled up with coal ashes so as to raise them close up to the glass. The frame should be stood in a light position, as to do justice to the plants they must have have all the light that can be given them from the time the seed vegetates up to their coming into bloom. Keep the soil moderately moist, but have the lights in readiness so that they can be put on in the event of drenching rains; at other times they are better off.

Ericas.—The summer flowering varieties of Erica, in common with all the Cape sorts, require to be placed out for a time in the open air to assist the growth to ripen. This is more essential when the plants are vigorous and make new wood freely. On the young shoots getting thoroughly matured depends the amount of bloom that will be produced. When first put in the open air stand them for a few days where they will not be fully exposed to the sun, as if it is allowed to reach them in force during the hottest part of the day the foliage often gets so much browned that it does not regain its normal green colour after the plants are housed. When plants of this character are stood out of doors it is necessary to take means to prevent worms entering the pots, which they are certain to do if placed on the earth or even with some sharp material such as fine coal ashes or sand under them unless sufficient depth is used so that the worms will not work their way through it. Pieces of board or large common slates are as good as anything on which to stand the pots. There is an advantage in using them in preference to ashes or other things of a like character, as there is not so much danger of the pots absorbing more moisture than is good for the roots, especially when the weather happens to be very wet. When there is a likelihood of heavy drenching rains it is best to lay the plants down on their sides, putting a couple of bricks to each plant so that the rim of the pot can rest upon them. In this manner when the specimens are large and bushy, the branches will be kept off the ground. The pots must also be protected from the sun.

In connexion with other hardwooded stock, it may be well to remark that it is necessary, whilst the plants are out, to give more than ordinary attention to them in the matter of water, as when the weather is hot the soil dries up much more quickly in the open air. Care in this respect is requisite with plants that are under-potted, and have the soil full of roots, in which case they naturally want water more often. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Gloriosa superba is doing exceedingly well in a stove in the Forest Hill Nursery. This climber is of very free growth, the flowers scarlet and yellow in colour, and showy.

Solanum jasminoides does well in a pot at the Forest Hill Nursery. Its flowers, each about the size of a halfpenny and pure white, except the golden stamens, are highly prized when cut.

Gloxinia virginale is a pure white variety that stands well up above the foliage. We saw it the other day in the Messrs. Laing and Co.'s nursery, together with a good strain of the flower, the colours varied, and the blooms erect, so as to show off their excellent qualities.

Linaria triornithophora (The Garden, p. 74).—This is a perfect weed in my garden, seeding and sowing itself everywhere, worse than some of the Campanulas. It stands the winter up here without a suspicion of tenderness.—A. R., *Windermere*.

Solanum Wendlandi.—Is this obtainable in any place? if so, where? Is S. grandiflorum synonymous with it? A week or two ago I selected S. grandiflorum from the catalogue of one of the chief London nurseries, in which it is described as a greenhouse climber, but received the old, common, and comparatively worthless S. jasminoides for it, although the price charged justified me in expecting something far better. I much wish to get this new Solanum.—J. M., *Charmouth, Dorset*.

Caladiums have come to the front well this season, so that it seems this foliage plant will rise again in popularity. Amongst many good varieties we noted the other day in the Forest Hill Nursery were Charlemagne, the leaf broad, carmine-red; Comte de Germiny, red; Comtesse de Brosse, red; and Raymond Lemoinier, creamy white zone, the other portion red.

Coprosma Baueriana.—Of this effective greenhouse shrub Mr. Davidson has a very robust form, which just reverses the character of the old variety, that has a broad golden margin to the leafage with a green centre. Mr. Davidson's form has a yellow centre to the leafage and a green margin, the foliage being much larger. It is a capital variegated plant, and merits wide cultivation.—A. D.

SULPHATE OF IRON AS A MOSS-KILLER.

The purposes for which sulphate of iron is employed in horticulture are (1) for killing Moss and other parasites of the soil, and (2) as a manure. We shall, for the present, confine our remarks to the former of these two uses, as being the subject which is more especially interesting to our readers.

The following notes are a summary of the results obtained by M. Muntz, Professor at the Institut National Agronomique; by M. Lambin, Professor of the Horticultural Society of Soissons; and by others who have used the sulphate at our suggestion; with these are also included the results of our own personal experience in the matter.

The method of eradicating Moss by means of the sulphate of iron is based on the principle that this substance which, used in moderate quantities, acts as a manure, is poisonous when applied in larger quantities. An application of it is poisonous when the plants will absorb from it such a quantity of oxide of iron that when burnt their ashes will be found to contain as much as ten per cent. of the oxide. Thus, if two plants, the respective weights of which are in the proportion of 100 to 10, have the same quantity of sulphate of iron applied to them, the first plant (which absorbs the oxide to the extent of only one per cent. of its weight) will grow more vigorously, while the other plant (which absorbs the oxide to the extent of ten per cent of its weight) will perish. Now as Moss is of a weaker organic structure than lawn Grasses, an application of sulphate of iron just sufficiently strong to kill the former would be quite harmless to the latter. This principle must be steadily borne in mind in order to avoid disappointment, as on the application of it success in carrying out the method entirely depends. It may be briefly stated thus: On lawns and Grass plots use as much sulphate of iron as will kill the Moss, but not so much as will injure the Grass.

We shall now consider in succession:—

(1) The quantities to be used. (2) The manner of application. (3) The season or time of application. (4) The manner in which the sulphate acts. (5) General results.

(1) *The quantities to be used.* — These will obviously vary according to the strength of the Grass; weak applications being proper for lawns of young Grass, and stronger ones for those which have a turf of older and denser growth. The average quantity is 300 kilogrammes per hectare (= 264 lbs. per acre), or 3 kilogrammes per 100 square mètres (= 6¼ lbs. per 100¾ square yards). The minimum and maximum quantities per acre are 176 lbs. and 528 lbs. On a densely matted turf, like that in the garden of the Société d'Horticulture de Soissons, an application of 440 lbs. to the acre would be required,

but for older and stronger turfs this quantity has been found insufficient, and it has been necessary to give them a fresh application of the strength of 264 lbs. to the acre in certain parts which were more overgrown with Moss than the rest. Usually, the best plan is to give two applications, with an interval of a fortnight or three weeks between them, commencing with a strength of 264 lbs. to the acre, and, if this is not quite effectual, repeating the application with the same quantity, or even a stronger one, if the Moss appears to have recovered its vigour too much in the interval. We strongly recommend that this method should be pursued, in first attempts especially, and when the operator has made himself master of the process by first using applications of moderate strength on small areas, he may proceed to applications of greater strength and on larger spaces of ground.

It is very important to have an accurate measurement of the area which is to be operated upon. In the case of a certain landowner who was disappointed by the results of an application of the sulphate, we found that he had used 100 kilogrammes (2½ lbs.) of the sulphate in a single application over an area which when correctly measured was found to be 10 ares (nearly 1 rood) in extent. This was equivalent to an application of 1000 kilogrammes (2200 lbs.) to the hectare (or 880 lbs. to the acre), more than double the quantity that was necessary.

(2) *The manner of application.*—The best way to use the sulphate is in solution, as this is the surest method for distributing it evenly, and although it is generally used only for small areas, it cannot be too highly recommended for garden grounds. The solution is made in the proportion of 1 lb. of the sulphate to 2 gallons of water. The operation of distribution may be facilitated by having ready-prepared a concentrated solution of 88 lbs. of the sulphate in 22 gallons of clear, plain water, a quart of this solution to be mixed with plain water in every 2-gallon watering-pot. The solution should be made in a wooden vessel, such as an old cask, &c. The plain water should be put into the watering-pot first, then the solution added, using for a measure a small wooden pail or a vessel of glazed earthenware ; the cock or tap of the cask should also be a wooden one.

With a 2-gallon watering-pot filled with this liquid one should cover an area of 15 square yards to represent the strength of an application of 264 lbs. per acre, and an area of 10 square yards to represent one of 440 lbs. to the acre. If possible, the solution should be made with soft or rain water, and also just before it is to be used, as it loses strength in keeping. It is also deteriorated in quality if made with water which contains much lime in solution, and in this case a larger proportion of the sulphate must be used.

It is not, however, absolutely necessary that the sulphate should be applied in solution, as it may also be used in a well-incorporated mixture of from six to eight times its own quantity of soil, sand, compost, plaster, &c., prepared as follows: Spread on the ground a pretty thick layer of sand or whatever other material is employed ; on this spread a layer of the sulphate, followed by another layer of sand, &c., and so on in alternate layers until all the material to be used is thus disposed of. The heap is then to be turned over several times with a shovel so as to ensure an intimate and homogeneous mixture of the whole. It is applied by scattering it over the Grass from a shovel, each shovelful being discharged in almost a vertical direction, this tending to secure an even distribution. However, any other equally effective method of distribution may be used if preferred, some gardeners choosing to scatter the mixture from the hand, as wheat and other seeds are sown. The sulphate, to be most effective when used in a mixture of this sort, should be crushed to powder or crystals not coarser than ordinary table salt.

(3) *The season or time of application.*—As the conditions of growth on lawns are much the same all the year round, the sulphate may be employed at almost any time with equal effect. Last year we made experiments every month from February to November, and were successful in all. We are at present endeavouring to discover whether any particular season of the year is better than another for this purpose, but so far as our experience up to this date goes, we have not found the slightest difference. The most that can be said is that there might be some advantage in applying the sulphate in March or April just when the rains are commencing, especially if the dry mixture is used and not the solution. But we should say that when anyone has made up his mind to try the sulphate, the sooner he tries it the better. If the sulphate is not applied in March or April, it will generally be better to wait until the first mowing of the lawn is done.

(4) *The manner in which the sulphate acts.*—The sulphate is known to be acting effectively when the Moss turns black, after which it withers away and crumbles into powder. If the application has been too weak, the Moss only turns grey or reddish, and if not further interfered with, after some time recovers itself. In this case a second application will be needed on such parts of the surface as present these indications of colour. It sometimes happens that the first two applications are insufficient, and the operation has to be repeated in the following year.

(5) *General results.*—M. Heuzé, in his report on this subject to the Société Nationale d'Agriculture in 1887, says that he had to wait for two years before he could give an opinion in favour of it. Conclusions may also be drawn from the results of two trials made last year in the garden of the Société d'Horticulture of Soissons. These trials were so satisfactory that all the lawns and Grass plots in the garden were this year treated with the sulphate.

As to the areas which were operated on by ourselves, on one part (which was more than half of the entire surface under treatment) the operation, twice performed last year, in April and July, was thoroughly successful. This part is now entirely free from Moss, and the Grass on it is remarkably vigorous. On the other part we have been obliged to repeat the operation twice this year also, at the end of March and the beginning of May, and we have now reason to expect that no further application will be needed. An area of equal size and adjacent to that experimented on, but which was not treated with any application, is now absolutely eaten up by the Moss. The treatment with sulphate of iron may therefore be regarded as having given conclusive proofs that it is a specific for Moss on lawns.

As Moss generally indicates depauperation of the soil, it will be necessary, after the Moss is thus destroyed, to apply a top-dressing of suitable manure, plaster, phosphates, nitrate of soda, or compost, as the sulphate of iron which is used to destroy the Moss can hardly be expected to supply the Grass with phosphoric acid, lime, or nitrogen, in which the soil may be deficient.—*Revue Horticole.*

Beaten soil.—We have special need for fine weather now to enable the hoe to be used freely to stir the surface of the soil which the tremendous recent rainfalls have beaten down and washed to a remarkable degree. Where the ground sloped appreciably small plants have been nearly washed out, whilst on flat ground for a considerable time the plants were literally under water. All the same, this wonderful rainfall has soon passed away, and the surface remains fairly dry, but still beaten close. Weeds are a great trouble, and hoeing is sadly needed, both to stir the soil and destroy the weeds. Constant successions of thunderstorms, however, cause weeds to grow as fast as they are cut up. With settled fine weather and ample labour, however, much useful work may be accomplished.—A. D.

Garden Flora.

PLATE 661.

EUCHARIS AMAZONICA.*

Ever since the flowering for the first time of Eucharis amazonica in 1857 the plant has stood in the front rank among stove bulbs. At the present time it is cultivated by the thousand in many gardens solely for the sake of its beautiful flowers, which have no equal either in a cut state or when seen in dozens on a well-managed specimen. Its cultivation has just that amount of uncertainty—in some cases one might say difficulty—to make it popular with cultivators, and a well-flowered specimen or group of specimens is talked about or written of with the same pride as if the plant were some choice or rare Orchid. As a rule, it is only those who make it a speciality that grow this plant successfully year after year, and even they sometimes fail unaccountably. Now-a-days the Eucharis mite is considered to be the sole cause of failure, although we sometimes hear of cases where the bulbs have been purged of this much dreaded scourge (so-called). A few years ago I was satisfied that when once bulbs were attacked by this mite (Rhizoglyphus Robini) they were hopeless, but I have seen sufficient since to almost convince me that the mite can be got rid of, or even may be continually present without materially affecting the health of the plants. Pancratiums, Amaryllids, Zephyranthes, and other bulbous plants have borne unmistakable signs of the presence of this mite and yet gone on growing and flowering vigorously in spite of it.

If I find a bulb affected I strip it of all loose dead scales, wet it and roll it in soot so as to give it a thick coat. It is then potted in fresh soil, and generally growth and everything else are satisfactory. A famous bulb grower in Holland told me that if bulbs are treated properly the mite never makes any difference to them, and he showed me bulbs which were certainly affected, but which he said were perfectly sound and safe. I have begun by discussing the enemies of the Eucharis before saying much of its character and beauty. There can be no doubt now that that the Eucharis, unlike most other bulbous plants, will bloom several times in one year, and will continue to do so year after year. Mr. Moon's beautiful drawing of the flowers show how lovely they are. It was remarked recently that probably no two plants had been so much written about as Maréchal Niel Rose and Eucharis amazonica ; very likely, but this means simply that no two plants so richly deserve it.

Besides E. amazonica we have now three other

* Drawn for The Garden in the Royal Horticultural Society's Gardens at Chiswick by H. G. Moon, March 4, 1888. Lithographed and printed by Guillaume Severeyns.



AMAZON LILY. (EUCHARIS AMAZONICA)

species which are also exceedingly beautiful garden plants. The oldest of the three is

E. CANDIDA.—This was introduced in 1851, but it had not been much grown until recently, its character having been a good deal injured by a comparatively worthless species which was usually sold for it. It has smaller leaves than E. amazonica, and is without the prominent ribs, whilst the flowers are smaller, but of better substance; they are pure white, 3 inches across, and there are from six to ten flowers in each umbel, which is borne on an erect scape 2 feet long. It is a native of New Grenada.

E. SANDERIANA was introduced by Mr. Sander, of St. Albans, in 1882, who has sent collectors in vain to get bulbs of E. amazonica, although they discovered two new species whilst searching for it. Mr. Lobb appears to have been the last collector who found E. amazonica wild. Mr. Sander's species was found in New Grenada, and it was figured in THE GARDEN in 1884 (plate 443). It appears to be intermediate between the two species above described, resembling E. amazonica in habit and foliage, the flowers being 3 inches across, of thick fleshy substance, pure white, save the clear yellow inside the tube. There is scarcely any corona or ring in the centre of this species, the stamens rising almost from the base of the petals. When this plant becomes better known (at present it is scarce) it will take a foremost place amongst stove bulbs.

E. MASTERSI was introduced by Mr. Sander in 1885. Mr. Baker who described it says, "It is intermediate between the two finest species already known, E. amazonica and E. Sanderiana. If has entirely the same habit and leaf, and the same large pure white flowers, but is different from both of them in the staminal cup or corona, having a narrow collar-like rim, with two distinct teeth between the stamens." The flowers are produced usually in pairs on erect scapes, which are 1 foot long, and each flower is 3 inches in diameter. These four species are all really beautiful flowering plants, the best of them undoubtedly being the best known, viz., E. amazonica.

CULTURE.—All the Eucharis require the same treatment, and they all form well-leaved, profusely flowered specimens if the treatment is to their liking. The method I have found most successful is as follows: Soil, a rich fibry loam, broken into lumps about the size of hen's eggs, and mixed with one-sixth rotted cow manure, with a sprinkling of half-inch bones; the pots should be roomy and well drained; the bulbs should be planted wholly below the soil, so that when growing not even the neck of the bulb is seen. About twelve bulbs in a 15-inch pot are quite thick enough. Till growth commences the soil should be kept just moist; during vigorous growth water may be liberally supplied. Never allow the soil to become quite dry. The temperature should be that of a stove all the year round, and the shading should be used only in summer during bright sunshine. The time for repotting is immediately after the flowers have faded. It is best to shake the bulbs out and repot them every second or third year. W. W.

Vallota purpurea magnifica.—This truly magnificent bulbous plant is again in flower, and though it has been often written about, too much cannot be said in praise of such a glorious plant. Compared with the favourite old Vallota purpurea, it has blooms almost twice as large, being 5 inches across, of a more brilliant tone of scarlet, and adorned in the centre with a great white ring, which shows off the colour admirably. It is altogether a stronger grower than the original, its flower-stem being about 2 feet in height. Though there is no need to disparage the old V. purpurea in order to praise this variety, we think that it will in time become as popular. It is in our estimation the finest of all the Vallotas, fine as are the forms known as eximia and major. Probably a great deal more could be done to improve the Vallota, especially in varying its colour, if the same attention were bestowed upon it as has been the case with such plants as the Amaryllis and Clivia. Vallota magnifica was figured in colour in THE GARDEN, September 11, 1886 (p. 244), and a good specimen may now be seen in the Cape house at Kew.

FRUIT GARDEN.

THE BANANA.

THE fruit of the Banana seems to be increasing in favour and gaining on the popular taste. It is true many people call it insipid, while others are equally fond of the sweet flavour peculiar to a good ripe cluster. With rare exceptions the fruit obtained in the market and shops is imported from foreign countries, mostly the East Indies and South America, and owing to its perishable character when ripe, the clusters have to be gathered whilst they are scarcely full grown and quite green. Even then a large number of them decay during the voyage, thereby increasing the value of that portion of the consignment which reaches the market in a sound state, this fact always contributing to keep up the price. Handicapped by these disadvantages, foreign fruit will bear no comparison as regards flavour with home-grown samples, which can be allowed to hang on the plants until ripe and be gathered and eaten fresh. Those who are familiar only with the Banana of the shops and costermongers' barrows soon realise the difference and superiority of home-grown fruit upon tasting it. Owing to the amount of space and rather high temperature requisite to grow the Banana in this country, it is doubtful if it will ever be very extensively cultivated, but room can be found in most gardens where fruit and flowers are cultivated to any extent to accommodate a few plants for supplying the dessert table occasionally with a distinct and useful dish, as it is not a fruit of which a constant supply is desirable. Moreover, the plant is very ornamental, and in its various stages of development is always an object of great interest in the garden. It can be grown and fruited in an ordinary plant stove, at the back of Pine stoves and other forcing houses where there is height enough for it to grow.

The best variety to fruit is Musa Cavendishi, as it is of dwarf habit and bears when of small size. The time required to bring a cluster of fruit to perfection from the time the plant is potted as a sucker, must vary according to the treatment it receives. Grown as an ordinary stove plant, I have found from twelve to fifteen months to be the time occupied; therefore, if it is desired to have ripe fruit in the winter months, the time at which it is most acceptable, suckers should be started about September; these may be expected to ripen fruit the following November and December twelvemonth. The suckers should be potted in a compost consisting principally of loam; a rich soil is usually recommended to grow them in, but I never use manure in potting them, and give the plants very little stimulants until they show fruit, finding they grow quite strongly enough in a mixture of sound loam and leaf-soil, with a few burnt ashes added. If grown in 10-inch pots the plants will not require repotting until placed in their fruiting quarters. Very good clusters can be obtained from plants grown in pots 16 inches in diameter. I have seen plants in pots of less size carrying fine clusters of fruit, but the best results are obtained by growing them in tubs or planting them out in brick pits about 2 feet square and 2 feet deep. Our plants are grown in pits of this description, placed at the corners of the beds in the Pine stoves, most of the leaves overhanging the pathways, and they do not encroach greatly on the space set apart for the Pines. They are planted out when becoming too large for 10-inch pots in a compost of the above description. It is important that the drainage be perfect, in order that the plentiful supplies of water required by the plants may pass away freely.

The spadix usually appears when the plants have reached a height of from 7 feet to 8 feet; we then commence to give them a little liquid manure, and make use of stimulants freely during the time the fruit is swelling. The flowering occupies some little time, the spadix commencing to unfold at the top, and as each tier goes out of bloom swelling begins until from seven to nine tiers have set, when the strength of the plant being directed to swelling the fruit the remaining blossoms fall off as they open or soon afterwards. As the cluster increases in size and weight it will require some means of support. This may be accomplished by passing a stout cord under the stem of the spadix and securing it to the rafters of the house. We have had clusters weighing over 50 lbs., the fingers being 8 oz. each. Ripening does not always commence at the apex, but several fingers will turn yellow in different parts; they may then be cut and are fit for use. If it is desired to prolong the supply, the entire spadix, after commencing to ripen, may be cut and suspended in a dry, airy room. Suckers are freely produced, but they must all be removed until the fruit begins to swell, when one may be allowed to remain to take the place of the plant, which will die after perfecting its fruit.

Hindlip. A. BARKER.

STONELESS MUSCAT HAMBURGH GRAPE.

WILL some of the correspondents of THE GARDEN kindly tell me the cause of there being so many stoneless berries in the Muscat Hamburgh Grape? I have grown it in three establishments and always find it the same. I have here a young Vine planted three years ago in vigorous health, and which has been allowed to carry a few bunches, and I find that about one-half of the berries are stoneless.—J. H., *Brecon.*

*** "J. H.," who has made three attempts, but has not yet succeeded, does not seem to be aware of the fact that this delicious old favourite is one of the most capricious Grapes in cultivation. In a very few places it sets well and finishes off large clusters perfect in berry and colour, but as met with in the majority of well-managed gardens, the large framed bunches are full of stoneless berries and much given to shanking. Numerous methods of culture and management have been recommended and adopted, such as grafting or inarching it upon the old Hamburgh, planting in extra well-drained borders composed of heavy loam, confinement of its roots in warm internal borders of limited area, the most careful fertilisation of its flowers, as a matter of course, with foreign pollen, and the like; but down to the present time very few have succeeded in growing it to their entire satisfaction—indeed, I question if it is one whit better understood now than it was when I knew it first as the old Black Muscat forty years ago. From that time I have seen and taken part in attempts to reduce the Vine to a reliable condition, but with varying success, and although I have tried it on its own roots and worked on the Hamburgh, planted where it could have the run of external and internal borders and as a pot Vine, taken at all points, I have never seen it better than when confined to a very narrow border. The Vine in question, I may state for the benefit, I hope, of "J. H.," had been planted a few years before I took charge of it, and had a border about 2 feet in width, kept in bounds by one of the walls of the area in which the hot-water pipes were laid. A single rod trained up the back wall trellis in a lofty vinery had been spur-pruned some three

or four years, and although the roots in this narrow strip of warm soil did not get soaked with water as we now apply this element, the berries set well and swelled to a size equal to that of ordinary Muscats. Although the Black Muscat is a strong grower, many experienced writers and cultivators are under the impression that it has a delicate constitution, but the greatest fault I have against it is its persistency in throwing laterals when other Vines are at rest—a fact which shows at once, I think, that the roots should be kept not only within bounds, but where they can be thoroughly ripened in a temperature somewhat higher and drier than that of our ordinary Vine borders. If "J. H." has a young Vine which he can turn out in a well-drained brick pit above the floor line, not too far from the hot-water pipes, I would suggest his trying a restrictive root-run, as I have long since proved with Madresfield Court and Black Morocco—the worst setting Grape in existence—that cribbed, elevated, internal borders, which a man can control as easily as he can control a pot Vine, form very important factors in the management of capricious varieties. In borders of this description the roots may be fed and nourished to any extent at certain periods exactly as we feed Melons when swelling off their fruit, and they can be thoroughly ripened by a moderate reduction in the supply of water after the Grapes are cut. Roots so managed and ripened keep bright, fresh, and healthy through the winter, and are ready for the proper performance of their work when the Vines are started in the spring. They form a profusion of active feeders by the time the Grapes come into flower, and observant growers of Muscats of all kinds need not be told that Vines in this condition invariably set an abundance of perfect berries. The prudent grower, as a matter of course, will maintain a suitable air temperature, and he will fertilise the flowers for conscience sake, but unless all is right below the surface of the border the most careful attention to these details will be followed by indifferent success.—W. C.

Apples on Paradise stock.—Both in the gardens of the Royal Horticultural Society at Chiswick and in the Forest Hill Nursery of Messrs. J. Laing & Co, small trees on the Paradise stock are bearing remarkably well, so much so, that as the fruit swells, it will be necessary to give strong support to prevent the small branches snapping off. Those varieties that were especially fruitful were Frogmore Prolific, Lord Suffield, Lane's Prince Albert, Beauty of Hants, Emperor Alexander, Saltmarsh's Queen, Loddington Seedling, and Schoolmaster. A tree of the last-mentioned was smothered with fruit, and the same may be said of a specimen of the Bismarck variety in the Southend nursery of the firm referred to. This was bearing several fruits, amounting in all to a considerable weight, when we remember this belongs to the Peasgood's Nonsuch class.

Propping up Strawberries.—It is in a season like the present that the labour spent in propping up Strawberries is best repaid. There is a better circulation of air round the berries, so that wet quickly passes away from them, and they more directly get the benefit of whatever sunshine we may be favoured with. The best material I have hitherto found for this purpose is Birch cut up into short lengths. Handfuls of this laid round the plants, so that as the trusses bend downward the berries rest on it, keep the fruit sufficiently away from the ground to preserve it from the effects of heavy rains and do not bring it up so much as to incur scorching in a hot dry time. All that is needed is that the berries be an inch or so clear of the ground. There is no good purpose served in bringing up the trusses into an almost erect position and quite away from the shelter of the foliage, which helps to ward off drenching rains, hail, and scorching sun. Under glass, it is true, I do this, and think that I get much finer fruit than when the berries are somewhat shaded by the foliage, but the conditions of growth can be better regulated than in the open, and in the case of late crops I make a point of thinly shading in a time of exceptional heat. Propping up the berries certainly favours precocity and increases value. Some on a warm border that were put up as soon as they began to swell made from 2s. to 4s. a pound. When the berries lie on the ground, they do not colour all round in a dull time, and this, of course, lessens the market value.—J. C. B.

HARDY DWARF CHERRIES.

Iowa Experience.

In the spring of 1883 and 1884 we imported one-year-old plants of quite a large number of varieties of the Cherry grown in parts of Bohemia, Poland, Hungary, North Silesia, and South Russia. The relative hardiness of trees of these new varieties has been tested by the most trying summers and winters yet experienced in the west. As noted in the June *Garden* (p. 232), we have little left on the college grounds of the varieties of the orchard fruits common to the nurseries, and not a sprout of such hardy Cherries as Early Richmond, Late Kentish, and English Morello. As an additional test, the past winter was so severe as to injure the buds of the De Soto Plum, and in the season of the Plum and Cherry blossoms in April, we had severe frosts two nights in succession. Yet the varieties to which I now wish to call attention are well loaded with half-grown fruit (June 4), on little miniature round-topped trees from 3 feet to 5 feet in height.

Schatten Amarelle.—A favourite variety for planting along walks and drives on estates over a large part of Europe. It bears when very young, and continuously here as it does in its native land, and as yet has never shown any tendency to mildew of foliage. The fruit is larger than that of the Richmond, flesh dark and juice coloured. When first coloured it has a slight bitter flavour, which wholly disappears when fully ripe. As it contains much Grape sugar it is prime for canning, and when fully ripe it is far better for dessert use than Richmond.

Spate Amarelle. — Our little trees bear in nursery, and the bushes 4 feet high in orchard are bending with weight of fruit. Fruit medium to large, slightly flattened at each end, colour blood-red with grey dots, flesh and juice red, when first coloured a little bitter, but perfect in flavour when ripe. André Leroy says, "Excellent alike for table and culinary use."

Gros Langeloth.—This is known over East Europe as "Double Schatten Amarelle," but is not identical with Ratafia and Brusseler Braune, as stated by Leroy. Fruit large, round, truncate at stem end, nearly black when ripe. Flesh and juice coloured. Pleasant mild sub-acid flavour. About season of English Morello.

Konigliche Amarelle.—The synonyms given by Leroy are confusing. They only mean that it has been grown under many names, but not that it is identical with any of the Montmorencies. Fruit round, truncate at both ends. Flesh white, soft, juicy, but when fully ripe juice is reddish. Pit very small. Ripens earlier than Richmond.

Amarelle Bouquet.—Another neat small tree for borders, much like Richmond in size, quality and season of fruit.

Fouhe Morello.—Much grown in South-west Russia along walks and drives where taller trees would obstruct views. Fruit large, round, dark red, much like Richmond in quality and season, but tree is much hardier.

Griotte Imperiale.—A fine, large, heart-shaped Cherry of dark mahogany colour; flesh and juice coloured; season of English Morello.

Griotte de Buttner.—Another dwarf sort that blossoms late, and ripens its fruit late; much like the Imperiale.

Cerise de Ostheim.—All things considered, we think this the most valuable of the Ostheim family; tree somewhat larger than any of the above, with pendulous habit even when young. It comes into fruiting when only 4 feet or 5 feet in height, and is very hardy. Fruit larger than that of Richmond, with small pit; flesh and juice red, tender, juicy, and when ripe nearly sweet.

Shubiauka (6m).—This, I think, is an improved variety of the indigenous Cherry of the Volga bluffs. We have plants of it 3 feet in height in bearing. Fruit black, with coloured flesh and juice; when ripe it is nearly sweet.

23 Orel.—As yet we are not certain as to the name. In size of tree about like Cerise de Ostheim, but with larger and thicker leaves and more erect habit. Fruit about size of Richmond and of the same season and quality.

I will add, to prevent misunderstanding, that this list includes only the dwarf-growing varieties that are fruiting in this "off" Cherry year. Also, it must not be assumed that all of the East Europe varieties are dwarf growers. Trees of the Bessarabian type and those of the Eastern Duke class attain to quite a large size.—J. L. Budd, in *Garden and Forest*.

THE CAUSE OF GRAPES CRACKING.

It is a well-known fact that only certain varieties of Grapes are subject to this evil, the worst, perhaps, being Madresfield Court, and many cultivators have felt compelled to abandon growing this fine Muscat Grape owing to this particular fault. The Frontignans, too, often crack badly, and Duke of Buccleuch is a kind requiring great care to prevent many of the finest berries becoming spoilt in this manner. Muscat of Alexandria sometimes shows a tendency to crack at a certain period of its growth. This variety usually cracks close round the stalk of the berry, which is more annoying than splitting at the apex, as the mischief is not so easily detected before decay sets in and spreads to the neighbouring berries. Several methods of prevention are resorted to by gardeners, such as cutting a notch in the wood just below the bunch, or boring a hole through the shoot, the object being to check the flow of the sap, a superabundance of which causes the berries to extend suddenly beyond the power of the skin to resist, thereby causing them to burst. Others allow a free lateral growth, with the object of carrying off any over-abundant supplies of food.

I do not dispute that these means are not sometimes effective, and have no doubt often served the purpose to which they were intended, but I think such methods must be considered unsatisfactory because they do not strike at the root of the evil. The two former modes savour somewhat of fifty years ago, or further back still. A free extension of lateral growth at a time when cracking is likely to take place is no doubt beneficial, but if too much is permitted to grow there is a danger of aggravating the evil instead of averting it by preventing a free circulation of air amongst the Vines. Moreover, if the shoots have been properly trained and not stopped back too hard from the commencement, there ought not to be any great necessity for leaf growth.

The cause of cracking, I am of opinion, frequently dates back to an earlier stage in the growth of the berries than the ripening period, at which time it always occurs, and is produced by a check, either from an insufficient supply of water, or too low a temperature and cold draughts. These conditions all contribute to hinder the free and uninterrupted growth of the berries, at the same time reducing the elasticity of the skin, which when the critical time arrives cannot expand sufficiently; consequently it bursts. I am convinced that cracking is more often caused through fear of giving water, with the idea of averting the malady, than by keeping the roots constantly moist. If ventilation is performed in a right manner there is no period at which Vines cannot be well watered; in fact their roots should never approach dryness. I never hesitate to water our Vine borders, most of which are

inside, at whatever stage the Grapes may be in, feeling confident that by ventilation I can prevent any ill effects, and I seldom have cracked berries, Madresfield Court and Duke of Buccleuch being treated in every respect like the other kinds. I should, however, be afraid to supply a soaking of water when the Grapes were approaching ripening if they had not been previously well attended to in this respect; also I should fear the consequences of allowing a heavy fall of rain upon an outside border which had not been watered during a dry time. Roots in a thirsty state will pump up more food than the Vines can utilise, and this is one potent cause of cracking.

Although it is often produced by a check in the growth of the berries, it is more often caused by a too humid state of the atmosphere of the house and insufficient ventilation. Vineries containing varieties which are known to have a disposition to crack should on no account be forced after the berries have commenced colouring. The texture of both foliage and fruit at this stage will admit of a free circulation of air at all times, and the ventilators should be left open a little at night, according to the state of the weather, increasing the supply considerably during the day, but if the weather is cold and damp, as has been the case this season up to the present time, fire heat cannot be dispensed with, a gentle heat being required during the absence of bright weather. Damping the borders must be sparingly indulged in during a dull and sunless time. Some assistants will go the daily round of damping and syringing let the state of the weather be what it may, and injury is often done in this way before it is noticed. Damping and syringing are operations requiring observation and thought, so as to adapt the inside to the outside conditions to a certain extent. A glass roof will not shut out the external air, and although we can by artificial means counteract the extremes which unfortunately fall to our lot in this country, it is well not to follow a too hard and fast line in the daily routine of firing, airing, and watering, but if the external conditions are against us, exercise a little patience and make the most of better weather when it comes. A. Barker.

Hindlip.

SHORT NOTES.—FRUIT.

Strawberry Loxford Hall—Several correspondents have spoken of Strawberries going blind this year, particularly Loxford Hall. My crop is very small, except on that one, which is bearing splendid fruit, and in quantity.—A. Rawson, *Windermere.*

July Green Gage Plum.—I find this is known in some of the London market gardens under the name of the De Castro Gage. Can anyone give a reason for the latter name? It is a good and most delicious early Plum, ripening in the end of July, and said to be in all respects equal to the Green Gage.—R. D.

Grape Cannon Hall Muscat.—In answer to "Constant Reader" (Garden, July 28, p. 93), who asks whether Cannon Hall Muscat will do in the same vinery with Black Hamburgh and Alicante, my experience is that it requires more heat. The old Muscat of Alexandria would do better.—W. Roupell.

Frogs eating Strawberries. — The opinion generally held concerning the frog is that it is rather beneficial than otherwise in gardens. It was, therefore, with much surprise and considerable incredulity that I received the statement that it eats Strawberries. My informant, who grows for profit, assures me that he has seen the frogs in his Strawberry beds in the act of sucking the berries. This year, he says, they have been more plentiful than usual, the consequence being that a quantity of fruit has been spoilt. Have any readers of The Garden had a similar experience?—J. C. B.

A use for White Currants.—It is a famous Currant year in many parts of the country, and not a few people will have more of this delicious fruit than they know what to do with. Let me advise them to make Currant liquor. It is without exception the most delicious home-made liquor I ever tasted. I first made its acquaintance in Ireland, and so highly approved the flavour that I begged the recipe, which runs as follows: Pick and bruise the Currants (white), and to each pound add one quart of whiskey, the rind of a Lemon, and 1½ oz. of ginger, slightly pounded; let it stand three days, then add 1 lb. of sugar. Stir every day until the sugar is dissolved. Strain and bottle. You can make use of as many quarts and pounds as you like. That is the recipe verbatim. It is exceedingly simple, very little trouble, and the results are very satisfactory. I do not know whether Scotch or Irish whiskey should be used—probably Irish.—John Bickerdyke, in *Field.*

FRUITS UNDER GLASS.

Cucumbers.

Where certain compartments are set apart for ringing changes with Melons in summer and Cucumbers in winter, a few seeds of suitable kinds of the latter from this time forward should be sown in the nursing frame in order that clean stocky plants may be at hand for putting out as the Melons are cleared away. The Melon being an insect-breeding plant, it is very important that a thorough cleansing of the lights, trellis, and walls precede the re-filling of the pit, which, by the way, should be cleared out and scalded, especially where crickets and cockroaches are troublesome. Repairs, painting, and an examination of the bottom-heat pipes, which will not be again visible before the spring, will, of course, receive attention; meantime leaves or tan should be put through a course of fermentation to free them from injurious gases before they are required for use. Where any superior variety or strain is in favour, cuttings or layers may be propagated, but for giving clean, handsome fruit, there is nothing to surpass stout, healthy plants from seed raised as I have suggested upon manure beds sufficiently brisk to admit of a daily supply of fresh air. As Cucumbers do not require an extensive root-run, large beds should be divided into sections about 2 feet in width by 4½ inch pigeon-holed walls running longitudinally, but planks on edge, which any handy man can fix, will answer equally well, although a makeshift system is less neat and more expensive in the long run. I lately saw a wide pit which Mr. Barker had fitted up with light substantial walls running lengthwise, dividing it into compartments for two sets of plants, with hot-water pipes running in the chambers for giving bottom-heat in winter; the alternate compartments, left open to their full depth, are used as receptacles for fermenting leaves or tan, which, it is hardly necessary for me to say, give an abundance of moist, genial heat, in which Cucumbers and Melons are at home and insects make very slow progress. Similar, only still narrower, pits are in use at Heckfield Place, Hants, and no one, I am sure, will deny the assertion that Mr. Wildsmith is a master of the art of growing Cucumbers and Melons in quantity and of the first quality. Further, in one of these diminutive sections, with squares of glass laid on the walls and a few inches of old tan above the pipes, he propagates all his bedding, stove, and greenhouse plants—no small undertaking where these things are used by scores of thousands. In pits of this kind, with an abundance of light and bottom-heat from leaves alone, winter Cucumbers do not require; indeed, they are better without fire-heat before the middle of November, but their roots being in close proximity to the pipes, supplementary aid can be given by simply opening the valves at pleasure. To those well skilled in winter culture, these remarks may be regarded as a plagiarism, but they must not overlook the fact that a great number of persons provided with a wide and deep root-run come to grief every winter, simply because their pits are improperly constructed. Just now we are on the eve of another winter campaign. There is yet time to make these structural alterations, and all who can should endeavour to steer clear of future mishaps by converting their broad unmanageable spaces into narrow sections. If these alterations rendered the pits less useful, I would say go on fighting and failing, but nothing of the kind happens, as they are equally adapted to the culture of pot Vines, Figs, Pines, or any other exotic requiring a steady bottom-heat.

Fruiting plants.—Where these show signs of failing, but cannot be swept away, at least for the present, the old-fashioned, but still unbeaten, method of cutting over—that is, taking away old leaves and straggling vines, together with all the fruit—must still be put in practice. A few lights, or a whole pit according to the demand and supply from other sources, may be taken in hand at one time, but there must be no faint-hearted looking back, no sparing even a few small fruits; the work must be thorough, and this cutting over will entail the removal of old mulching and inert soil, a thorough renovation of the fermenting material, shading rather close for a few days should we have a glimpse of sun—possible, but at the present time far from probable; and last, but not least, frequent syringing with pure water at a temperature ranging from 80° to 90°. Express growers say Cucumbers should neither have air nor shade, but recommend a very high tropical temperature with an atmosphere constantly charged to saturation. A taste of this stewing treatment for a short time after cutting over may do no harm, but at all other times the house or pit should range 70° by night, with a stream of fresh air near the surface of the bed—the vulnerable point when canker sets in—80° to 85° by day, and 90° after closing with sun-heat and moisture.

Melons.

In pits constructed as I have suggested for Cucumbers, plants may still be put out for giving a supply of late fruit. In pots, too, they will do equally well—that is, always provided a steady bottom-heat of 80° from fermenting material for the present, and from hot-water pipes later on, can be maintained. The season so far has been the reverse of favourable to Melons, but a bright autumn may be approaching, when a mild October may equal, if it does not surpass, the darkest and coldest July on record. In the selection of Melons for late work, free-setting, quick-ripening, hardy varieties should have preference, and on no account should the plants be coddled or shaded through the early stages of their growth. Moisture in abundance at certain periods they must have, but the soil and bottom-heat from a vapour-producing bed being right, judicious ventilation and full exposure to the sun produce conditions most favourable to healthy growth and medium-sized fruit of good flavour. Green-fleshed varieties are considered best for planting out or plunging in fermenting beds, but good scarlets in medium-sized pots or boxes and placed upon the hot-water pipes where they can have a drier heat give fruit very little inferior to the preceding when solar influence begins to wane. A pot 14 inches in diameter, or a box 1 foot square, is quite large enough for any Melon, especially when plunged in a moist hotbed with a sod of good turf conveniently placed for coaxing out the crock roots and intercepting warm diluted liquid on its passage downward. Sods, however, cannot be placed on kerbs or hot-water pipes, but in no place are the plants more at home than upon an evaporating trough charged with fresh water or strong liquid. Lacking evaporating pans just in the right position, roughly made trays about 2 inches in depth for standing the pots in and filled with a mixture of loam and bone-dust, or loam and rotten manure, answer equally well, if not better, as feeders soon fill the compost and keep the plants healthy and vigorous when swelling off their fruit. Late Melons should be trained within 1 foot or 18 inches of the glass where the fruit and foliage can catch every ray of sun and light, and the better to turn these elements to full account, all laterals save those carrying fruit should be incessantly pinched to a single bud.

Melons in houses now swelling off fruit must be well top-dressed where compost can be plied without touching or choking the stems, and weak liquid may be pretty freely used at every watering. When the Melons have attained their full size I always use pure water, and that sparingly, carefully avoiding wetting the stems by pouring it in round the insides of the rims of the pots. Wetting the foliage, too, is discontinued, as we find damping the walls and

floors two or three times on the hottest and brightest days produces an ample supply of atmospheric moisture. Many people starve their Melons into premature ripening by withholding water altogether, but this is a mistake, as fruit so treated is rarely up to the mark in point of flavour. When well and properly grown the foliage should be fresh and clean down to the rims of the pots, the stems sound and free from canker, two conditions which cannot be secured under spasmodic slushing and starving.

Melons in frames.—Unless a good set of fruit was secured before the weather changed for the worse and unceasing attention has been given to the external linings, the produce from these structures, it is to be feared, will be unsatisfactory. In dark, cold seasons it often happens that the first flush of female flowers turn yellow and perish, and the frames in consequence soon become over-crowded with laterals. The best preventive, it is hardly necessary to say, is strong artificial heat from the linings, the suspension of all syringing, a sparing supply of water to the roots, full exposure of the flowers, male as well as female, and careful fertilisation. If attention to these matters does not bring about the desired result, every lateral in the frame should be shortened back to a single leaf to induce a fresh break, when keeping the surface of the soil dry may produce conditions favourable to the fruit setting profusely. When a crop has been secured, a little tepid water must be given to the roots, and light syringing very early on fine afternoons may be resumed, but it will not be wise to use water too freely until the fruit is the size of pigeon's eggs, when thinning, stopping, and elevating must be taken in hand. The root and vine run being liberal, two or three fruits may be left on each plant to swell, and as these shoot ahead rapidly the final thinning should not be made until Melons well placed and of uniform size can be decided upon. When the Melons have been elevated upon inverted pots large enough to admit of their peeping through the foliage, all useless spray must be removed back to the bud nearest the vines, and future growths incessantly pinched to throw strength into the fruit-bearing vines and prevent the primary foliage from becoming crowded. As the fruit increases in size an occasional flooding of the bed with extra warm diluted liquid may be practised on fine afternoons, but great care must be observed in keeping the crowns of the hills or ridges dry, as wetting the collars of the plants is frequently followed by canker. The glass at all times should be kept clean and free from confervæ; shading in the hottest weather must not be thought of, but a little air must be given very early to prevent scalding, and this, as a matter of course, will be gradually increased as the temperature rises. The maximum heat on bright days should range about 80° or 85° with full air, and it may run up to 90° after closing with moisture. Having had frost and snow in July, I need not repeat my instructions to pay particular attention to night covering throughout the season.

The Orchard House.

If their room is not urgently required for other plants, I would suggest keeping the early forced trees, especially those which have been repotted, under glass until the weather becomes a little more genial. Protection from drenching rains being the main object, the house cannot be too freely ventilated by night as well as by day, otherwise the daily supply of water to the roots, followed by washing with the hose or engine to keep the foliage clean, may be the means of forcing a soft growth of lateral when the buds should be plumping up and ripening. After so much dark, unsettled weather, it is reasonable to suppose we may have a fine sunny autumn, when every tree save the Fig must be taken out and plunged where it can have full exposure to the elements. These remarks, I ought to say, apply to Peaches and Nectarines and not to Plums and Cherries, whose roots are less susceptible of injury from cold and heavy rain, whilst their buds are so easily excited in the temperature of an ordinary orchard house.

The general orchard house.—Cherries by this time being over, the removal of these trees to the open air will favour a rearrangement of the Peaches, Nectarines, and late Plums, now needing full exposure to sun and light and a continuous stream of fresh air so essential to colour and flavour. Top-dressing and feeding for the present must be on a liberal scale, and, the better to increase the size of the fruit, the trees should be well syringed soon after 6 a.m., and again about 4 p.m., when the house is closed with solar heat for the remainder of the day. If Figs are grown in the mixed orchard house they should always occupy the warmest part, where they can be copiously syringed with tepid water to keep them clear of spider until the fruit begins to ripen, when a drier atmosphere will be necessary; but on no account must the roots feel the want of generous liquid, as one check from this cause may bring about dropping or premature ripening. As not more than a few trees can be grown and the fruit does not keep for any length of time after it is ripe, some care should be devoted to the selection of suitable varieties for giving a succession. Also space, particularly head-room, being limited, prolific but dwarf or moderate growers should have preference. The first to ripen is Early Violet, then come White Versailles, a most delicious Fig, Brown Turkey, Osborn's Prolific, Negro Largo, and Brown Ischia, an old but excellent variety for growing in an orchard house. As these six varieties commence bearing when quite small, they should not be overpotted; but a good sod of turf placed beneath each pot and kept constantly moistened with liquid will be found of infinite service in keeping up a supply of food throughout the growing season. When the time arrives for potting the trees, this sod, converted into a mat of roots, may be cut off with a sharp knife close to the aperture, and the same process may be repeated year after year, as well-managed pot trees can be kept healthy and fruitful for half a lifetime. The next valuable fruit is Coe's Golden Drop Plum, a variety which is greatly improved by being kept under glass until its rich drupes become a sweetmeat. Although it will stand more syringing than any other variety, water should not touch the fruit after it begins to colour, otherwise cracking and loss of bloom will follow; but the stems and floor may be regularly moistened twice on fine days, and pure water in plenty must be given to the roots. When quite ripe, the trees may be kept in a cool, airy part of the house, where they can be protected from birds; and the better to keep the roots uniformly moist with a minimum of water, each pot may be completely mounded round and covered with old tan or leaf-mould. The choice varieties of Bigarreau Cherries may be kept a long time if treated in the same way; but in addition to netting from birds, they will require slight shade through the hottest part of the day. We have kept trees loaded with ripe fruit for a long time in a dry, open shed; but there is no place better than a well-ventilated orchard house, as damp, the greatest destroyer, can be expelled by the most gentle fire-heat. As trees generally become clear of fruit, they should be placed together in batches and thoroughly cleansed with pure water or insecticides; watering also must be regular and copious, otherwise, the roots being pot-bound, spider will be very troublesome. To keep this in check, and at the same time stimulate the roots into a condition which fits them for potting, we syringe occasionally with soapsuds, but never defer potting on or reducing longer than is absolutely necessary.

W. Coleman.

Late Strawberries.—The new dark red Strawberry Waterloo is recommended as a good late variety at Chiswick, where it does so well. I learn that the Fellows or friends who purchase fruit willingly pay more for it than for other kinds. It is a large fruited kind, but its chief merit, apart from that and its good cropping qualities, seems to lie in the deepness of its colour; indeed, it is of a heavy port wine hue. How far that colour may assist its sale in the general market remains to be seen, but rich reddish or scarlet hues are yet in most favour with Strawberry dealers. At Hounslow on the 1st inst., Mr. Walter Mann, of Whitton, showed a fine dish of that good old late Strawberry Eleanor, very bright and well coloured. Mr. Mann remarked that he had plenty more of the same sort yet to gather, and he thought, remembering the time of the year, that no new late Strawberry could excel it. Eleanor is such an old kind, that it is surprising that modern, or rather recently raised, varieties have not excelled it. I anticipate that Laxton's Noble, which is a distinct habited and early variety, will become more popular for market purposes than the dark Waterloo. Some growers even now prefer Elton Pine to Eleanor for the latest variety, as it shows such nice clean form, colours so well, and is a better cropper usually. It is one of the very best for preserving whole, the favourite method of preserving Strawberries. When the season runs rather hot, a good batch of Elton Pine fruiting well is a great boon in any garden, as good Strawberries are always in request during the summer season.—A. D.

Trees and Shrubs.

W. Goldring.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Philadelphus (Mock Orange). — A valuable genus of shrubs commonly represented by the familiar Mock Orange, or Syringa (Philadelphus coronarius), found in almost every



Philadelphus microphyllus (natural size).

shrubbery. There are a great many kinds, but such a strong similarity exists amongst them that it is necessary to make a limited selection of the very best. To many the common sort is objectionable on account of the powerful odour of its blossoms, but it is such a vigorous grower and profuse flowerer, that one cannot well do without it. It is well not to plant it too near the house or a walk. Very much finer in every respect are the North American species which are best represented by P. grandiflorus, P. inodorus, P. speciosus, and P. Gordonianus. These are all of large growth, rising from 6 feet to 10 feet in height, forming a rounded mass almost as broad as high. They have all large white flowers in clusters, with little or no scent, produced from midsummer till the end of July. The largest flowered kind is P. grandiflorus, an illustration of which is here given, the blossoms of which are 2 inches across and of snowy

whiteness. Scarcely less beautiful is the variety of it called laxus, on account of its habit of growth and flower clusters being less dense. There is not a finer white flowering shrub in our gardens than this beautiful Mock Orange, and if there is only room in a garden for one kind, this is certainly the one to plant. The others, though they resemble one another in growth and flowers, are desirable because they flower in succession, and so extend the blooming period. P. inodorus, Gordonianus, and



Philadelphus grandiflorus.

hirsutus are all fine species, and if space will admit, to these may be added the slender-growing P. Satzumi from Japan, P. Lewisi from North America, and P. verrucosus, also American. Most of these are procurable in nurseries, but are not invariably known under the names cited; indeed so confused are the names of the Mock Oranges in nurseries, that, with the exception of such as P. coronarius and grandiflorus, one can never be sure of getting the species true to name. There are numerous named varieties of P. coronarius, including one with semi-double flowers called primulæflorus, but it is not desirable, as the doubling of the flowers is not complete. A really ornamental variety is the golden-leaved form (foliis aureis), whose foliage is of a bright golden yellow tint and particularly bright in early summer. It is a most effective shrub to plant in company with contrasting foliage like that of the purple Hazel or purple Cherry Plum. It should be planted if possible in partial shade, otherwise its foliage is damaged by the hot sun during summer. An extremely pretty little shrub is P. microphyllus, which is the pigmy of the genus. It has smaller foliage than the Myrtle, has slender branches, which in summer are whitened with a profusion of small flowers. It has been recently introduced from New Mexico, and though hardy enough for the south, is perhaps too tender for northern or cold districts. The variegated leaved form of P. coronarius is also an attractive shrub, the variegation being creamy white and deep green.

Prunus (Plum).—Besides the edible fruited Plums, there are numerous other highly ornamental kinds grown in botanical collections, but very few of these are found in nurseries and private gardens, though the best of them deserve to be better known. For instance, there is not a more beautiful early flowering tree than P. divaricata, a small-growing form from the Caucasus. In April, and sometimes in March, it is covered with a profusion of small white blossoms before the leaves appear, and on account of its gracefully spreading growth, it makes a beautiful lawn tree. It is one of the choicest of lawn trees, and is worthy of much attention, as its early bloom is as welcome as that of the Peach and Almond. Next perhaps in importance is the Chinese P. triloba, a truly lovely shrub, which is happily becoming more generally cultivated. It is perfectly hardy, of vigorous, yet slender and graceful growth, and in spring every shoot is wreathed in a beautiful way with clusters of double rosette-like blossoms of a delicate rose-pink colour, sometimes deeper, at other times almost pure white. It generally blossoms before the leaves are fully expanded, and lasts in bloom for quite a fortnight. It makes a capital bush for the lawn or shrubbery, and is always seen to the best advantage if from three to six plants are placed near each other in an isolated group. It is, however, never so fine as when planted against a sunny wall, for then, on account of its shoots being thoroughly ripened, it blossoms more abundantly. There are few more beautiful wall shrubs than this, and it will quickly clothe a large area to a height of 10 feet or more. It requires an annual pruning, care being taken to cut out the old wood and encourage the new shoots which bear the bloom. It is also known as Amygdalopsis Lindleyi, Prunus virgata, and Prunopsis Lindleyi. Another very fine Chinese Plum is the common P. sinensis, though the double variety of it (flore-pleno) is the most ornamental and the most generally grown. It is also an early flowering shrub of slender growth, the flowers being small and white, and in the double sort are like small rosettes, wreathing every twig with white. It is now commonly grown as a pot plant for greenhouses in early spring, but being perfectly hardy, it may be planted in the open shrubbery. The American wild red Cherry (P. pennsylvanica) is an extremely pretty tree of small growth, and frequently seen in old gardens, it being an old introduction. It blooms early, and produces about May an abundant display of tiny white blossoms on every twig. The Cherry Plum, or Myrobalan, is worthy of consideration, as it is so pretty when in bloom in early summer; but more ornamental, because of its rich purple-tinted foliage, is the variety P. Pissardi, a tree recently introduced and now becoming common. When in May this Plum is crowded with blush-tinted blossoms, which harmonise so well with the new foliage, it is one of the most beautiful of all hardy trees or shrubs. It is, in fact, one of the indispensable shrubs in a tastefully planted garden. A coloured plate of this appeared in The Garden, September 10, 1887 (p. 224). Other ornamental Plums worth planting in a general way would include the double variety of the Sloe or Blackthorn (P. spinosa), which in good soils and suitable spots reaches 8 feet or 10 feet high, and in spring produces an abundant crop of tiny rosette-like white blossoms. Some of the varieties of the Bullace Plum (P. institia) and the common garden Plum (P. domestica) are exceedingly ornamental both when in

flower in spring and in autumn when in fruit, and, like the Pear, Apple, Medlar, and Quince, should not be entirely relegated to the orchard and kitchen garden. Well chosen sorts remarkable for their ornamental qualities would beautify any lawn and serve a useful purpose as well.

Trees and shrubs at Bearwood.—The trees and shrubs at this fine place are always full of beauty, but this season they seem exceptionally so, the growth made being so robust and so fresh and clean. Some exception must be made to the general condition of the Oaks, which, in common with members of the Quercus tribe almost everywhere in Hants and Berks, have suffered severely from the ravages of caterpillars; but, happily, the heavy rains have destroyed these pests, and a new leafage has been formed, which, whilst not so dense as it should have been, is still very pleasing. All forms of Coniferæ are very beautiful, so fresh and so luxuriant. Specially good are the Wellingtonias which fringe the chief entrance to the mansion, though somewhat irregular in height. Much more beautiful, however, are the fine Cupressus Lawsoniana, which on either side of the main drive and near the courtyard form a dense wall of foliage. In one part of the grounds an avenue of Sweet Chestnuts in full bloom forms a beautiful feature—indeed, to my taste, is far more attractive than the one of Wellingtonias. The Rhododendrons in all directions are truly wonderful and show such vigorous growth, that, all being well, there should be next year a display of bloom hitherto unequalled. Azaleas are also in full vigour, and Kalmias still in partial bloom leafing profusely. Mr. Tegg has every reason to be proud of the grand trees and shrubs which, at Bearwood, have grown to such noble dimensions under his fostering care.—A. D.

The Plum-fruited Yew (Podocarpus andinus).—This shrub, alluded to by Mr. Webster in THE GARDEN, July 28 (p. 94), has, in several different situations in the neighbourhood of London, passed through the last dozen years without injury, so that it can be accounted perfectly hardy, at all events around the southern and western counties of England. Its slow rate of growth fits it for planting in limited spaces, and, strange to say, though a native of the mountains of Valdivia, I have seen it doing well amid the smoke and dirt of London; indeed, out of a number of shrubs that were under my observation for some time three of the most satisfactory were this Podocarpus, the green-leaved Aucuba, and Skimmia oblata. The distinct colour of this Conifer distinguishes it from the Yews, which in general characters it much resembles, though the sturdy pyramidal habit suggests at a very little distance an affinity to Abies Pattoniana or A. Hookeriana. I have seen it several times exposed for sale in Covent Garden Market in the shape of little bushes potted up during the winter months. The fact that the Podocarpus in question retains its colour throughout the winter months is a point in its favour, as so many Coniferæ change to a brownish hue at that season. With me it strikes root from cuttings in less time than any other Podocarpus or Yew.—H. P.

SHORT NOTES.—TREES AND SHRUBS.

Periploca græca.—This old, but not often seen wall climber has been flowering profusely in the Botanic Garden at Oxford. The hairy brown star-like flowers borne in large racemes are very interesting and look curious.

Acer Lorbergi is a very good Maple recently noted at Marcsfield. The leaves appear quite digitate, each lobe being cut down to the petiole. A tree of this kind is very characteristic, and quite distinct from any other Maple in the collection.

A noble Yucca. There is a noble Yucca gloriosa in Mr. Prince's garden at Longworth. It is carrying four large spikes of flower, this being the third year in succession that the plant has flowered. Is not this annual flowering rather unusual? Another plant is flowering this year that bloomed last summer.

Magnolia grandiflora.—This Magnolia must be more hardy than is generally supposed, as I am acquainted with a large tree nearly 20 feet high that flowers regularly every year and retains its foliage nearly as well as plants which are trained to walls. The tree in question was originally trained to a wall with an east aspect, but it grew so vigorously that it soon reached to the top of the wall (10 feet high), and then it was allowed to grow its own way. The branches now overtop the wall 7 feet or 8 feet, and although the foliage gets somewhat browned in severe winters, the tree does not suffer, for it produces its flowers regularly every year.—J. C. C.

KITCHEN GARDEN.

CAULIFLOWERS AND THEIR CULTURE.

EVERY year adds to the number of novelties among Cauliflowers, these being more or less distinct and valuable, while there are plenty of old favourites or Continental introductions distributed each season under new names. Comparative trials cannot well be undertaken by many private gardeners. It is to the Royal Horticultural Society that we look for this to be done successfully, and, thanks to what is being done at Chiswick, there is little need for us to make the attempt. At the same time there is nothing to prevent gardeners generally testing a limited number of varieties each season and selecting in accordance to the results. According to my experience, the new dwarf forcing varieties, such as Snowball, First Crop, Extra Early, and Defiance, all of which are nearly or quite synonymous, are decided acquisitions, being of dwarf habit, very early, and forming neat close heads of the best quality. To succeed one of these, either Dwarf Erfurt Mammoth or Early London are suitable, and among second early novelties I have formed a very favourable opinion of Magnum Bonum. Mont Blanc is also to be relied upon for producing early and good heads. Pearl proves to be somewhat later than any of the foregoing, and is both distinct and serviceable at a time when good Cauliflowers are frequently scarce, viz., late in July and early in August. King of the Cauliflowers also turns in about the same time as the last-named, and is a fine mid-season variety. To succeed either of these there are none to equal Eclipse, and this may be correctly termed an early, as well as a valuable form of Veitch's Autumn Giant. The last-named is the most extensively grown of all Cauliflowers, and its merits are so well known as to need no comment here.

Plants raised in the autumn and either wintered in frames, hand-lights, or where they can be protected during severe weather, invariably succeed better than those raised in heat early in the spring, the only exception being the small forcing varieties. Whether the seed should be sown at the beginning, middle, or near the end of August should depend upon the locality. In the north the first week in August is not often too soon; in the midlands the second week is a good time to sow; while in the more favoured southern districts from the 20th to the end of August is suitable. When raised too early the seedlings are apt to grow too large, and these often bolt or heart in prematurely. The usual plan is to sow the seed on a sheltered border, either in thickly drawn shallow drills or broadcast, covering the seed with a little fine soil. In dry seasons it is a good plan to moisten the drills or the seed bed prior to sowing the seed. Covering with dry soil and a little temporary shade also ensure a more regular germination. In showery weather slugs are troublesome, and it is necessary to frequently dust over the tiny seedlings with a mixture of slaked lime and soot, this also serving to check the ravages of the flea or fly. When of good size, or before the seedlings crowd and spoil each other, a good proportion, or all if required, should be pricked out in frames or hand-lights. The former ought to be shallow, set on a hard, well-drained bottom and enclosing about 6 inches of light and fine soil. If deep frames are used, sufficient partially decayed hot-bed material ought to be placed in the bottom to raise the soil and plants near to the glass. The plants should be pricked out about 4 inches apart each way, watered in and covered, but it is not advisable to leave the lights on after they have recovered somewhat, the aim being to keep them as sturdy as possible. Protection must be afforded in cold frosty weather, and at times it may be necessary to cover the lights with mats or litter, and also to bank up the sides of the frames with some of the latter material. When hand-lights are used, these ought to be set in a row or rows, from 2 feet to 3 feet apart each way, across a breadth of open ground that it is intended to crop with Cauliflowers. Each may be planted with double the number that it is intended should remain undisturbed, or say about nine or ten to each hand-light. When given plenty of air in mild weather, little or no protection other than the lights is at any time necessary in the southern counties, but in colder districts mats or litter must also be used whenever severe frost is anticipated. As there is bound to be a considerable amount of traffic between the hand-lights, either a number of paving-tiles or a good layer of ashes should be placed between the rows of hand-lights, or the ground will eventually become hard and difficult to manage. We use plenty of ashes, and they suit our heavy ground very well. Many plants are also wintered either in the seed-beds, where they can be protected if need be with hoops and mats, or at the foot of sunny walls and other sheltered positions. Before leaving this part of my subject, or that relating to raising the plants in the autumn, reference must be made to the practice of sowing successional and late varieties in August with the aim of securing an early supply of fine hearts the following season. A correspondent ("T. G.") asks if the result of sowing Veitch's Autumn Giant in August and planting out in spring to head in during May and June is usually satisfactory. We have never been able to cut this fine variety as early as June, but it can be had good by the end of July or early in August, and during the latter month very fine heads of the Autumn Giant are exhibited in various parts of the country, most of which were cut from plants raised in the autumn and wintered in frames. It may not be generally known that it is quite possible to maintain a continuous supply of Cauliflowers from the time Broccoli are over till they are again available, and all from one sowing of seed made in August. A judicious selection of varieties must be made, and in addition one variety of Broccoli must be sown at the same time, this being Veitch's Autumn-protecting. The latter is more like a Cauliflower than a Broccoli, and I have seen many fine heads of it late in August that could hardly be distinguished from the Autumn Giant Cauliflower. Those who may wish to try the experiment should select one of the forcing varieties for the earliest crop or to cut say late in May. Either Early London, Erfurt Mammoth, Magnum Bonum, or Walcheren might succeed this; either Pearl or King of the Cauliflowers would carry on the supply till the middle of July, these being closely followed by Eclipse, this lasting till August, when Autumn Giant would be plentiful. Autumn-protecting Broccoli raised in autumn, and the latter and Autumn Giant Cauliflower raised early in the spring would carry on the supply till mid-winter or later. Plants of late Cauliflowers wintered under glass or otherwise protected are very apt to become blind, but if these are left were planted, the majority will push out side growths which form small, early, and serviceable hearts.

It will thus be seen that it is a mistake to pull up all that are apparently of no service.

What Cauliflowers delight in and what they ought to have is a fairly deep and rich root-run. They will not thrive, however, in manure-sick land, or such as has long been heavily manured and only lightly cropped, but they should be planted in fresh, well-pulverised ground, into which plenty of good solid manure has been deeply dug. The only way to render land poisoned with manure fit for Cauliflowers is to bastard trench or double dig. In this case only the shovellings or a small portion of the second spit is brought to the surface, and this, being well mixed with the top spit, completely changes and much improves its character. This work can be done now for the rows of hand-lights to be set on in September or early in October, while land intended for cropping next spring may well be prepared during the winter. We prefer to transplant Cauliflower plants, especially those that have been pricked out with the aid of a trowel, so as to save a good ball of soil with the roots, but where the disease known as clubbing is prevalent, the soil ought to be shaken from the roots and the latter be then repeatedly dipped into a puddle made of clay, soot, and lime, or as many times as will be necessary to well coat them with this good preventive mixture.

The spring treatment, briefly summed up, should be much as follows: Late in February, or as early in March as the state of the weather permits, put out some of the strongest plants where they can be protected with rough frames, hand-lights, or mats, supported with hoops, and if there is space a few at the foot of a south wall, the latter especially receiving plenty of manure. Before the remainder of the plants preserved through the winter have commenced active growth, transplant them to a good open plot of ground where, without much further trouble, they ought to give a good succession of useful hearts. Should there be a scarcity of autumn-raised plants, seed of early, second early, or late varieties ought to be sown early in March in gentle heat, the seedlings being slightly hardened off, pricked out into boxes or frames, or if preferred placed in small pots, and after they have become well established be gradually exposed to all weathers and finally planted out late in April or early in May. More plants may be raised in a frame during March, these being, when strong enough, pricked out on sheltered borders and early in June transplanted to where they are to grow. The most important crops, however, are those obtained by planting autumn raised plants and the large breadths of Autumn Giant raised early in the spring. The rows of the last named and Eclipse may well be 2½ feet apart, and the plants not less than 2 feet apart in the rows, the next extra early varieties being 18 inches apart each way, and all the rest 2 feet apart each way. If extra fine hearts are required, give an abundance of liquid manure, or occasional surfacing of some kind of artificial manure, the latter being washed in, while if the leaves are tied over the advancing hearts this will ensure their being of the required whiteness and more delicately flavoured than those exposed to all weathers. Caterpillars are frequently very troublesome among Cauliflowers, one or more of these soon spoiling a heart. They ought to be closely looked after and destroyed before doing any mischief.

W. Iggulden.

Early Potatoes.—When at Heckfield a few days since, I found Mr. Wildsmith lifting for use as a first early Potato, Early Regent. The variety has a dwarf spreading top and may be grown in the same space that is usually allotted to Ashleaf Kidney. In quality, however, it excels the latter, as it is very delicious, being good flavoured and nutty, as also very white in flesh. Still further, the variety is prolific, so that it well merits to rank amongst the very best of early Potatoes. In the Messrs. Sutton and Sons' trial grounds their early white kidney, Ringleader, ranks as the best early. This is one of Mr. R. Fenn's early selections, and the firm Ringleader and Early Regent, together with the famous Reading Russet are the best trio of kinds Mr. Fenn has raised. At the Highfield Gardens, close to Heckfield, a good strain of Myatt's Ashleaf was grown as the best early. Here at home, so far, the market growers place their chief trust in Beauty of Hebron and Early Rose, but the prevailing price in the market for tubers of these ranges from 2s. to 2s. 6d. per bushel—only a very poor return indeed. I hear bad accounts of the condition of the foreign early tubers, disease being plentiful in them, and that fact will doubtless induce dealers to favour home-grown tubers in preference. I fear a Potato scare is imminent, for the disease in a virulent form is spreading fast in this locality, especially amongst the early kinds, and it is little matter for surprise considering the floods of rain which fell, the coldness of the temperature, the lack of sunshine, and the strong prevailing winds. Before this appears in print I fear we shall find the disease has assumed a lamentable aspect, for it, with such weather and the tops in such a sappy state, spreads rapidly.—A. D.

Spring Cabbages.—Cabbages in early spring are looked upon as a delicious vegetable, and the seeds can be sown from the middle of July until the end of August. Growers of Cabbages recommend that two sowings be made, one about the third week in July, and another during the second or third week in August. As a matter of course, the exact time for sowing has to be determined to a great extent by the locality, for while a strong plant is necessary before winter sets in, a rank growth may be endangered in the event of long-continued and severe frosty weather. I have known some old gardeners who were very particular about sowing their spring Cabbage seed on the 25th of July, or within a day or two of this date, not deviating a single day if it could be avoided, but perhaps this may be looked upon as one of the traditions of the profession. Cabbages raised from seeds sown during the present month should be planted out from the seed beds as soon as possible, and be drawn to use young from the time they become suitable, in the same way as the Coleworts. A permanent plantation should also be made, and for this purpose the ground from which early Potatoes have been lifted will be found very suitable. The ground should not be specially manured for the purpose unless it is very poor, or an unduly rank growth will be encouraged, which is the very thing gardeners should guard against. One of the very best sorts to sow now is the Enfield Market or Early Rainham, a good old variety of large size which is sold under a great many names. The Nonpareil, of which Ellam's Early Dwarf is a fine selection, is also a good garden Cabbage.—R. D.

SHORT NOTES.—KITCHEN.

Tomatoes.—Is it not unusual, particularly so far north, for Tomatoes, grown against a south wall, to shed their seed, and come up in spring in the open ground? I have some now vegetating from last autumn's plants.—A. R.

Peas not filling.—This wet dark season the Peas are very loth to fill. Indeed in shady places they grow, then bloom, and rot instead of filling. Doubtless some sorts are doing better than others. It would be a great boon to know what are the best kinds this year, especially under adverse conditions of light and aspect.—A. D.

Planting winter greens.—Persons short of room will be often assisted by a knowledge of the kinds of greens and Cabbage that really require the choice of aspect. Having carefully made notes in all directions, the result is very shortly described, thus: That though a good light aspect is excellent for all sorts, yet it is only the hearting kinds that really require it, Cabbage of all kinds being the things to give it to. All the open-headed sorts, such as Kale, Cauliflower, Broccoli, Brussels Sprouts, Chou de Milan, &c., will do in more or less of shade. It seems rather strange to put Cauliflowers in a poor aspect, but they will not suffer if the soil is good. In small gardens sufficient greens for a supply can be grown on the borders and on the strips outside the bush fruit trees. This leaves the middle for Potatoes, &c.—a great advantage for getting Cabbage and picking sprouts when there is no going on the wet ground.—Alf. D.

KITCHEN GARDEN NOTES.

Kidney Beans in Pits.

Frames and heated pits are of great service in the maintenance of a nearly, or quite, continuous supply of kidney Beans, and if they can be spared may well be devoted to their culture. It is rather late to sow in unheated frames, and these would perhaps be better utilised in covering some of the latest batches now coming up on a warm border. Thus protected, a moderate number of plants should furnish a few dishes of tender pods and prevent a gap between the latest unprotected and those raised in heated pits. In dull, cold weather kidney Beans make but little progress without the assistance of fire-heat, and unless this can be given it is useless to attempt the production of very late crops. We hope to shortly clear a light, well-heated pit of Melons, and after the soil has been levelled and well watered, if need be, a good thickness of leaf soil will be forked into it. Drills will then be drawn from the back to the front, not less than 15 inches apart, and seed thinly sown. The plants will eventually be thinned to about 5 inches apart and staked up with Birch spray. At the outset they will receive plenty of air, little or no fire-heat, and be watered whenever at all dry. In colder weather the lights will be kept on more closely, the fire-heat turned on, and the plants and walls be syringed on dry, bright days. Thus treated, they produce several good dishes of Beans, which are available at a time when a good variety of choice vegetables is in demand. Ne Plus Ultra is the most productive in pits, and the Canadian Wonder also does well if given rather more room.

Carrots in Frames.

In the warmer districts tender young Horn Carrots can frequently be drawn from the open ground throughout the winter. This is rarely possible in the colder parts of the country, and a long spell of severe weather is liable to give a severe check to the growth of Carrots anywhere. It is therefore advisable, seeing how much they are appreciated, to sow seed in one or more frames at once, and thereby secure a good supply from mid-winter till the earliest spring-raised are available. The frames should be set on a slight hot-bed, and if at all deep, be partially filled with some of the shortest of the hot-bed material. On this place a layer about 5 inches thick of fine sandy soil, draw shallow drills 8 inches apart, moisten them if the soil is at all dry, sow the seed rather thinly, and cover with more of the fine soil. Plenty of air should be given in mild weather, and gentle waterings occasionally. Unless sown very thickly, little or no thinning out will be needed until the most forward roots are fit for use. Carrots in frames continue to grow steadily throughout the winter, and a long succession of roots can be obtained without much trouble. Any of the Horn varieties are suitable for present sowing, the Early French or forcing being the quickest to mature.

Sowing Onion Seed.

From the middle to the end of August, according to earliness or lateness of the locality, is the best time to sow Onion seed to furnish plants to remain in the open through the winter. When Onions are raised too early they become large and coarse, while if sown very late the plants do not attain a useful size before frosty weather checks all further growth. It is the medium-sized plants that are usually found to give the best results. The seed-bed, which should be freely manured, deeply dug, well trampled, and thoroughly pulverised, should be formed in a good open spot. We prefer to sow the seed in shallow drills drawn 12 inches apart, only a portion of the plants being transplanted in the following spring. The Tripoli varieties are usually sown now, but those of the White

Spanish type are nearly or quite as hardy, and may be substituted or grown with them. Early White Naples forms bulbs quickly, and is one of the best for the early supply. White Flat Mammoth or Giant White Madeira grows to a great size and is very mild in flavour. Giant and Lemon Rocca both grow to a great size, the bulbs being heavy and keeping well. Giant Zittau, The Wroxton, and Improved Reading, varieties usually sown in the spring, produce much finer bulbs when raised in the autumn, but do not keep very late. Both the silver and golden-skinned Queen are of very quick growth, and if the seed is sown now in drills 6 inches apart and the plants duly thinned very early, pretty and mildly flavoured bulbs will result.



Philadelphus hirsutus. (See p. 135.)

Manure for Mushroom Beds.

In many private places it is now possible to obtain a good supply of droppings from corn-fed horses, this being the most suitable for forming into Mushroom beds. Our plan is to keep a large barrow at the stables purposely for the reception of all the manure picked up at the stables, this being fetched away daily, or whenever nearly full. This always answers better than separating the droppings from the straw about once a week, or as often as the straw and manure are brought to the garden, as in this case it often happens that the heap has already been over-heated and dry mould produced. The droppings ought to be stored rather thinly in a shed, and after sufficient to form a good bed has been collected, a square heap should be formed. In less than a week the centre will usually become quite hot, and before it has heated dry the heap should be turned inside out and again allowed to heat in the centre. One other such turning and heating will generally be sufficient, but if the heat is found very strong and the smell still offensive, yet another turning should be given, the aim being to ensure the purification of the manure without either unduly drying it or exhausting all its heating properties. When the manure has to be forked out or separated from a heap of straw, it is often too dry to commence heating, and must be watered as it is being thrown into a heap to ferment. It may also be necessary to water it again as it is being turned, as it is quite useless to attempt Mushroom culture with dry manure. The manure must contain sufficient moisture to ensure the requisite gradual decomposition. Much the same preparation is needed whether the beds are to be formed in the open air or in cool sheds, the only difference being that the manure for the former ought to have plenty of short straw left with it, or otherwise it will not hold well together, as well as being more liable to become much too moist later on.

A Change in the Weather.

Should August be fine and hot, very much harm will not result from the bad weather experienced in June and July. Already we have been able to pull up and burn the largest weeds, and the smaller ones are hoed up whenever the sun shines brightly. Dry weather also admits of the ground being cleared of Peas, Potatoes, and Strawberries, and at once replanted or sown with Broccoli, Savoys, Borecole, Spinach, Onions, Turnips, and salading. A strong sunshine will warm the moist ground and cause a rapid growth, and in the end the majority of gardens may yet be much better furnished with all kinds of vegetables than they were last autumn.

W. I. M.

Orchids.

W. H. GOWER.

DENDROBIUM DEAREI.

This plant, said to produce a quantity of flowers of large size, was somewhat shunned upon its first introduction in 1883. The imported plants bore numerous old flower-spikes, on which the scars of the peduncles were set very closely together, and the knowing ones shook their heads and smiled. This expression of unbelief in the statement respecting large flowers considerably marred the sale, but since the plant has flowered in cultivation it is found to possess all the charms claimed for it, and even more, for the flowers have the longest keeping qualities of any species in the genus with which I am acquainted, and on this account I wish to bring it to the notice of growers of cut flowers for market, the blooms being just the size to commend them as cut flowers, and of the purest white with just a tinge of pale green in the throat. I am told by those who have grown it that the blooms remain on the plant in good condition for upwards of two months. This Dendrobium, a native of Mindanao, one of the Philippine group, has erect, clustered, leafy, stem-like pseudo-bulbs, which when strong attain a height of 3 feet, but I have also seen it flower profusely upon growths not more than half that size. The leaves are somewhat crowded, especially towards the top, and the lower ones usually fall away during the resting season; the racemes are numerous, produced both from the top of the stem, as well as from the axils of the upper leaves, and I have seen eight racemes of bloom upon a single bulb bearing upon an aggregate eighty-five blossoms, and in some cases a greater number of flowers has been produced. The flowers, of an exceedingly pure and delicate white, saving a small stain of pale green on the disc, measure some 3 inches across. What other quality does it want to recommend it to those who cater for the wants of the public by growing for market? Some may say it lacks perfume; and this is true, or it is so faint, I have never been able to perceive it, but I do not look upon this as a direct disqualification. The best grown and

flowered examples of this species which I have seen were in the collection of Mr. Buchan, of Wilton House, Southampton, where Mr. Osborne, the gardener, tells me he finds it as easily grown as the old D. nobile, and that he finds it succeed best as a pot plant grown in rough peat from which all the fine particles have been well beaten. The peat should be mixed with some chopped living Sphagnum, and the whole firmly pressed down. It also requires through drainage. The plant enjoys full exposure to the sun and light (saving through the hottest part of the day), and during its season of growth an abundant supply of water, but when the bulbs are finished up it requires a decided season of rest, which, however, must not be carried to excess, or the bulbs will shrivel and become impoverished and fail to flower. I have also seen this plant grown in a basket, but the length of its erect growths when the plants become strong renders it a somewhat inconvenient plant for this system of culture. It usually flowers in spring and early summer.

SHORT NOTES.—ORCHIDS.

Lælia xanthina.—This is a very distinct and somewhat rare Brazilian species, with flowers about the size of those of L. guttata, the colour being dull guinea gold, except at the margin of the arched lip, where it is creamy white.

Spathoglottis ixioides is well named. It has flowers very much like those of a yellow Ixia; the sepals and petals are yellow; the lip of a deeper shade, and both the stem and foliage are slender. It is in bloom at Kew.

Oncidium incurvum.—A well-flowered plant of this Oncidium is of great beauty, as the long branching panicles bear dozens of small, but richly coloured flowers, with the sepals and petals banded with reddish purple, and the lip white.

Epidendrum radiatum makes a free leafy growth and produces numerous flowers that are borne on a short stem which proceeds from the apex of the pseudo-bulbs. They appear upside down; sepals and petals creamy yellow; lip white, with radiating lines of purple. It is in flower at Kew.

Oncidium Jonesianum.—This beautiful Paraguay Oncidium presents a distinct and handsome character, as seen from the coloured plate of it given in The Garden, Feb. 12, 1887. It was in flower a few days ago at Messrs. J. Laing and Co.'s nursery. It has a white lip, and the sepals and petals are blotched with brown on a ground of clouded green.

Dendrobium Pierardi latifolium.—This excellent variety of the delicately beautiful D. Pierardi is in bloom with Messrs. J. Laing and Co. in their Forest Hill Nursery. The stems are stouter than in the type and the flowers much larger, though with the same soft primrose-coloured lip and blush white sepals and petals. It is well worth a place amongst the best of the Dendrobiums.

Galeandra dives.—This is an exceedingly pretty Galeandra, dwarf in growth, the flowers proceeding from the apex of the stout stems in nodding racemes. It is in bloom now with Messrs. J. Laing; the helmet-shaped lip is soft mauve-pink, deeper at the entrance to the throat, while the sepals and petals are rich brown, this also staining, though with more of a purplish tint in it, the underside, especially round the large extinguisher-shaped spur.

Masdevallia Chimæra.—A very fine form of this Spider Orchid I recently noted flowering in the collection of Mr. Briant at Dulwich; the colour was intensely dark, and the plant has been grown under very cool treatment, both during winter and summer, thus proving that this section of the genus may be grown under cool treatment, although some writers say that it requires warmer treatment during the winter months.

Two Brassavolas now in bloom at Kew are B. lineata and B. Perrini. The first of the two is allied to B. acaulis, and is a distinct pendulous species from Central America. It has terete leaves and large, sweet-scented flowers, of which the most conspicuous portion is the white cordate lip, the narrow sepals and petals being more of a cream colour. It must be grown on a block. B. Perrini is very different from B. lineata. It is of quite an erect growth and has smaller flowers; the sepals and petals pointed and spreading, unlike those of lineata in this respect; the lip is white with a greenish base.

Oncidium triquetrum.—This is an extremely pretty, small-growing species, that one used frequently to see in collections some years ago, but which has been allowed to pass out of cultivation recently. A nice spike of it was recently sent me from the Studley House collection, its white and terra-cotta coloured flowers being charming. It is a small-growing plant, with triquetrous leaves. A native of Jamaica, it enjoys heat and moisture, and likes to cling to an almost bare block of wood.—W. H. G.

Cattleya Mendeli Rex.—The sepals and petals of this variety are white flushed with lilac, the latter being 3½ inches across, the entire flower measuring just upon 9 inches in diameter; lip deep rich magenta-purple in front, where it is 3 inches across; the throat is somewhat close, stained slightly with orange.

Two good Cypripediums.—C. Curtisi and C. superbiens are two grand forms of the Slipper Orchid, and the more one sees of them, especially in close proximity, the more one observes a close relationship between them. C. turpe is another hybrid that I had not previously seen; it is a bright little flower, a cross between C. barbatum and C. Argus; but the last-named parent would not appear to have contributed much to its beauty.—W. H. G.

Odontoglossum vexillarium superbum and O. v. rubellum.—Amongst flowers received from Mr. Cowley, the gardener at Studley House, Shepherd's Bush, are some very fine examples of these two varieties. This plant and its varieties appear to be lasting in bloom a much longer time than last season, probably caused by the cooler weather, although the form known as rubellum is distinguished as a late summer and autumn flowerer. In the variety now before us the deep crimson-maroon blotch is very intense and large.

Anguloas.—Three forms of this genus are now conspicuous in Mr. Measures' collection at Streatham, viz., A. Clowesi, with large rich yellow flowers; A. intermedia, with rich crimson flowers beautifully spotted; and the smaller-flowered pure white A. uniflora. It would appear that the latter plant is often confounded with the ivory white Clowesi named eburnea, but this is a mistake. The only plant of the true A. eburnea exists in the rich collection of Sir Trevor Lawrence.

Lælia Amesiana.—I noticed some one in a contemporary recently referring this fine Veitchian hybrid to the elegans section, to which, however, it does not bear the slightest affinity, either by parentage, by its habit of growth, or by the formation of its blooms. I recently observed in a note upon this plant, that although it is said to be the result of a cross between L. crispa and Cattleya maxima, that the latter parent is not represented in the offspring. It really looks to have a great deal of Lælia purpurata in it, and, to my mind, it is a superior flower to Cattleya exoniensis.—W. H. G.

Galeandra Baueri.—This old-fashioned Orchid commends itself to one's notice the more it is seen. Numerous examples were recently flowering freely in the nursery of Messrs. Laing at Forest Hill. The stem-like bulbs, which attain to about a foot in height, are leafy, and bear upon the apex a spike of showy flowers. These, in shape somewhat resembling a Roman helmet—hence the name—are variously coloured, some forms being much brighter than others. The sepals and petals are usually greenish brown and reflexed; the helmet-shaped lip is spurred, the ground colour yellow or white, stained on the inside, the spreading portions of a more or less deep purple.

Oncidium zebrinum.—This very attractive species is now in beautiful form in The Woodlands collection at Streatham. In its manner of growth it is very similar to O. macranthum; the panicle is upwards of 9 feet long, and it has about fourteen branches, bearing numbers of flowers. Sepals and petals nearly equal in size and crisp at the edges, pure white, the basal half transversely barred with reddish violet; lip small, the greater portion covered with numerous yellow warts, front lobe white, freckled with dull red. It is a native of Venezuela, and appears to require a warmer temperature than many others of the climbing panicle set.

Cattleya Gaskelliana.—This is a glorious Orchid for this season when Orchid flowers are not abundant. I saw last week at Messrs. Veitch's a grand specimen of it carrying no fewer than 36 flowers, the colour of which is charming. The petals and sepals are a soft lilac-mauve, while the broad shallow labellum is richly stained on the lower half with deep crimson-purple, and above adorned with a golden blotch. This Cattleya is a great gain to the Orchid house, as it fills an otherwise almost flowerless gap in the Orchid flower season. There are still many fine Cattleyas to be seen in bloom at Veitch's, the most gorgeous being, of course, the forms of C. gigas.—G.

FERNS.

W. H. GOWER.

FERNS FOR EXHIBITION.

I do not think the selection of twelve exotic Ferns sent by "H. B.," a very happy one for this purpose, because, in the first place, they would never make a uniform group, and this is a point which should be well studied by an exhibitor, uniformity indeed, often having the effect of carrying a point over cultivation. I do not say this is as it should be, but I have often seen it so. Another objection to some of your plants is that they are very common kinds, and it would appear that you had made rapidity of growth one of your objects in their selection, whilst the last objection I shall make is the fact of your including in the number two Tree Ferns, *i.e*, Dicksonia antarctica and Cyathea medullaris; these on stems cannot be staged with any degree of uniformity. Moreover, some societies exclude these from a collection of exotic Ferns, and set apart a separate class for them. I have nothing to say against these two Ferns by any means, but I simply say that they cannot be arranged nicely with the other kinds. The following fifteen varieties are all thoroughly distinct, and if grown into good specimens, should always enable you to stage an elegant and uniform group of twelve, with the chance of your taking first honours.

Adiantum farleyense.—This is a very elegant plant, which originated in some mysterious manner in the island of Barbadoes, and which at the present day, when there exists such an enormous choice of varieties, still maintains its proud position as being amongst the boldest growing and the handsomest kinds. When well grown it attains to a height of from 2 feet to 3 feet, producing broad pendent fronds. It enjoys strong heat and moisture and an abundance of light, and I have observed that plants with single crowns produce the largest and finest fronds.

Adiantum cuneatum grandiceps, although a somewhat common kind, is nevertheless exceedingly handsome, forming large crested tassels upon the ends of the fronds.

Asplenium Belangeri forms a pretty vasiform plant some 3 feet or more across, the fronds being comb-like and deep green. It comes from Java, and enjoys plenty of heat and moisture.

Davallia fijiensis plumosa.—This is one of the very handsomest of a beautiful family, the fronds being pendent, very finely divided, plume-like, and of an intense deep green. It is a stove kind which enjoys strong heat and moisture.

Davallia fœniculacea.—A superb stove Fern and one that cannot fail to please the most fastidious. Its fronds are erect and arching, some 2 feet in height and nearly a foot broad at the base, very finely divided. Its rhizome is stout and creeping, and should be kept upon the surface of the soil.

Davallia pallida, perhaps better known as D. Mooreana, is a plant of a very different aspect, producing fronds some 3 feet to 4 feet long, broad and spreading, and of a very pale green. As a young plant its beauties are not nearly so well developed as when grown to specimen size. One of the handsomest plants of this I have ever seen was a dense healthy bush some 10 feet through.

Gleichenia circinata glauca.—This is a handsome and robust form. There are several nearly allied species, such as rupestris, Speluncæ, dicarpa, semivestita, &c., which are similar in habit and appearance, and which may be used with equally good results as the kind here particularly named. All these are natives of Australia, and succeed best when grown in an intermediate house.

Gleichenia flabellata.—A plant belonging to the Martensia group of Gleichenias, erect in habit, and pro-

ducing its fan-shaped fronds tier upon tier on the same stem. It presents a totally distinct appearance to any other Fern, saving its near ally, G. Cunninghami. It is also one of the Australian Ferns which enjoy intermediate temperature.

Gymnogramma schizophylla gloriosa.—This is a perfect gem, which, although well suited for large hanging baskets, is equally well adapted for pot culture. It forms a magnificent vase-like plant some 3 feet or more across, the fronds being elegantly divided and bright green.

Lomaria fluviatilis.—A dwarf New Zealand Fern of great beauty, the fronds of which attain a length of about 2 feet. The sterile fronds spread in a vasiform manner, the fertile fronds being erect in the centre. It thrives in a cool house.

Microlepia hirta cristata.—This is certainly one of the handsomest Ferns in cultivation; it is a plant of easy culture, and rapidly becomes a presentable specimen; the rhizome creeps upon the surface and produces broad, erect fronds, which are arching at the top and surmounted with a dense and elegant tassel at every point. It enjoys intermediate temperature. It may also be grown in hanging baskets with much advantage.

Nephrolepis davallioides furcans.—A bold Fern which has been called (though erroneously) the Java Hare's-foot Fern. Its name implies a similarity to the frond of the Hare's-foot Ferns (Davallias) and not to the rhizome; the fronds are pinnate, the apex and each pinna being forked and more or less tasselled, the colour being deep green.

Nephrolepis rufescens tripinnatifida.—An extraordinary and beautiful Fern from the Fiji Islands, producing plume-like fronds some 3 feet or more in height, the pinnæ being finely cut and of a deep green, the stems being clothed with a reddish tomentum.

Platycerium grande (the Stag's-horn Fern) will not balance any plant from the above enumeration staged with it; and, therefore, the exhibitor should make a centre-piece of it, and group his other specimens round it. It may be shown if it only possess the barren shield-like fronds, which stand erect, and are of a light green, but when the forked fertile fronds are also upon it in addition, it is a magnificent object. There are several other species of this genus suitable for exhibition, but none equal to this. It should be grown upon a broad block of wood, with a foot to it, in order that it may be placed in a pot. It requires strong heat and moisture to develop its beauties.

Todea superba.—When well grown this is truly a superb plant, but it is too frequently mismanaged, and then it presents a shabby appearance. To succeed well with this plant, its pot should be plunged in a bed of Sphagnum Moss in a cold frame with a north aspect, and frequently sprinkled with moisture, unless it obtains sufficient by condensation; the latter method is preferable. Treated in this manner it produces a beautiful crown of fronds, resembling curled ostrich feathers of the most vivid green. This plant should be prepared for public exhibition by keeping it in a somewhat drier and more airy situation for about a week before it is required.

THE HARDY FERNERY.

Of the many pleasant spots to be found in the majority of well-arranged pleasure grounds there are few more attractive than the hardy fernery. Ferns seem to commend themselves instinctively to nearly all parties, whether their admirers be enthusiastic or not in the matter of general gardening, and many varieties of hardy Ferns are in their way quite as ornamental as stove or greenhouse plants. I think that the choice of a site and other characteristics arising therefrom leave often much to be desired in such a fernery. The familiar groups of large stones, for instance, and tiny walks at regular intervals, with a lot of different varieties of Ferns huddled together in the smallest possible space, do not please the true Fern lover, for this indiscriminate huddling not only prevents the individual specimens from being shown to the best advantage, but is highly detrimental to the species of smaller growth, oftentimes the most lovely of all. The utilisation of a dell or ravine for such a fernery is also objectionable, for however pretty the general effect may be, it is almost impossible in such a case for the Fern lover to attend to his favourites, watch their growth, examine their progress, or report on conditions that may be favourable or unfavourable to their proper development. If a site is selected that can meet all requirements, I think it may be found on either side of a shady winding walk that has 6 feet or 8 feet of Moss or Grass from its verge, and this backed up by a good thick growth of Evergreens. Here plenty of space would be at hand to allow each variety ample room and provision made for any sorts requiring rather different treatment. Nearly all hardy Ferns are, however, not very particular in the matter of soil, provided it is rather deep, cool and moist. There are, of course, some exceptions, and to accommodate such Ferns as object to any great quantity of soil a few stumps of trees dotted here and there at the side of the walk are very useful. These may be inverted, and all interstices amongst the roots filled up with soil, whilst any natural rising ground might receive occasionally a little artificial addition to accommodate any drooping Ferns. In enumerating a few useful Ferns for planting, I will confine myself to the best known varieties and those that will do well at the expense of little money or labour. To commence with the small Ferns more suitable for covering stumps of trees, rocks, &c, there are few better than Asplenium Trichomanes (the common Spleenwort). I have found this Fern under several conditions, on one occasion partially covering an old sand rock in a bright exposed position. It is, however, seen at its best in partial shade, and when growing in such profusion as to cover a considerable area of ground, as in certain places along the valley of the Wye, it must be a lovely feature. Cystopteris fragilis (the common Bladder Fern) is another capital subject for a sloping bank. It is of easy culture and readily procured. Two more Ferns of comparatively slender growth that would help to furnish the tree stumps are Blechnum Spicant and Ceterach officinarum, the last-named a very pretty Fern, and one that will well repay watching, as its fronds are gradually developed from the thick fluffy tufts. The tiny Rue Fern (Asplenium Ruta-muraria) is also interesting. It is rather impatient of removal, and very small plants should, therefore, be taken and these inserted in any tiny crevice where there is the least morsel of soil. For clothing sloping banks there are few better subjects than the two well-known Ferns, Scolopendrium vulgare and Polypodium vulgare, as when established they will soon clothe their quarters with a glorious robe of green. Having furnished all rising ground, tree stumps, &c., the planter will turn to the remainder of the space at his disposal, and for this the choice of subjects is varied. One of the best Ferns that can be used is undoubtedly the common Buckler Fern (Lastrea Filix-mas). The annual decay of the fronds is rather against it, but in a warm sheltered spot the old fronds will keep in a comparatively fresh state until the young growth is fairly developed, and this, when seen at its best in spring, is at once striking and very beautiful. It is a bold robust Fern, and, with the exception of the common Bracken and the Osmunda, perhaps the strongest in growth of any native Fern. Dilatata and æmula are also species of Lastrea that may be safely included in the hardy fernery; æmula is more delicate in habit than either the common form or dilatata, and should therefore receive a position where it is not likely to be encroached on by more robust neighbours. Polystichum aculeatum and P. angulare are also among the more vigorous of our native Ferns, and are very pleasing either in big groups or as isolated specimens. There are several varieties of both these Polystichums which, although they may be hardly so vigorous as the types, are equally hardy, and may therefore be safely used. The black Maiden-hair Spleenwort (Asplenium Adiantum-nigrum) is an evergreen Fern of great beauty, and as it is found in great profusion in many parts of the country may be rather largely used in the fernery. I have found it doing well both in stiff and light soil. It is, however, a decided lover of shade, and is seen at its best on the most shady side of the bank. Thanks to the exertions of the indefatigable Fern hawker, it is unfortunately fast disappearing in many places where it was formerly found in quantity. The above are a few of the native Ferns that might form the nucleus of a collection to be extended at the will of the cultivator. These are all well known, pretty generally distributed throughout England, and may therefore be easily procured and grown. I may add that where there is plenty of room the Ferns may be dotted at intervals along the sides of the walk and the intervening spaces filled in with such dwarf growing flowering plants as Aconites, Primroses, Bluebells, and Hypericum, or any similar flowering stuff that does not object to the amount of shade essential to the well-being of the Ferns.

E. Burrell.

Claremont.

Ferns at Forest Hill.—Ferns receive considerable attention at Messrs. J. Laing and Co.'s nursery, and we noted the following in the collection as deserving a note. Of all the Adiantums none can approach A. farleyense for loveliness. Its heavy, rich, and handsome fronds are, unfortunately, of little use when cut, as they soon shrivel. This was doing well, also the tufted dense-growing Adiantum Victoriæ, Nephrolepis davallioides furcans, the fronds glossy green, and Dictyogramma japonica variegata, which has very leathery fronds slightly variegated.

Gymnogramma Wettenhalliana.—This is a very pretty and dwarf-habited Fern that is worthy of a place in the choicest collections. The fronds are densely covered with white powder above and below and are beautifully tasselled. Like all gold and silver-leaved Ferns, it must have plenty of light and the syringe should never be used on it. Being so dwarf it should be brought up to the light by standing the plants on inverted pots. It is easily raised from spores, and might well be grown extensively for ordinary decoration.—J. C. B.

Books.

DUTCH AND CAPE BULBS.*

There is so little really reliable information to be had on the management of choice bulbous plants, that we cannot be too thankful to anyone, who is able to speak from experience, for any cultural notes on what most people find unsatisfactory subjects to deal with. If our friend, Max Leichtlin, could be induced to tell us all he knows about bulbs, how thankful we should all be; for who knows so much as he about them? Probably the only other practical men who can speak with any authority on these plants are the several Dutch nurserymen who have made choice and rare bulbs a speciality, and amongst the most successful of these is the firm of Ant. Roozen and Son, of Overveen, near Haarlem. The small book just published by this firm is one of about a hundred pages, devoted to short notes on the cultural requirements of bulbs, tubers, and rhizomes of the most select and popular kinds. These notes are "the result of fifty years' experience in the successful cultivation of Dutch and Cape bulbs," &c.

Holland stands pre-eminent among European countries in its natural advantages for the growth of bulbs, these advantages being the constantly moist condition of the atmosphere and the light sandy nature of the soil. MM. Roozen consider that in the centre of England there is the same climate as in Holland; but, so far at least as the cultivation of delicate bulbous plants may be taken as a criterion, this statement is open to doubt.

The cultural directions given in their book appear to us exactly the kind of thing which experienced cultivators want to set them on the right track in the management of delicate bulbs. It contains no elementary detail, but states briefly the most important features in the healthy growth of the plant. Here is an instance in the case of the Nerine:—

Bulbous plants which flourish best in a rich sandy soil. They require to be cultivated under glass, and to promote the flowering, a vigorous growth of the leaves should be encouraged in winter. From May to August, when at rest, no water should be supplied at all, but water again at the end of August to promote the growth. They flower at different periods in autumn, and many of them bloom before showing leaves.

A considerable number of plants are noted which cannot be classed either as bulbs or tubers, and

* "Notes on the Cultivation of Dutch and Cape Bulbs," &c. By Ant. Roozen & Son, Holland.

there are also slips such as "Stapelia—a most curious *Cactaceous* plant." A list of vernacular names for all the plants is given at the end of the book, for the greater part of which the authors admit having followed Mr. Miller's nomenclature, "which we consider the best hitherto produced." MM. Roozen have prepared a useful little book which all who are interested in bulbs should possess. W.

SOCIETIES AND EXHIBITIONS.

SOUTHAMPTON ROYAL HORTICULTURAL.

AUGUST 4 AND 6.

THIS society held its usual fête in Westwood Park on Saturday and Monday last. The exhibits occupied three large tents. It is unnecessary to mention any special collection when all were so very fine. The stove and greenhouse plants were magnificent, comprising large and well-grown Palms and Cycads, whilst the Crotons were like fountains of gold, the most notable of these being Johannis, Prince of Wales, Warreni, angustifolia, princeps, Queen Victoria, Disraeli, Earl of Derby, Weismanni, volubile, and Morti. Amongst flowering plants especially conspicuous were some grand specimen Ericas, thus proving that these plants are becoming popular in the provinces. Amongst them were Parmenteria, rosea, Fairrieana, ferruginea major, æmula, Austiniana, ampullacea, Barnesi, Thomsoni, and effusa, very highly coloured and exceedingly good. There were also excellent examples of Phœnocoma prolifera (Barnes' variety), which is not only deeper in colour and larger, but is also a much freer bloomer. There were also some fine examples of Kalosanthes coccinea, which, although a somewhat soft grower beside such plants as Ericas, is a very useful and showy old plant, and requires considerable skill to produce it in good condition. There were also fine specimens of Eucharis, Dipladenias, Ixoras, Clerodendrons, Stephanotis, and Allamandas, and a lovely plant of Lasiandra macrantha, the free-flowering variety. Amongst other blue flowers were some fine Statices and the old, but well-known Trachelium cæruleum. Amongst the Orchids was a fine group consisting of upwards of a hundred plants and about half that number of varieties, consisting of Dendrobes, Anguloas, Odontoglossums, Oncidiums, and many other kinds. Achimenes and Gloxinias, Ferns and Selaginellas were also shown in quantity and in good condition. Groups of plants arranged for effect were excellent, especially those from amateurs. In epergnes the first prize one was the most elegant I remember to have seen. Cut flowers in the shape of bouquets, button-hole bouquets, baskets of flowers, British and exotic, were largely contributed both by amateurs and gardeners. Fruit and vegetables were both numerous and good, the former, however, being somewhat deficient on account of the season, but the vegetables were of great excellence. Tomatoes are largely grown in this district, and I noticed Sutton's Perfection was the favourite with exhibitors. It is a large, well-coloured, smooth and heavy fruit, and of fine flavour. I have grown it myself, and would confidently recommend it. This variety, however, I cannot distinguish from a form called Mayflower. Altogether as a horticultural exhibition, it was a grand success, but I fear the bad weather will prevent its being a financial success, although the grounds were thronged with visitors.

W. H. G.

NATIONAL CONFERENCE ON APPLES AND PEARS.

IN consequence of the great success of the Apple congress in 1883, and the Pear conference in 1885, and in order to bring up the reports then published to the present date, the council of the Royal Horticultural Society has decided to hold another conference on Apples and Pears in the gardens at Chiswick from the 16th to the 20th of October next. In the previous conferences it was held desirable to secure the representation of every variety of these fruits in cultivation, whether valuable or otherwise, so as to arrive by comparison at an estimate of their worth. This having been done and duly recorded in the published reports, it is not now considered necessary to go over the same ground again. In the present conference it is proposed to invite the exhibition of such varieties only as find favour, or may be considered thoroughly worthy of cultivation. One object of this conference is to illustrate by facts and examples the present state and future prospects of commercial fruit culture in this country. It is consequently desired that contributors should endeavour as far as possible to furnish samples of fruits that are in favour in the markets of their several localities.

All fruit growers are invited to exhibit, and the more widely the collections are procured (within the limits of the schedule), the greater the interest the exhibition will create. It is very desirable that every collection should be accompanied with as much information as possible with regard to soil, exposure, and physical condition of the districts in which they have been grown; for which purpose the accompanying forms are enclosed. All fruits exhibited should be distinctly labelled with the name or names under which they may be known, and as the specimens sent are strictly for examination, they must necessarily be at the disposal of the committee if required.

Persons willing to contribute papers bearing upon the subjects in hand are requested to communicate with Mr. Barron, at an early date, stating the particular subject they are prepared to treat of. Arrangements for reading or publishing papers will be made by the committee. All packages should be addressed to Mr. A. F. Barron, Royal Horticultural Gardens, Chiswick, and must be delivered on or before Monday, the 15th of October. Exhibitors staging their own fruit may do so on the 15th or on the morning of the 16th, to be ready for the inspection of the committee. Notice of intention to exhibit must be given to Mr. Barron not later than Wednesday, 10th of October, stating the class or classes in which it is intended to exhibit, and the amount of space that will be required. All exhibitors will be admitted to the gardens free, and will receive a certain number of tickets according to the extent of their exhibits. It is recommended that heavy packages be sent by goods train.

APPLES.

*** *Not more than five large or nine small fruits to form a dish.*

1.—Fifty varieties of Apples most worthy of cultivation.
2.—Twenty-four varieties of Apples best adapted to the exhibitor's district.
3.—Twelve varieties of Apples best adapted to the exhibitor's district.
4.—Six varieties of Apples best adapted to the exhibitor's district.
5.—Twelve varieties of dessert Apples.
6.—Twelve varieties of culinary Apples.
7.—Six varieties of dessert Apples.
8.—Six varieties of culinary Apples.
9.—Apples from cordon, bush, or pyramid trees (not to exceed twelve varieties).
10.—Apples from standards in orchards (not to exceed twelve varieties).
11.—Apples (not exceeding twelve varieties) grown on special stocks of which particulars must be given.
12.—Apples as grown and sent to market, one peck of each (not to exceed twelve varieties).
13.—New, recently introduced, or little known varieties of merit.

PEARS.

*** *Not more than five large or nine small fruits to form a dish.*

1.—Thirty-six varieties of Pears most worthy of cultivation.
2. Twenty-four varieties of Pears best adapted to the exhibitor's district.
3. Twelve varieties of dessert Pears best adapted to the exhibitor's district.
4.—Six varieties of dessert Pears best adapted to the exhibitor's district.
5.—Three to six varieties of culinary Pears.
6.—Pears from trees on walls (not to exceed eighteen varieties). Stocks to be specified.
7.—Pears from pyramids, bushes, or open cordons (not to exceed eighteen varieties). Stocks to be specified.
8.—Pears from standard trees (not to exceed six varieties).
9.—Pears as grown and sent to market, one peck of each (not to exceed six varieties).
10.—New, recently introduced, or little-known varieties of merit.

Forms to be filled up by exhibitors may be obtained on application to Mr. Barron, Secretary, Royal Horticultural Gardens, Chiswick, and returned not later than Wednesday, October 10.

An unhealthy Thorn.—Will you kindly tell me the disease the Thorn, a specimen of which I send, is affected with? I should like to know the cause and cure for it. The trees, which have been planted ten or twelve years, are growing in clay and have done well up to the present time. The stem and the limbs are clean and healthy. This is the first time this variety has been attacked by this disease. We have had the same disease on another variety two years ago, but it is quite clear of it this season, as are six or eight other varieties of the Cratægus. All the trees of the variety I send you (Paul's double crimson) are infested. I expect it will prevent them blooming next season. The disease began to attack the trees before they had finished blooming.—W. WHAIT, *Melton Mowbray.*

*** In reply to the above, your Thorns are attacked by the Hawthorn cluster cup fungus (Rœstelia lacerata); no doubt the present wet summer has favoured the growth of this fungus. I do not know of any remedy for it. The attack this year is too advanced for anything to be done short of picking off and burning the infested leaves; when the leaves fall, sweep them up and burn them. Next year as soon as you notice the fungus making its appearance, syringe the trees with half an ounce of sulphide of potassium dissolved in one gallon of water. Why only one variety should suffer one year and one another, I cannot say.—G. S. S.

Curious growth on Rhododendron.—I send you what I fancy is rather unusual on Rhododendrons in the way of a large leaf development after the style of the maggot apple of the Oak, only this is creamy white and rather pretty. The Rhododendron from which it was cut is the rarer white form of ferrugineum, no more than 9 inches high. There are signs of other "apples" on the same plant, but they are not coming forward freely.—J. WOOD.

*** The curious gall-like growth is caused by the attack of a remarkable and rather rare fungus named Exobasidium Rhododendri.—W. G. S.

Death of Mr. Rogers.—We have to announce the death of Mr. Rogers, the late superintendent of Battersea Park. He has been ailing for nearly two years, and at the time of his death was sixty-two years old. Mr. Rogers had been engaged in Battersea Park since May, 1871. The announcement of his death will be deeply regretted by a wide circle of friends.

Melon plants dying (*One in Trouble*).—Impossible to say unless we know something of your treatment.

Cœlogyne cristata.—"W.," writing at p. 116 under above head, speaks of quite a different plant, probably the old Cœlogyne specio.a.—F. W. B.

Names of plants.—*H. J.*—1, Centaurea nigra; 2, Tragopogon minor; 3, Galium verum; 4, Ononis spinosa; 5, Achillea millefolium; they are not injurious, although not beneficial to good hay.——*Switzerland*—Campanula alpina.——*J. Milsom.*—1, Gleditschia sp.; 2, Periploca græca; 3, Weigela amabilis; 4, Ceanothus ovatus; 5, Clematis Viticella; 6, Philadelphus.——*Subscriber.*—1, Echium violaceum; 2, Sidalcea oregana; 3, Campanula latifolia var.; 4, Backhousia rubra.——*E. R. F.*—1, Lysimachia vulgaris; 2, Thalictrum minus; 3, Coronilla varia; 4, Dictamnus Fraxinella.——*F. Coleridge.*—Plectranthus Gerardianus.—— *Horace Huntley.*—Zephyranthes candida.——*A. C.*—1, Fuchsia procumbens; 2, Tremandra verticillata.—*W. Butt.*—1, Campanula rapunculoides; 2, C. turbinata; 3, C. fragilis; 4, Alstrœmeria aurea; 5, A. chilensis; 6, Santolina incana; 7, Erigeron philadelphicum; 8, Sidalcea malvæflora; 9, not recognised; 11, Potentilla var.; 12, Chelone barbata; 13, Centaurea montana var.; 14, Epilobium angustifolium; 14a, apparently a pale form of Lychnis chalcedonica.—— *W. Richardson.*—1, Picotee; 2, Selaginella cæsia; 3, Ajuga reptans; 4, Linaria Cymbalaria; 5, Erigeron philadelphicum; 6, Geranium armenum; 7, Crucianella stylosa; 8, Rhynchospermum jasminoides; 9, Platycodon grandiflorum; we can only name six varieties of plants at one time.——*F. Fuld.*—1, Woodwardia radicans; 2, Phymatodes, probably peltidea; 3, Pteris cretica albolineata; 4, Dracæna vivipara; 6, Carex sp.—— *F. Wheatley.*—1, form of Vanda Bensoniæ; 2 Oncidium curtum; 3, O. crispum; the flowers will improve as the plant gets stronger.—— *Rev. W. R. Tagart*—Potentilla tormentilla; certainly not poisonous; often very abundant in hay.——*Young Amateur.*—There is no book on the subject you refer to. —*Mrs. Corrie.*—Arum Dracunculus.

WOODS & FORESTS.

DISEASES OF FOREST TREES.

Trees, like animals, are subject to a variety of diseases, some of which we have little control over, yet by careful culture we can at least lessen or mitigate the evils arising from many of them. Deep planting not only retards the growth of trees, but likewise lays the foundation of a great many diseases, more especially when the plants are inserted too deeply into cold stiff clay soils that naturally attract and retain excess of moisture; even some of our hardiest forest trees are not proof against the evils arising from such treatment. Although the Scotch Fir (Pinus sylvestris) is a native hardy tree, yet when planted under the above conditions many of the young trees die off altogether during the early stages of their growth, while others are liable to be infested by the coccus insect (Adelges Pini), which appears in the shape of small whitish spots on the leaves, branches, and stem. Others, again, are apt to be attacked by a fungus (Peridermium Pini) which appears on the stems, leaves, and branches, and has the appearance of small pimples of a yellowish colour. I do not remember ever seeing old well-established trees growing on suitable soil attacked in this way, neither have I seen young trees raised on the spot from seed upon Heather ground affected. This, then, naturally suggests that the constitution of the plants has been impaired or weakened during their nursery career or at the time of planting them in the forest, and there appears to be much practical truth in the system of sowing the seeds on the spot where the trees are to remain until they reach maturity. In a country like Great Britain where a great many estates are of a limited extent, and where the plantations are of a mixed character and planted for ornament and shelter as well as utility, this system of sowing the seeds on the spot is unsuitable, but in all cases where there are large tracts of waste ground suitable for the profitable growth of trees it is a cheap and very efficient way of establishing a forest and cannot be too strongly recommended to the notice of landed proprietors.

The cause and prevention of these diseases are not so intricate and obscure after all, and are quite within the power of the planter by careful culture to eradicate or even to prevent altogether. In addition to the evils of deep planting, young trees often suffer considerable damage by being raised in nursery ground that has been frequently used for the same species without allowing it time to recover and cleanse itself, as well as in cases where a dressing of manure had been applied before inserting the plants. I have had to do with young trees raised in such ground and found the roots of many of the plants to be affected with fungi. Leaf-mould is an excellent and safe manure when the leaves are thoroughly decomposed, but when the leaves are mixed with twigs and small branches, which often contain the spores of fungi, they form a source of danger, even although they may appear to be quite rotten. In planting out ornamental Coniferæ that had been grown under such conditions I found the roots of many of the plants to be speckled with small whitish spots of fungus, while some others had the appearance of powdered wigs. I had the roots of some of these plants carefully washed and picked immediately before planting them on the spots where they were to remain. One Wellingtonia in particular which was very badly affected, and which I thought could not recover, gradually established itself, and is now a well furnished tree upwards of 50 feet high. But prevention is better than cure, and it behoves the cultivator to use every known means in his power to prevent disease, for as soon as the juices of a tree are impeded in their passage, by whatever cause, the foundation is laid for a variety of diseases such as parasitical fungus and the attacks of insects which are always on the move for a suitable place to propagate their species. The larvæ of some insects, however, feed upon the foliage of trees that are in perfect health.

When the Scotch and other Pines are planted upon soils that contain chips and fragments of wood they are liable to be attacked and killed by a fungus which spreads itself out like a sheet of paper between the bark and wood of the stem with such rapidity that I have known the stem to be enveloped for several feet from the ground upwards while the top was quite green and gave no indication of what was going on below. Another and equally destructive variety of this fungus penetrates its way from the ground upwards between the bark and stem, but in place of forming one close sheet it branches out and ramifies in all directions, and when the bark is removed it presents the appearance of a piece of Ivy traversing a wall. I have never found trees growing in the natural forest attacked by this fungus, although it has been suggested that the roots of trees that had been felled in the course of thinning plantations formed a source of danger to those left upon the ground, but as far as I am aware this has not been conclusively proved to be the case and certainly my experience goes against it. The only plausible way in which this can be explained is that the roots being locked up in the soil the spores of fungus are thereby prevented from lodging upon their surface, and although they may, and do, lodge upon the stump above ground, yet when they become active they always push their way upwards, never downwards, hence the safety of the roots and trees in their vicinity. In trenching out roots that are imbedded in sound soil we find them gradually crumbling into dust without any appearance of fungus, but when we have to do with roots and pieces of old timber that have been exposed for any length of time to the atmosphere, we then, as a general rule, find fungi present at different stages of growth. J. B. Webster.

Hollies killed by rabbits.—In a beautiful wood in Surrey the other day we saw a great number of Hollies with all the foliage dead. On going near, it was seen to be the work of the rabbit. It is surprising that people should allow an enemy like this pest to destroy woodland, arable, and pasture land as it does. Many country gentlemen who do not keep down rabbits suffer more from them than they know of. Destruction like that of these Hollies is clear to all, but the slow deterioration of pasture land where rabbits abound is often little noticed, and woodland suffers very much from them.

Varied hardiness of trees.—A late editorial note on the difference in hardiness of the common and hardy Catalpa is suggestive. Few realise the difference in hardiness of given species indigenous to both the Eastern and Western States. The Eastern Box Elder is as tender here as a Peach tree while our form will live on the Red River of the North. The Eastern and Southern Red Cedar will not endure our summers or winters, while the Western form thrives on the Black Hills. The Eastern Sugar Maple will not thrive here, while our form is one of our hardiest and most beautiful trees. The same may be said of the Eastern and Western Soft Maple, Ash, and indeed nearly all species common to the east and west. The same difference in hardiness of species is found with all ligneous plants common to the east and west slopes of the Rocky Mountains, and the east and west slopes of the Ural Mountains, in Asia. As instances, the Silver Spruce (Picea pungens) of the west slopes of the Rockies is tender here, while that east of the Divide is our most perfect and beautiful Conifer. For like reasons, the Phellodendron from the east slopes of the Ural is as tender here as a Peach tree, while that from the west of the Divide is perfect on our prairies.—J. L Budd, *Iowa Agricultural College.*

Planting Lombardy Poplars.—The following is an artist's view of the way in which the Lombardy Poplar should be dealt with: "As a rule, one would use Lombardy Poplars in groups, sometimes a clump composed entirely of one kind, and sometimes a mixed clump carefully arranged as to growth. The Lombardy Poplar would naturally make a kind of highest point in the composition to which the other lines would lead up. I do not think that it looks well isolated, nor do you get the full advantage of its distinct form when it occurs singly among other trees, but the repetition of the perpendicular line is what you want. I think, too, for an avenue, or for a line of trees by water, the Lombardy is not easily beaten. It would be very effective on high ground, but it usually gets broken by the wind in such situations; it seems also to do best in a damp soil."

Meaning of ornamental planting.—The object in ornamental planting is to create a character of art throughout the plantation. Suppose it were intended to form a pleasure ground, or even a shrubbery, in a district of country where the Oak, Elm, Ash, Birch, Poplar, Scotch Pine, Thorn, Holly, Spindle tree, Elder, &c., were common in the woods and roadside plantations, not one of these trees and shrubs, according to our principle of the recognition of art, and more especially of high art, ought to be introduced in the shrubbery; but, according to the same principle, variegated-leaved, double-flowered, or other artificial varieties of all these species might be introduced. In a botanic garden or arboretum, of course, the principle will not apply, because the object there is not to produce a work of elegant art, but one of botanical science. Cases may occur in which it is desirable to imitate a plantation already existing; for example, where two estates join and both parties are desirous of disguising their boundary. In this case the trees in the plantations on the margin of the one estate must be imitated in the plantation on the margin of the other, without reference to the trees being either indigenous or foreign. Cases of this kind, however, and other cases that might be mentioned have nothing to do with planting as an elegant art, or with reference to landscape gardening as an art of taste.—X.

Wood of the Hornbeam.—On account of its great toughness the wood of the Hornbeam is employed in engineering work for cogs in machinery. When subjected to vertical pressure it cannot be completely destroyed; its fibres, instead of breaking off short, double up like threads, a conclusive proof of its flexibility and fitness for service in machinery. According to Laslett, the vertical or crushing strain on cubes of 2 inches average 14 844 tons, whilst that on cubes of 1 inch is 3 711 tons. A few years ago an English firm required a large quantity of Hornbeam wood for the manufacture of lasts, but failed to procure it in England. They succeeded, however, in obtaining a supply from France, where large quantities of this timber are used for that purpose. It may be interesting to state that in England at any rate lasts are no longer made to any extent by hand, but are rapidly turned in enormous numbers by machinery. In France sabots are also made of Hornbeam wood, but the difficulty in working it and its weight render it less valuable for sabotage than Beech. For turnery generally, cabinet-making, and also for agricultural implements, &c., this wood is highly valued; in some of the French wine-growing districts, viz., Côte d'Or and Yonne, hoops for the wine barrels are largely made from this tree. It makes the best fuel and it is preferred to every other for apartments, as it lights easily, makes a bright flame, which burns equally, continues a long time, and gives out abundance of heat.

No. 874. SATURDAY, Aug. 18, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE FRUIT CROPS.

As usual, by the kindness of our correspondents we are enabled to publish returns of the fruit crops from almost every county in England, Scotland, Ireland, and Wales. These reports, no doubt, will be of great interest, seeing what an unfavourable season up to the present we have had. This season has been a remarkable one, in that the weather has been unusually cold and unfavourable to vegetation generally, added to which great complaints have been made as to the frequency of caterpillars on the fruit trees. These insect pests have in very many cases entirely stripped the trees of their foliage, so that a new growth in many cases has been made, and the trees are now a mass of soft green leaves. The Strawberry crop has been in most cases a failure, blind plants being very common. This blindness, no doubt, is the result of last year's drought, as in many places where the plants after the fruit was gathered received a soaking of water, blindness has not been so prevalent. The annual planting of Strawberries which is now coming into vogue will, no doubt, obviate to a great extent this fault, as we hear that where young plantations have been made yearly the crops have been about the average. Small fruits, such as Red and Black Currants, have been generally good, and the Victoria Plum seems to hold its own as a sure-bearing variety. Tomatoes outdoors, so profitable a crop last season, are this year a failure, and in many places the Tomato disease is prevalent. In many of the London market gardens, where large breadths of Tomatoes have been planted, not a single fruit can be seen. With this brief introduction, we herewith append notes on the fruit crops by Mr. W. Coleman :—

It seems but the other day, so rapidly has time flown, that interesting and instructive reports of the fruit crops of the past year were published in the pages of THE GARDEN. Full twelve months, however, have passed away, and the lesson we have learned, if of no other value, most certainly has proved that our climate is fickle and uncertain, and prophets who predicted a series of hot dry summers once more are sadly out in their reckoning. Last year at this time the weather was intensely hot and dry, and fruit growers on light soils were beginning to cry out for rain; but the drought continued, and, notwithstanding the fact that a thorough baking was doing much good to the land, we soon discovered that the crops, fairly good, must suffer in quantity if not in quality. Rain in due course came, but too late to be of much use; consequently, with roots impaired and flower-buds imperfectly formed, fruit trees and Strawberries settled down to rest in a doubtful condition. A dry winter ensued, the rainfall in the spring being something like 1 foot in arrear of the average, and yet fruit trees of all kinds flowered profusely, the individual flowers upon Pears and Apples being larger and bolder, but paler than usual. Peaches, on the other hand, were less bold and brilliant, and bad weather setting in at the time, insect aid, with us at least, was almost entirely lost in the conveyance of the rather inert pollen to the pistils of the flowers. Garden trees generally, however, set an abundance of fruit, and half-hoping the prophets were right, our first care, as a matter of course, was heavy mulching; but, alas! rain set in, continued, and still continues; the thick vapour rising from the earth has shut out the sun, and the mean temperature of the July now passing away is, I believe, the lowest on record. Had this much-needed rain, which has just made up our deficiency, fallen in the winter, or immediately after our orchard fruits were set, we might have been spared the terrible wreckage of the trees and crops by grub and caterpillar, but it held off just a little too long for the fruit; not so for the trees, as many of them recently voted dead are now covered with soft green foliage. The crops, too, although partial, and notwithstanding the annual lamentation, are more abundant than the most sanguine anticipated. Only a few weeks ago we were told that Plums in the Evesham district had utterly failed; but, if seeing is believing, I may say I have just seen large orchards of the leading market varieties, including Green Gages, clean, healthy, and literally breaking down with the weight of fruit. Apples and Pears, too, are abundant in this district, but fruits of all kinds now want sun and warmth, and unless this incessant thunder rain gives way, and that quickly, to brilliant weather, the produce of our gardens and orchards will be small, late, and flavourless, and, worse still, the wood and future flower-buds will be imperfectly ripened. Having already devoted too much space to general remarks upon the result of two of the most remarkable seasons we have experienced for many years, I must now confine myself to very brief details, as I am fully alive to the fact that the pages of THE GARDEN will be crowded with reports from all parts of the kingdom. Our staple crop in Herefordshire, I need not repeat, is the

APPLE, or rather an apology for this useful fruit, as I am sorry to say much yet has to be done before we can hope to compete with our neighbours. The trees, as I have just stated, flowered well, but late, and escaping spring frosts, we quite expected a glut of all sorts. The leaves, however, got too far in advance of the blossom; rain held off, then set in continually, and thousands of trees were literally stripped at the most critical period of their existence. Some varieties, notably Blenheim Orange, are carrying heavier crops than I ever saw upon them, and, fortunately, the foliage was not seriously injured. Of early sorts we have an abundance of Kerry Pippin, Irish Peach, Quarrenden, Worcester Pearmain, Stirling Castle, Lord Suffield, Keswick Codlin, New Hawthornden, and Echlinville Seedling, a variety which never fails. Later varieties included Northern Greening, Sturmer Pippin, Claygate Pearmain, Stone's Apple, Ashmead's Kernel, Margil, Dumelow's Seedling, Golden Winter Pearmain, the never failing Duck's-bill, Winter Queening, Warner's King, and Norfolk Beaufin. The whole of these, where within reach, have been heavily thinned, and still they are too thick upon the trees. Cox's Orange Pippin and several other sorts which bore profusely last year are thin and partial.

PLUMS in this locality produced very little flower; consequently we have a thin crop of fruit. The trees generally were badly infested with the grub of the sawfly, but the culprit to which we are indebted for the loss of the cream of the buds is the bullfinch. Another reason why wall and garden Plums are thin may be found by those who recollect the enormous crops of 1886 and the terrific plague of green aphis last year. It may not be the true or only reason, but we cannot shut our eyes to the fact that young standards in orchards and now loaded with fruit suffered less than trees confined within heat-absorbing and reflecting walls. This being so, the grower of Plums for market may console himself with the assurance that well-drained, sheltered orchards, laid down in Grass and open to a free circulation of air, form the best home for the ordinary varieties, not excluding the Green Gage. Coe's Golden Drop requires warmth, not so much to set and swell the fruit as to ripen it up properly before late autumn, and many of the choice tender dessert sorts do best in gardens, but for profit I must commend clean healthy standards 20 feet to 30 feet apart on good Grass land.

PEARS, which bore good crops last year and were well mulched and watered, this season produced a magnificent blossom and set well. Others which failed in 1887 also are good, and although leaf rollers and other pests gave much trouble, the crops generally have required much thinning. The fruit so far is fine and remarkably free from fungoidal spots; but one thing now is sadly wanting, and that is bright, hot weather to raise the temperature of the soil and give flavour to the fruit. The sorts which have required most thinning are Marie Louise, Louise Bonne of Jersey, the old Crassane (a good Pear on a free stock and a heavy soil), Beurré d'Amanlis, B. d'Aremberg, Pitmaston Duchess, Josephine de Malines, Beurré Rance, Passe Colmar, Marie Louise d'Uccle, Dunmore (a good early variety), Van Mons Leon Leclerc, Williams' Bon Chrétien, and Beurré Clairgeau. Standards on deep soils are fairly good, but late; pyramids and bushes are well cropped or a perfect failure, as might have been expected where water or mulching were plied or withheld last last season.

CHERRIES in gardens and orchards set well, and a moderately moist time being favourable the fruit has attained full size, but owing to the absence of sun is deficient in flavour. The trees have not suffered from grub, and black aphis, thanks to repeated applications of soapsuds through the autumn and winter, has never been less troublesome. Our best crops are May Duke, Elton Bigarreau, Napoleon, and Morello.

APRICOTS are rather extensively grown in this county, but the crops this season are light and irregular. Cottagers who neither thinned nor watered last year will not derive much benefit from their trees next rent-day.

BUSH FRUITS, including Gooseberries, Currants, Black, White, and Red, are an enormous crop, very fine and free from caterpillar, but, like Cherries, the Currants are deficient in flavour. The Gooseberry does not receive the attention it deserves, and yet its successful management is extremely simple. If those who advise the use of small meshed netting for keeping out the moth were to give up writing such absurd nonsense and turn their attention to the removal of the surface soil as a preliminary to an autumn dressing of quicklime and a few spadefuls of fresh compost to be washed down by soapsuds, caterpillar would soon disappear from their gardens. Keep out bullfinches in the spring and blackbirds in the autumn, but at other times let birds and moths have free access to the plantations. Raspberries have made fine, rather gross canes and foliage, and the crop is fairly good, but much washed and damaged by incessant rain. A moist time, all admit, is favourable to Raspberries, but they revel in sun and heat when the fruit is ripening.

STRAWBERRIES.—Of all the crops grown this year the Strawberry is the most capricious and irregular. Old plantations weakened by the heat and drought of the past summer in many places have been a complete failure, in others one half the plants are blind, and in the best the crop has been far below the average. Young plantations, especially of last year's formation, are best, our own crops being remarkably good, whilst others only one year older and well done with mulching and water have produced very little flower, and the gross foliage has grown altogether out of character. Our best beds have been Vicomtesse Héricart de Thury, La Grosse Sucrée, President, Paxton, Filbert Pine, a first-rate hardy variety, Doctor Hogg, and British Queen. Oxonian and Elton on north borders are fruiting fairly well, but these two in this situation soon rot in sunless seasons. The past and present seasons have taught a lesson that should not be soon forgotten; first, that the oldest beds should not stand over the third year; second, that the

best results follow treating the Strawberry as a biennial. Mildew quite early in the season attacked our Paxtons, but a few dustings with dry sulphur completely cured it. Upon a large open quarter planted two years ago every plant of Vicomtesse bore a full crop of fruit. Paxton and President were 75 per cent. blind, and British Queen was a complete failure.

Figs on walls are plentiful, but must be very late, as they are now getting too much moisture and very little sun.

Filberts, Cobs, and Walnuts are more plentiful than we at one time anticipated.

SOUTHERN DIVISION.

Hanger Hill House, Ealing.—Strawberries, such as Sir J. Paxton and British Queen, are very good, but the flavour is poor, owing to the wet weather. Gooseberries, Currants, and Raspberries are fine and plentiful. Pears are a fair average crop, except Louise Bonne of Jersey, which fruited so well last year. Marie Louise, Beurré Diel, Passe Colmar, and Jargonelle are bearing very good crops. Plums are a very fair crop, and Victoria, Green Gage, and Pond's Seedling are especially good. Peaches and Nectarines are not quite an average crop. Apricots are a very fair crop; also Cherries on walls and standards. The Morellos are very abundant. Walnuts very good. Apples are not quite an average crop, though there was plenty of bloom, but the fruit kept dropping, owing to the cold and wet weather. Lord Suffield, Margil, Ribston Pippin, Minchal Crab, King of the Pippins, and Hanwell Souring are the best varieties this year. As to dessert kinds, Cox's Orange Pippin stands first for flavour; King of the Pippins, Ribston Pippin, Margil, Cobham are also good. Kerry Pippin and Sturmer Pippin, though on a hill and very exposed, the subsoil being a very heavy, cold clay, we have to root-prune very often to keep the fibrous roots on the surface. —E. Chadwick.

Aldenham House, Elstree.—The fruit crops here in this district on the whole are satisfactory, except Apples, which in early spring promised to be good. When the trees commenced blooming the maggot made its appearance and did so much damage that the crop is far below the average; the greater part of the fruit that had set is now falling. The sorts that promise best are Cox's Orange Pippin, Ribston Pippin, Scarlet Pearmain, Wellington, Hanwell Souring, Echlinville Seedling, Cellini Pippin. Pears are a fair crop. Plums good on pyramids, thin on walls. Damsons good. Cherries, dessert kinds under the average; Morellos plentiful and very fine. Apricots, which generally do well here, are an average crop, and though late promise to be fine. Peaches and Nectarines are thin, but the trees are making good growth and are very clean. Strawberries a heavy crop, and have lasted a long time. The best were Garibaldi, President, and Sir Joseph Paxton. Currants of all kinds, also Raspberries and Gooseberries, are bearing heavy crops. With reference to dessert Apples, the favourite sorts here for flavour in their respective seasons are Kerry Pippin, King of the Pippins, Ribston Pippin, Margil, Cox's Orange Pippin (which does well here, and is by far the best for flavour), Fearn's Pippin, and Royal Russet. — Edwin Beckett.

Barrow Point, Pinner.—In this neighbourhood the fruit crops are very variable. In sheltered gardens the crops are a fair average; in exposed places they are considerably below the average. Pears with us are below the average, those on walls carrying a fair crop. Currants, especially White and Red, a good average. Raspberries fair, but with little flavour. Gooseberries, notwithstanding an abnormal attack of caterpillars, a very heavy crop. Apricots a poor crop. Peaches and Nectarines irregular and thin. Aphides were very troublesome in May, and their attacks, with late frosts, damaged to a great extent what promised to be a fair crop. Plums and Damsons are above the average; late Plums, like Coe's Golden Drop, are exceptionally good. Strawberries have been a very disappointing crop; the bloom indicated a good yield, but the wet, sunless weather has resulted in an excess of foliage, tasteless fruit, and in the earlier sorts a want of colour; later sorts have been superior to the early varieties. Apples are variable, irregular, and some sorts totally wanting. This remark applies with us to soft cooking Apples of the Codlin type. Orchard trees, with the exception of Blenheim Orange, are very poor indeed. Our best crop is on small trees in sheltered places, and especially on those grafted upon the Paradise stock. The sorts most appreciated here as dessert fruit are as follows: King of the Pippins, Golden Pippin, Claygate Pearmain, Cox's Orange Pippin, Margil, Ribston Pippin, and Blenheim Orange. The last is a great favourite here, this being due to its fine appearance on the table, and also to its good keeping qualities. King of the Pippins and Claygate Pearmain are our best flavoured fruits before Christmas, Margil, Ribston and Cox's Orange Pippins being the best sorts after. None of them, however, keep in such good condition as Blenheim Orange, a sort that on our heavy clay soil is a constant bearer.—John W. Odell.

Bedfont, Middlesex. — Inverting the usual order of things, I begin by referring to Strawberries as having been on the whole a promising crop, but bad weather seriously affected the fruit, one-third at least having been rendered worthless. President, Sir Joseph Paxton, and Sir Charles Napier are our chief market sorts. Raspberries have been a splendid crop, and, in spite of the rain, selling well; the stools are this year making especially good canes for next year. Black Currants a grand crop, the fruit quite unaffected by bad weather. Reds, also, have been very good, and Gooseberries, in spite of some failures, very fine and plentiful. Morello Cherries a great crop, and this year rather sweeter than usual. These are, of course, on standard trees, which are always handsome, but especially when in fruit. Sweet Cherries a good crop, also not a common feature in this district, but fear of splitting through excessive moisture led to gathering before the fruits were really ripe. Walnuts are a good clean crop. Plums, chiefly Victorias and Prince of Wales, a heavy crop, and Farleigh Prolific Damson is abundant also, and promises to be fine. With warm weather the Plum crop should be a first-rate one in the market gardens. Pears, generally, are good; Hessle, Williams' Bon Chrétien, Marie Louise, Alexander Lambre, Nouveau Poiteau, Calebasse, and Beurré de Capiaumont are bearing well. Still the product in fruit is much smaller than at one time was thought; indeed the trees most profusely flowered have, on the whole, the least fruit, showing that the cry about thinning bloom is absurd, as an excess of flower almost invariably means lack of fertility, and in artificial thinning the few really fertile flowers might be destroyed. The Apple crop, left to the last, though by far the most important of our hardy fruits, is relatively the poorest. Here and there may be seen good crops on particular trees, but the general aspect over thousands of market trees is comparatively few fruits; indeed, I may sum up the crop throughout our district by saying that it does not exceed one-third, and hardly reaches one-fourth of a good average Apple crop. Some sorts here and there are fruiting well, but still in such erratic fashion that nothing is to be learned from the result; for whilst Keswicks and Wellingtons are good in one garden, Cox's Orange Pippin and Blenheims are best in another. Again, in the Royal Horticultural Society's gardens at Chiswick a truly remarkable sight is the wonderful crop of fruit on dwarf bush trees of several kinds, which will doubtless be referred to elsewhere. But in other gardens I find dwarf bush trees to be very sparse of fruit, and what they are carrying is relatively small. Still, it must be admitted that Apples started a fortnight late, and allowance must be made for that. With some really ripening weather, which happily now seems to have set in, what fruit there is should swell up rapidly and result in fine samples. In my own garden the best crop, I may say as usual, is found on a large tree of Waltham Abbey Seedling. Kentish Fillbasket started a fine crop, as also did Flower of Kent, but both dropped fruits considerably. All others are very thin indeed. With respect to flavour, the market growers recognise Cox's Orange Pippin as the best and plant it largely They anticipate a fine crop from it next year to compensate for the present season's shortcomings. Earlier, however, the Yellow Ingestrie is in great favour; in fact, it is the leading favourite with growers and buyers in its season. It generally fruits freely, but never heavily. Being so reliable also helps to make it a favourite. Next come Kings, the fruit of which always seems to be excellent off Middlesex soil, the strong clay of the district apparently favouring quality in the fruits. This kind bids fair to be a popular market variety till the end of time. Then come Margil, a moderate grower, but a fairly free cropper and first-rate in quality, and Blenheim Pippin, good everywhere, but this season a very partial crop, many fine trees not carrying a single fruit. To these add Lord Suffield, Golden Noble, Wellington, and Warner's King for culinary purposes, and the cream of market Apples in this district has been skimmed.—A. Dean.

Moor Park Gardens, Rickmansworth.—Apricots good crop under protectors, thin on trees exposed. Apples destroyed by caterpillar and trees very much injured, also Oaks in the park by the same pest. Cherries plentiful and good. Pears very good on walls, on espaliers and pyramids very thin. Plums on walls, especially Victorias, good; very few on other trees. All bush fruits very fine and heavily cropped. Raspberries and Strawberries very plentiful, but a great quantity spoiled by the continuous rains; Strawberries a little deficient in flavour, but large. Gooseberries heavily cropped and good.

All vegetables have done well, but are a fortnight late. Potatoes (Ashleaf) excellent, later kinds showing unmistakable signs of disease.—J. C. Mundell.

Gaddesden Park, Hemel Hempstead, Herts.—In these gardens and neighbourhood the Apple crops are almost a total failure, with the exception of a few sorts in different parts of the garden and a few trees of Ribston Pippin on a south wall. The leaves on all the trees were very much eaten by the caterpillar, and a great quantity of the bloom never thoroughly expanded. Ribston and Cox's Orange Pippin are the varieties most appreciated by my employer as dessert Apples. Pears on pyramid and west walls are a very thin crop. Plums on south walls very good, but on north walls thin. Peaches and Nectarines and Figs out of doors are good, but late. Red, Black, and White Currants are bearing a very heavy crop. Gooseberries and Raspberries also carrying a good crop. Cherries are excellent, especially Morellos, on east walls. Apricots very thin. Strawberries a moderate crop, being spoiled by the wet before the fruit ripened.—H. Folkes.

Hatfield House, Herts.—Generally we have not such good crops of fruit as the trees promised before coming into bloom. There was abundance of bloom, but the setting was very disappointing, possibly through the cold sunless weather, and I think the dryness of the soil may have had something to do with it. Plums, Peaches, Cherries, and Pears are an average crop, while the crop of Apples is very poor; caterpillars in May were so numerous, that they reduced the poor set of Apples very much, and in many gardens denuded the trees of leaves, probably preventing a crop next season, and in some cases permanently damaging the trees. The following dessert varieties are good flavoured, nice looking, and good bearers in this neighbourhood, arranged as they ripen: Early Margaret, Mabbot's Pearmain, Ribston Pippin, Claygate Pearmain, Baddow Pippin, Irish Peach, King of Pippins, Margil, Adam's Pearmain, Lord Burghley, Devonshire Quarrenden, Cox's Orange Pippin, Mannington's Pearmain, Syke House Russet, and Sturmer Pippin. G. Norman.

Beddington House, Surrey.—Fruit crops, taken on the whole, are below the average here. Apples a very poor crop. The following sorts I find have the best flavour, tested as dessert fruits: Cox's Orange Pippin, Court of Wick, King of the Pippins, Margil, Ribston Pippin, Kerry Pippin, Calville Blanche, Fearn's Pippin, Golden Pippin, Royal Pearmain, Scarlet Nonpareil, and Sturmer

Pippin. Pears, viz.: Williams' Bon Chrétien, Jargonelle, Beurré d'Amanlis, Louise Bonne of Jersey, Marie Louise, Beurré Diel, Knight's Monarch, Josephine de Malines, Beurré Superfin, Passe Colmar, and Souvenir du Congrès, are all bearing full crops, most other sorts poor. Peaches, Apricots, and Nectarines rather thin. Morello Cherries very good. Plums a fair crop. Strawberries, Raspberries, and Currants a heavy crop, but greatly damaged by the heavy rains. Medlars good. Walnuts good. Filberts poor. Figs a very good crop. —T. N. Penfold.

Morden Park, Mitcham.—The fruit prospects in this district were very promising in the spring, but the cold winds destroyed most of the Peaches and Nectarines, and the caterpillars severely attacked the Apples. Here and there a tree escaped, but generally Apples are a failure. Pears also were attacked by caterpillars to a less extent, and there is a fair sprinkling of fruit. Strawberries have been abundant and good. There are also good average crops of Cherries and Plums. Currants have been abundant; Gooseberries a very heavy crop. Raspberries large, but of very indifferent flavour. We have few varieties of dessert Apples, as our orchard is gradually getting worn out. Some young trees have not grown sufficiently to fairly judge by, but the sorts most reliable year by year are Golden Pippin, Court of Wick, Reinette du Canada, King of the Pippins, Court Pendu Plat.—C. Gibson.

Polesden Lacy, Dorking, Surrey.—Apricots are under average and Plums an average crop on walls. Cherries an average crop, but Morellos are very good. Of Strawberries we had a good crop for the early sorts, but damaged by wet. Red and White Currants an average crop, the black varieties excellent. Raspberries are over average, but deficient in flavour. Of Pears the early kinds are an average crop, the late varieties falling short. Apples are under the average both on espaliers and standards. Many of the trees bloomed well, but the flowers very quickly fell and without setting. In some of the orchards in this neighbourhood the trees are much injured by caterpillars. I find Cox's Orange Pippin by far the best flavoured sort grown here, the old Blenheim Pippin being always good, both for dessert and kitchen use, and is the best bearing kind. The old Lemon Pippin does well and is a great bearer, keeping good a long time. Larger fruited kinds do not do well here, the soil being shallow. Apple trees often require renewing.—Oliver Goldsmith.

Grenehurst, Dorking.—Apples here, which promised to be an abundant crop, are an entire failure, owing to the ravages of the caterpillars, which cleared all before them. Here we grow about 100 sorts of Apples on about 1¼ acres of ground, about 180 trees being grown as pyramids, kept closely pruned, and about 1000 cordons trained to wires and walls, and this season there are not more than fifty Apples in all. The following dessert kinds we consider are the best flavoured in their various seasons: King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Blenheim Orange, Cellini Pippin, Fearn's Pippin, Scarlet Nonpareil, Scarlet Pearmain, Cornish Gilliflower, Claygate Pearmain, Duke of Devonshire, Cockle Pippin, Court of Wick, Calville Blanche, Welford Park Nonsuch, Calville Rouge, Devonshire Quarrenden, Reinette du Canada, Gladstone, Northern Spy, Reine des Reinettes, Baldwin, Emperor Alexander, Mère de Ménage. We grow many other sorts, but consider the above the most useful for appearance, flavour and cropping, but of all Apples I think there is none which can touch Cox's Orange Pippin for flavour. Pear trees here are looking well and were not injured by the caterpillars, and are all carrying very heavy crops of fruit. Plum trees on the walls are also heavily laden with fruit, but standards are bearing poor crops. Morello Cherries are a heavy crop, and so were the dessert kinds. Peaches are a very poor crop. Nectarines and Apricots are also a very poor crop. Red, White, and Black Currants are a heavy crop, and Gooseberries also. I may mention that there are no Apples in this neighbourhood, so far as I can find out. I have been several miles round about, and with the exception of now and then a solitary tree in a cottager's garden, everyone seems to have suffered from the ravages of the caterpillars.—William Shepherd.

Ampthill House, Ampthill.—Apples much below the average; the trees promised well when in bloom, but owing to the cold weather most of them only set a thin crop. The best dessert kinds with us are Golden Reinette, Red Quarrenden, Ribston Pippin, Cox's Orange Pippin, and Golden Pippin. The best kitchen sorts with us are Lord Suffield, Dumelow's Seedling, Alexander, and Bedfordshire Foundling, all carrying a fair crop. Pears a fair crop on the walls, but standards here are almost a failure; on the whole much below the average. The best sorts with us are Marie Louise, Beurré Diel, Bergamot Esperen, and Uvedale's St. Germain. Apricots are much below the average. Peaches and Nectarines on the walls are very poor, but an abundant crop in the houses. Strawberries with us have been good, President and Keen's Seedling carrying the best crops. Cherries, Raspberries, Currants, Gooseberries, and Plums are abundant crops.—W. J. Empson.

Luton Hoo Park, South Beds.—Apricots are almost a complete failure. Apples are under average; some trees are heavily laden, while others are barren, notwithstanding all were alike clothed in bloom. Our east orchard on Grass is barren; it was completely decimated by grub. Immediately it was out of bloom we were obliged to syringe the bulk of the Apple trees with Hellebore powder to rid them of the pest, which it did effectually. The trees in the west orchard are bearing, however, a fair crop, some of them being heavily laden; this portion is under cultivation, and, singular to say, was not visited by the scourge. Dessert Apples, as a rule, are very fair as regards size, colour, and flavour. The varieties depended on are Margaret, Early Harvest, Kerry Pippin, Blenheim Orange, Cox's Orange Pippin, Nonpareil, Cockle Pippin, Court Pendu Plat, Duchess of Oldenburg, King of the Pippins, Margil, Pine-apple Pippin, Herefordshire Beaufin, takes a beautiful colour. Our standard kitchen Apples are Keswick Codlin, Nelson's Glory, Lord Suffield, Hawthornden, Lane's Prince Albert, Warner's King, Peasgood's Nonsuch, Mère de Ménage, Yorkshire Greening, Norfolk Beaufin. Cherries (Morello) are a good crop, the trees healthy and fruit swelling satisfactorily. Dessert under average. Gooseberries are very scarce owing to the ravages of birds in early spring. Currants are a good crop, especially Black, which are very large, Red and White very small. Peaches and Nectarines are a light crop, but the trees are remarkably clean and healthy. Figs are full of promise, all depending upon the weather. Plums are very scarce, shy-bearing kinds are a failure. Strawberries were a fair average, but much injured by wet. Raspberries are a good crop, and of good size, but owing to so much wet the quality is much deteriorated. Nuts are under average, and were severely attacked by grubs. The present season cannot be called a fruit one, especially in this district. Our soil is a cold clay with flints resting on chalk.—William M. Baillie.

Nuneham Park, Abingdon.—Apples and Pears are considerably under the average. Apricots very good, our trees being laden with fine fruits, and the same may be said of Figs. Cherries of dessert varieties are an average crop; Morellos on north walls abundant. Of Peaches and Nectarines we grow none outside, but very poor in the neighbourhood, and the trees much blistered. Plums are a fair average crop. Strawberries much under average; a great quantity of the plants were barren, the cause of which I attribute to the heat of 1887, the plants being parched up; consequently, when they made their growth, we had not sufficient sun to ripen the crowns. On a new plantation made with forced plants we had a very good crop. Gooseberries, Currants, and Raspberries are abundant and good. Nuts and Walnuts average, but the latter somewhat irregular. With regard to the quality of the Apple as a dessert fruit, the following, taken in the order named, I find the best varieties with us: Kerry Pippin, Cellini, Cox's Orange Pippin, Blenheim Orange, the true old Golden Pippin, Scarlet Nonpareil, and last, but not least, Sturmer Pippin, a grand Apple.—A. G. Nichols.

Titness Park, Sunninghill, Berks.—The Apple crop is almost a total failure. Pears are a thin crop, and one half of the trees has been injured more or less by caterpillars. Most of our Plum trees have no fruit on them. One tree of July Green Gage has a full crop, but the fruits are very flavourless. In the neighbourhood Apples are scarce. Trees which had none on them last year have from a sprinkling to an average crop on them this season. Pears are better, but the fruits are much deformed. Dessert Apples here are of good quality and keep well; the sorts that do best in the gardens here are Blenheim Pippin, Besspool, Cox's Orange Pippin, Fearn's Pippin, Margil, and Mannington's Pearmain.—Thomas Duncan.

Lockinge Park, Wantage.—Apricots few, but very good in quality. The trees bloomed abundantly, but owing to continuous east winds and wet the early blooms had not the least chance of being fertilised. Plums average, and very good in quality. Cherries average in the district, not first-rate in flavour. Peaches and Nectarines under the average, and trees very much blistered. This I attribute to the cold and excessive wet, our trees growing in a very exposed position. Pears average, some sorts, such as Beurré Diel, Marie Louise, Josephine de Malines, being attacked this season with a kind of black fungus just after setting. Apples are only half a crop this year. We suffered considerably from the maggot, especially in orchards in exposed positions. A few orchards in this district standing in sheltered places escaped, and promise a fair crop of fruit of good quality. I wish I could say this was general. Strawberries a light crop, a great many of our best fruits being spoiled with a small black slug, and this in spite of propping up and catching by hand. Small fruits, such as Gooseberries, Currants, and Raspberries, are in abundance and very fine. Nuts, Cobs and Filberts are a very light crop; but Walnuts are very abundant, such a crop not having been known for years. Blenheim Orange runs King Pippin very close for the premier position; the flavour is very good with us until Christmas; after that time it does not keep so sound as the King. These two I consider the finest Apples grown. Scarlet Russet is a good, useful late dessert Apple and of very good flavour, but with us it is rather small. Irish Peach is always of first-rate flavour with us, coming into use at the latter part of August, succeeded by Devonshire Quarrenden. This makes a very showy dish for table, but with us is only second rate in flavour; it carries us through September. Fearn's Pippin is our next on the list. This is also a first rate Apple for use in October; later than that with us it becomes flavourless. Cox's Pomona is a good useful dessert Apple for the early part of November, and flavour good. King Pippin is the best of all for dessert, both as regards shape and flavour; its keeping qualities are good, carrying us on well into the new year. Besspool we find useful in January, but only second-rate in flavour; it makes a showy dish for table. Claygate Pearmain and Sturmer Pippin are also useful for February, and of fair flavour. Lemon Pippin is also useful in March for making up a dessert. The flesh is rather acid. Jacks is a local name, I believe; I never heard of it before till I came to Lockinge. I have found this useful at times when other sorts have been scarce. Flavour moderate, but will keep well into August. Miller's Seedling.—This Apple originated in the neighbourhood, and I believe will be largely grown when better known. Being very early, of good flavour and colour, it will make a good market fruit.—J. Rose.

The Deodars, Meopham, Kent.—The fruit crops in this neighbourhood are quite up to the average of recent years, with the exception of Apples, which are below the average. Strawberries have been a very heavy crop, but a great many rotted owing to so much wet and cold weather. Gooseberries, Currants, Raspberries are good average crops. Cherries good, but many of the early sorts

spoilt with the rains. Plums average; Peaches under average; Pears under average; Nuts under average. Apples: The best dessert kind grown here is Cox's Orange Pippin; the tree grows well and crops well. It is the best-flavoured Apple that I know. Blenheim, King, Kerry Pippin, and many others bear good crops in their seasons. Kitchen: Hawthornden (New), Lord Suffield, Lady Henniker, Loddington Seedling, Warner's King, Echlinville Seedling, Peasgood's Nonsuch, &c., are doing well; also Wellingtons do well. I have only just finished using the last named, and they were sound and firm.—R. PHILLIPS.

Worth Park, Crawley, Kent.—I am sorry to say that the Apple crop in this locality is very thin, the poorest I have ever seen. The best dessert varieties are Cox's Orange Pippin, King of the Pippins, Golden Knob, Blenheim Orange, and Yellow Ingestrie. Regarding small fruit we have had a very good crop, although somewhat damaged by the recent heavy rains. The stone fruit under glass has been very good; outside almost a failure, with the exception of Morello Cherries and Damsons.—THOMAS GLEN.

Sherwood Gardens, Tunbridge Wells.—The Apple crop is much under an average one in this district. Pears and Plums are also under the average, with the exception of Rivers' Early, which is loaded. Cherries are a good crop. Gooseberries, Currants and Raspberries also very abundant and good. Strawberries, especially such varieties as Sir Joseph Paxton, Vicomtesse Héricart de Thury, and La Grosse Sucrée, had a good crop; Keen's Seedling grew very rank and never showed a flower. On the walls Peaches set well, but, owing to the cold, wet, and sunless season, I am doubtful if they will ever ripen their fruit. We have a wall covered with Pears and Plums on the cordon system, with 18 inches of glass running along the top of the wall which protects the trees when in flower; and the following kinds bear a very heavy crop, viz., Winter Nelis, Beurré Rance, Louise Bonne of Jersey, Souvenir du Congrès, Marie Louise d'Uccle, Beurré Hardy, Beurré Diel, Easter Beurré, Jargonelle, Comte de Lamy, Doyenné du Comice, Van de Weyer Bates, Fondante d'Automne, Conseiller de la Cour, Hacon's Incomparable, Doyenné Boussoch, Beurré d'Aremburg, Bergamot d'Esperen, Clapp's Favourite and Beurré Superfin. Of Plums the best are Gisborne, Blue Prolific, Washington, Early Prolific, The Czar, and Kirk's. Our best dessert Apple is Cox's Orange Pippin, which is in splendid condition from November to the end of March.—D. MCKENZIE.

Eridge Castle Gardens, Tunbridge Wells.—The fruit crop in Sussex is not so satisfactory as last year, more especially the Apples, which bore an enormous crop, with the result that the trees were partially enfeebled, and also prevented from forming sufficient fruit buds. Some trees of Sturmer Pippin, however, which had their buds pecked out by tomtits in 1887 and the crop entirely destroyed have this year an average crop, another instance of the necessity of timely thinning to produce finer fruits and continued vigour in the trees. Another great cause of failure in fruit trees is planting them in warm low-lying ground, which induces early blooming, and consequently more subject to early spring frosts, which are often sharper in hollows than on higher ground, and the opposite extreme is equally as bad when tender fruit trees are planted on exposed hills and breezy knolls. Orchards should be well sheltered with surrounding trees at a distance, so as not to rob the orchard of its nourishment. I have found the Pine tribe best for shelter. Another great mistake in Apple orchards is starving the trees. To produce fine fruit the trees should be top-dressed. Often the knife is too freely applied, as merely thinning the branches is generally found sufficient. The richest Apple in cultivation is the Gravenstein, but it is delicate and only fit for espaliers. The best all-round Apple is Cox's Orange Pippin, but it does not keep late; therefore one must have recourse to other kinds to prolong the season. The best late dessert Apple is Sturmer Pippin, which may be kept plump and good till June. The following kinds are a full crop here this year: King of the Pippins, New Hawthornden, Cockle Pippin, Mère de Ménage, Norfolk Beaufin, Winter Hawthornden, Betty Geeson, Sturmer Pippin, Lady Henniker, Fairy Apple, Hanwell Souring, Adam's Pearmain, Hughes' Golden Pippin, Striped Beaufin, Wellington, Duke of Devonshire, Mannington's Pearmain, Gravenstein, Queen Caroline, White Paradise, Lane's Prince Albert, Kerry Pippin, Winter Queening.—J. RUST.

Basset Wood, Southampton.—The small fruit crops here are very heavy, but owing to rains a great deal is rotten. Pears and Plums a fair crop, but Apples quite a failure in this garden. Peaches very good. The following Apples we find very good both for cooking and dessert: Blenheim, Cox's Orange Pippin, King Pippin, Nonsuch, Dr. Hogg, Lady Henniker. Dessert only: Cockle Pippin, Duchess of Oldenburg, Mannington's Pearmain, Braddick's Nonpareil, Fearn's Pippin, Golden Russet, Red Ingestrie.—F. BOHEY.

Heckfield Place, Winchfield, Hants.—I regret to have to report that as regards this district this is the worst season that I have known during the twenty-two years I have lived at this place. As regards Apples, the crop is practically a failure; we may, perhaps, manage to gather a couple of dozen bushels in garden and orchard combined. The plague of caterpillars that early in June raged over a great part of the country, more particularly in the southern and eastern districts of England, literally took possession of the trees, and devoured leaves, small fruits and blossoms, and in some instances the new shoots the trees were making. Many Pear trees shared the fate of the Apples, but by persistent syringing of the trees with the garden hose, we managed to dislodge the caterpillars and save a part of the fruit on some of the trees, on walls in particular, but the entire crop will not average a tenth of our usual quantity. The trees are now clean and plumping up buds well, but unless we soon get a change to brighter weather they cannot ripen, and so next year may be as bad as this. Peaches and Nectarines on walls are a full crop and the trees healthy, but it is a question whether the fruit will ripen up, so late and still sunless is the season. They were well protected with scrim canvas, and all through the roasting weather of last July and August had abundant supplies of water, hence their fruiting so well now. During the prevalence of the caterpillar plague, to prevent the pest getting a footing on these, they were frequently dusted over with Tobacco powder, and to this alone is due their freedom from attack. Apricots are about a third of a crop; trees that had full supplies of water last summer are fruiting well, but those that had but short supplies are very sparse of fruit. Caterpillars never touched the trees, and they are at present as healthy and vigorous as anyone could wish. Plums are badly affected by aphis, and though nearly all varieties and forms of trees bloomed well, there is not more than half a crop; Victoria and Rivers' Early Prolific are the best fruited. Cherries, more especially Morellos, are carrying good crops, and the trees are very clean. Raspberries have been and still are abundant. Strawberries very heavy crops, but much damaged by rain, and the fruits were comparatively flavourless for lack of sunshine. Currants of all sorts were never more plentiful nor finer. With reference to your inquiry as to the best dessert Apples of the district, I name those that are most valued here in the various seasons: Irish Peach, Kerry Pippin, Adam's Pearmain, American Mother Apple, Blenheim Pippin, Cox's Orange Pippin, Ashmead's Kernel, Cornish Gilliflower, Ribston Pippin, Golden Harvey, Hughes' Golden Pippin, Keddleston Pippin and Mannington's Pearmain.—W. WILDSMITH.

Dropmore, Maidenhead.—The fruit crops, generally speaking, are this year considerably below the average in this neighbourhood, partly owing to the cold spring and continued easterly winds, more especially in the case of Peaches and Nectarines, which are very thin. Apricots, although not much grown, suffered less and are bearing fair crops. Apples are almost a failure; the trees generally bloomed in profusion, but did not set freely, and the after-attack of caterpillars almost stripped the trees of foliage and of what little fruit remained. They are now making new growths and have a somewhat spring-like appearance, the heavy rains having thoroughly cleansed the trees. Here and there an occasional tree is bearing a fair crop, notably Ribston Pippin, Blenheim Orange, and Lemon Pippin. For dessert, I find of good flavour Irish Peach and Red Quarrenden, followed by King of the Pippins, Cox's Orange Pippin, Margil, Ribston Pippin, Blenheim Orange, Mannington's Pearmain, and Court Pendu Plat. Bush fruits are plentiful and good. Strawberries very good crop, but partially spoilt by excessive rains. Nuts plentiful, but late and small.—C. HERRIN.

Leonardslee, Horsham, Sussex.—The Apple crop in this neighbourhood is by no means as good as was expected from the great show of blossom we had in the spring. It is under the average all through this district. It is only a few kinds which are carrying any crop, namely: Keswick Codlin, Flower of Kent, Lady Henniker, Old Hawthornden, Sturmer Pippin, Dr. Hogg, Stirling Castle. Of dessert Apples for July and August, I think more should be grown in private gardens of such varieties as Mr. Gladstone, Irish Peach, with a delicious aromatic flavour; Early Strawberry, a good early Apple for August, free bearer and good sweet flavour; and Beauty of Bath, sent out by Messrs. Cooling & Sons, which will prove one of our best early dessert Apples when better known; it is extremely handsome, has a brisk and agreeable flavour, and should receive early notice by all. The Red Astrachan is a beautiful early Apple which should be in every collection. The following is a list of good worthy kinds to follow in their seasons for September and October. We have Kerry Pippin, which is best left to ripen on the tree; it is of a rich sweet flavour. Gravenstein, which has a remarkably rich flavour, and is crisp, juicy and sweet, is extremely valuable and one of our best for jelly and preserving. Ribston Pippin and Cox's Orange Pippin are both well known. Worcester Pearmain should be in every garden, also one of our new Apples, Lady Sudeley, of which I cannot say too much as a really good early dessert Apple; it has a melting flesh, a good flavour and is splendid for the dessert table. September Beauty is showy, with a rich spicy flavour and a brilliant colour; King of the Pippins is a constant bearer and of sweet flavour, the flesh soft and of a rich golden-yellow colour. The following are in season in December and January: The Melon Apple is very handsome, one of the best American Apples; it is of a rich flavour and has a soft melting flesh. Duke of Devonshire is of great excellence, with a bright crisp flavour. Gascoigne's Scarlet is a most beautiful red-cheeked Apple of fine flavour; it is very ornamental. Hubbard's Pearmain is a fruit of rich flavour; and Adam's Pearmain is a great bearer, the flesh soft. Those in season from February to May are the following: Court Pendu Plat, an old favourite and a great bearer, with a crisp flavour. Rosemary Russet is very handsome, the fruit russetty and of first quality. Sturmer Pippin, one of the best of our late dessert Apples, is both prolific and of sweet flavour; as a baked fruit it wants no sugar. Pears are an average crop with me, but in the district are under the average. There has been an abundance of small fruit, with a rainfall of over 4½ inches for July and cold nights.

POTATOES are much blighted in this neighbourhood. Peas abundant, look well and crop well; all other green garden crops are plentiful.—S. FORD.

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FLOWER GARDEN.

THE ROCKWOOD LILY.

(RANUNCULUS LYALLI.)

THIS exceptionally beautiful flower, the Water Lily of the Shepherds or the Rockwood Lily, was represented by a coloured plate given in THE GARDEN, Dec. 31, 1887, and at the same time a full description of it, with cultural notes, was furnished. The accompanying illustration is from a plant in the Glasnevin Botanic Gardens, Dublin, and although now well known by name, this Ranunculus is as yet rare in cultivation. It would be mere repetition to go into details regarding R. Lyalli so soon after the other lucid description, but the following note from Mr. Moore, of the Glasnevin Botanic Gardens, Dublin, will be read with interest and profit by those who have not had any experience with this handsome New Zealand plant:—

The plant of R. Lyalli from which the flowers represented in the accompanying engraving were gathered has been cultivated at Glasnevin for a number of years without showing any inclination to flower until the present season. It has always been kept in the same position in a frame facing the north, and standing in a saucer with a little water in it. It has been quite exposed during summer, but protected by a sash during winter. Each spring it was carefully repotted into a mixture of good loam and sand, ample drainage being provided to permit of water being given freely without making the soil sour, which seems to be an important point to attend to. When the flowers first open they are beautifully cupped, and about as large as a half-crown-piece; afterwards they become flat and not so graceful. The colour is very pure white, with a bunch of golden stamens in the centre. Although several flowers were carefully fertilised, no sound seed was produced.



The Rockwood Lily (Ranunculus Lyalli). Engraved for THE GARDEN from a photograph sent by Mr. F. Moore, Glasnevin Botanic Gardens.

Scarlet Martagon Lily (Lilium chalcedonicum).—Among the Lilies that flower during the end of July and beginning of August this is one of the most showy; indeed, in this respect it is unsurpassed. It is one of the Turk's-cap section; the blooms reflexed and in colour of an intense vermillion-red. They are borne in rather a compact cluster on the upper part of the stem, and though individually resembling very much those of L. pomponium, which flowers much earlier in the season, they are without the heavy disagreeable smell which the blossoms of that kind have. Like several of the Turk's-cap class, this Lily cannot be depended upon to flower well the first season after planting, for though a bulb or two may bloom in a satisfactory manner the chances are that very few will do so. L. chalcedonicum will succeed in a heavier loam than many of the other kinds; indeed, it may be occasionally seen equally at home with the Madonna Lily (L. candidum) in cottage gardens. In transplanting it the bulbs should, if possible, be shifted soon after the flower-stems decay, and not left until the roots at the base are again in active growth before removing them.—H. P.

KÆMPFER'S FLAG.

ONE of the flowers of the season in the hardy garden is Iris Kæmpferi, and we can record for it a good year, as the continuous rain and dull weather have suited the requirements of this essentially moisture-loving Flag. It will be remembered that in 1887 the plants were almost burnt up, and one thing that should be guarded against in growing this Iris is a dry position. There are many lakes and ponds in gardens the margins of which might be fringed with the growth of I. Kæmpferi, ornamental even when not in bloom, but trebly so when it sends up the sturdy spikes, each supporting a flower of massive proportion, too much so sometimes to our mind, as when too large the folds and graceful curves, so beautiful in the bearded Flags, are lost in the breadth, firmness, and strength of the bloom. In its leafage, manner of growth, and inflorescence it shows an affinity to the grassy I. sibirica; also to the common, but beautiful yellow Water Flag (I. Pseudacorus). There is in the colours of the flowers a wide range, some of the purest white, others self purple and so on; but by far the most beautiful are the self varieties, that show no trace of blotches, spots, and other disfigurements. We cannot admire, and many are with us on this point, a flower dappled and speckled as a piece of bad mosaic. Only those pure and decidedly coloured flowers should have recognition, as peering up through the luxuriant growth they give a display that only self colours are capable of. An excellent plate of Iris Kæmpferi was given in THE GARDEN of June 17, 1882, and those who are acquainted with this glorious flower of August will obtain a good idea of its fine character from it. In the flowers represented it will be noticed that there is a decided tendency to doubling, happily a rare occurrence in respect to other Irises, although we saw this season a double-flowered I. sibirica, a monstrosity we hope never to see again. The flowers of Kæmpfer's Iris shown in the plate have a double whorl of falls, but if we do not get beyond this it will not be of great moment, as the second whorl gives a fulness to the bloom by no means undesirable. It is when the whole thing becomes veritably double that a monstrosity is produced. The flowers last well in water if gathered just as they are expanding, and so have a good use besides their beauty on the plant. Those who have not a pond, stream or lake in the garden cannot give them the same conditions as the Japanese, who cultivate Kæmpfer's Iris with tender care, and in many of their photographs, in the taking and colouring of which they are adepts, this Iris will sometimes be recognised often by the sides of running streams, and fringing them as our own Bulrush in England. Surprisingly beautiful must be this Iris in Japan, where it lives and increases with a vigour that we have not seen in our own country. The Japanese hold it in peculiarly high repute, and are most successful with it, as seen by the seedling roots that are imported annually in thousands, all of which have, however, bloomed before they were exported. If a large batch is forwarded, a coloured drawing of each flower is also sent, and though roughly done on rice paper gives an approximate idea of the treasures the nurseryman or gardener may expect. Very true are many of these drawings to the varieties they represent, and they also show the care that is taken with this Iris in the land of flowers. Those who cannot grow them by the side of water will do well with them if they are cultivated in moist loam, and kept well supplied with water during the summer months. Messrs. Gordon, of Twickenham, have a batch of them in their nursery, and we have seldom seen a finer variety than one flowering there under the name of Princess Beatrice. It has falls of great width, pure white, and the standards are of the same purity, the only true colour being a yellow blotch or suffusion at the base of the falls; by the side of a stream it must be delightful. Red Gauntlet is white margined with rose-lilac, and Artist is of the same character, the petals of a

rosy-lilac colour at the margin, this running into the bloom itself and intermingling with white. t is not blotchy like so many of the variegated coloured blooms. Major Mason, rose-lilac, Eve, white, and Ayrshire, purple, were also forms that we noted blooming at Twickenham, where Iris Kæmpferi finds a congenial home.

THE CARNATION.

URING the past ten years so largely has the cultivation of the Carnation in gardens increased, that there is hardly to be found one of any pretension which has not a good collection. The remarkable popularity which now attaches to all hardy plants is the best proof of their excellence. Few hardy plants are more largely cultivated than the Carnation. The cultivation of the Carnation in gardens is mostly restricted to self or Clove-flowered varieties, which include at once the most hardy as well as the most striking and useful forms. The Carnation show on the 24th of July at Westminster, of course, suffered greatly because of the lateness of the season. The dates of the show seem to be as fixed and immovable as were the laws of the Medes of old, but seasons vary, and this year, disregarding human fixtures, the Carnations outdoors are just about a fortnight later than usual. Hardly a flower shown the other day but had been opened under glass or beneath tiffany coverings, an odd and suggestive circumstance in relation to the show of a flower which is especially esteemed because it is hardy. The chief reason for objection in this case is found in the fact that with the certainty of a late flowering season the show was not deferred for a fortnight, and thus have enabled a fine display of Carnations from the open ground to have been made. What these plants will become, especially from seed, I had good evidence here last year, when seedling plants eighteen months old produced such wonderful heads of bloom. A still better illustration is now to be seen in the Messrs. Sutton and Sons' Reading nursery, where some thousands of plants from seed sown early last year are carrying really marvellous clumps of flowers. When I saw these on the 23rd ult., the day before the Carnation show, only very few were in bloom. Now all are flowering grandly, and are a sight well worth seeing. Not the least interesting feature is found in the undoubted tendency to adhere to colour in these seedling forms. It is such plants as those lifted into big pots or round flat baskets that we want to see at Carnation exhibitions. One good seedling plant, on the whole, will give more bloom than will six layers blooming the first year, and those who regard Carnations as indifferent decorative or border plants because rooted layers produce just one or two stems and a few flowers, would materially change their opinions if they saw big seedling clumps carrying from thirty to fifty stems and any number of flowers. With some very charming selections from French stocks I have been astounded at the wonderful show of bloom obtained from plants produced from pipings. These cuttings were put into a frame last September twelvemonth, and stood there till the following May, when being then rooted they were dibbled out on to a border, where in spite of the drought they made strong plants, and were transferred into the flowering place early in the winter. These plants now blooming beautifully have stems in number exceeding anticipation, for on one alone I counted sixty. The present method of showing cut blooms singly, of course, is best for the florists, who wish the points in their blooms to be duly regarded, but in the case of selfs, and especially of those grown for border decoration, handfuls or bunches of not less than twelve flowers, and not too closely set, should be asked for. Not only would such methods of showing Carnation blooms help to make an attractive display, but it would manifest that the plants from which the flowers were taken enabled growers to cut and come again. Seedling plants would enable this form of exhibiting to be easily done, provided, of course, shows be not held, as this year, so terribly out of season. It is rather late to sow seed to bloom freely next year, although if sown under glass the growth of the seedlings may be considerably accelerated. In any case sowing now would enable the grower to have some huge plants to bloom two years hence, even if no great results happened next year. Carnation seed if good always germinates readily in the open ground. The chief danger to the seedling plants in the seed bed in such a season as the present lies in an excess of moisture; therefore sowing under glass may also for that reason prove to be the wiser course.

A. D.

GLADIOLI IN A DAMP, COLD SEASON.

GLADIOLI of the gandavensis type are making excellent growth and promise to flower strongly, and not so late as we might suppose when we take into account the weather that has prevailed for several weeks past. I am writing now of the condition of the plants which I have seen in several gardens in the neighbourhood of Taunton, where the soil for the most part is fairly good and deep. The collection that surprised me most was one of about one hundred sorts in my own garden in the same neighbourhood. These were planted in freshly-dug ground that formed part of a bye-field only a week or two before they were planted. Owing to the fact that the land had not been ploughed for twelve months previously, it turned up very lumpy, and time and labour being short, the ground was very indifferently prepared. However, in this rough state the corms were planted without any manure. Except to keep the plants free from weeds, they have had no other attention, although they sadly required watering in the month of May. Now as I write, in the third week in July, they are in the most vigorous health, and I look forward to getting some fine spikes of flowers. The condition of this lot of plants is the more noteworthy, because I had grown the same stock in highly manured ground until I could not get a respectable spike of flowers. They had, in fact, done so indifferently during the last three years that I had almost given them up altogether, seedlings behaving nearly as badly as those raised from spawn. But the same stock is now transferred to quite fresh ground of a lighter character and without any manure. They appear to be doing well in their new home, and as vigorous as I could wish to see them. The inexperienced reader may be disposed to think perhaps, from what I have written, that the Gladiolus does not require ground that is fairly well manured, but having been a large private grower in my time, I have not found it so. For the first five or six years of my experience I found that I could not well give them too much manure, provided this was well rotted. The only explanation I can give is that they had got tired of the ground—not at all an unusual occurrence with other plants—and required a change of soil. This they have had, from a rich surface medium resting on a marly bed of clay to that of a brownish coloured loam, with a lower stratum of gravel that has had but little, if any, manure for a long time. Something will, I am sure, be gained by changing the place from one bed or border to another, even in the same garden; but if they must be confined to one spot, it is necessary to introduce some fresh soil every year. I have omitted to say that the bulbs I have referred to were raised by myself from seed; the plants have been in my hands about twelve years. I do not suppose that fresh bulbs obtained every year or two from another source would degenerate in the same way that my stock has done.

J. C. C.

Theropogon pallidus.—This is a pretty little Himalayan perennial, the blooms of which, resembling those of the Lily of the Valley, are produced at this season of the year. The plant forms a tuft of narrow leaves, reminding one of an Ophiopogon, while the flowers, instead of being pure white, as in the Lily of the Valley, are slightly tinged with purple. Though, perhaps, scarcely showy enough to suit many people, a good plant of this bristling with flower-spikes is a very pretty object, and with ordinary care it will remain in beauty a considerable time. The cultural requirements of this Theropogon are simple, for it will succeed in any good soil, and being dormant during the winter it simply needs to be kept from frost during that period. It is one of those plants that might in vain be sought for in most nurseries, yet it has flowered in Kew for many years, and I have often seen it among imported Orchids from the Himalayan or Assam region at the London sale rooms; indeed our plants were obtained from that source. —H. P.

Silene pusilla.—This is, indeed, a gem of the alpine plant world that is rarely seen in this country, even in the best collections of hardy flowers. Words can hardly describe the peculiar charm seen in this the most diminutive of the genus. This species grows into little tufts with leaves so small that it appears like one of the Saxifrages. Its little cushions of greenery are studded all over with single flowers of pearly whiteness, transparently delicate in appearance, and certainly not more than one-eighth of an inch in diameter. We saw this in flower on the rockery at Broxbourne, where it seems quite at home.

Omphalodes Luciliæ.—It may seem strange to write about Omphalodes now, for though beautiful we generally associate them with spring, and indeed O. verna is one of the first to open its flowers. The variety under notice, however, is such a continuous bloomer that the great tufts at Broxbourne are now nearly as full of flowers as they were several months ago. The blooms of this species are much larger, and in colour a delicate pale lavender-blue, while they are seen to full advantage, as the leaves, which have a glaucous tint, are much smaller. It promises to continue blooming far into the autumn. Evidently the value of this plant is not fully known.

Clematis coccinea.—When this Clematis was first brought out it created quite a sensation, but although some years have elapsed, it is rarely met with in anything like presentable form. It was consequently a pleasure to find out that at Broxbourne its requirements had been supplied, and the reward was seen in some strong plants rambling over branches stuck in the ground, there being a fair display of the showy scarlet flowers.

Foxgloves.—These are used with excellent effect by Mr. R. Greenfield at The Priory Gardens at Warwick. On the left of one of the carriage drives is a broad belt of shrubbery, having towards the foreground specimen Hollies. This affords ample space for large patches of Foxgloves, and they flourish here in a semi-wild state and with great luxuriance, furnishing charming patches of colour against the dark background of trees. They are allowed to sow themselves, which serves to heighten the charm of the natural appearance they present.—R. D.

Harrison's Musk as a bedding plant.—Some beds of this in the terrace flower garden at Warwick Castle, Warwick, are very bright and effective, notwithstanding the rain. In fact, the rain has made the plants grow freely, and they are now masses of bloom. White Pelargoniums, Calceolarias, Verbenas, and other things have but a sorry appearance. The Musk presented a sheet of cheerful blossoms, and the beds are daily furnished with an unfailing supply of flowers. Plenty of moisture appears to suit the Musk.—R. D.

Verbascum Chaixi.—This is one of the prettiest, and at Broxbourne the most popular, of the Verbascums. When closely examined, the stamens of all the Verbascums are seen to be covered with a profusion of hairy filaments, which are generally of the same colour as the flower; but in the variety under notice they assume a purplish hue, the centre of the flower contrasting well with the clear self yellow colour of the petals. Unfortunately this kind does not produce seed, and, therefore, has to be propagated by root cuttings.

Geum miniatum.—There is a magnificent bed of this Geum at Broxbourne, and although the flowers are only single, their orange-red colour renders them both distinct and effective. This being a hybrid kind, it does not produce seed; every flower, though single, is barren, and consequently the plants continue blooming from early spring till late autumn, and during one mild winter it flowered continuously, keeping up an unbroken succession for twelve months.

Polygonum sachalinense.—This is a giant Polygonum that can be well recommended for planting in rough or semi-wild places. It annually sends up large gracefully arching shoots 6 feet to 9 feet high, furnished with broad ovate leaves which sheath the sides of the stem and much resemble the large, broad leaves of one of the common Docks. P. cuspidatum

is often used in such situations as are here recommended, and we should like to see P. sachalinense more freely planted.

ANNUAL FLOWERS.

The glimpse that we sometimes obtain in gardens of a bed of annuals always suggests to our mind that far too little is made of a class of flowers unequalled for brilliancy and freedom of flowering, hardy, easily grown, informal, and sometimes exceedingly graceful. We have phases of growth of all kinds, from that of the brilliant little Silene to the Convolvulus that clambers over everything that impedes its progress. But though we rejoice that the annuals are, with the hardy plants, becoming quite the flowers of the day, we must remember that for years they were under a ban. A prejudice existed against them that has not yet been dispelled, and this prejudice was that they were short-lived. This condition of things was not the fault of the annuals; it was that they were indifferently cultivated, their ephemeral character being simply the result of a poor soil, improper treatment afterwards, and a mistaken notion that any place, any ground, and any kind of cultivation would suffice for things that were considered little above weeds. But annuals are not thought of in this light at the present day. Where they are grown they are given a soil that will support the growth and profusion of bloom that the several kinds afford. Generally speaking, ordinary soil will suffice; but the great point is in the first place not to sow too thickly. Where this is practised it is absurd to expect a healthy growth to follow. How is it possible for a plant to thrive when it is forbidden air, space, and sunshine to develop the beauties it is capable of. Sow thinly, and when the plants are large enough to handle with comfort, thin them out so that they stand about 6 inches apart, not less. Where this is done a grand show of bloom will follow, provided that other minor, but necessary details are carried out. Although we often find annual flowers in beds, this is not the only place where they should be seen. The narrow strips of border that skirt the shrubbery or the garden walls, and sometimes the house itself, may well be sown with such fragrant things as the Night-scented Stock, Mignonette, &c. We remember several beds of Roses, the groundwork of which was filled in with Mignonette, and nothing could have made a more happy or effective combination. The display of Nasturtiums that was seen last season in the Royal Horticultural Gardens at Chiswick again showed the value of annual flowers for creating distinct effects by a brilliancy of colour only seen in the scarlet Pelargoniums which are as informal as the annuals are elegant. Nasturtiums, or dwarf Tropæolums, as we should probably call them, form a class likely to be brought into greater requisition than heretofore. Such neat, bushy growing kinds as Empress of India, deep scarlet-crimson; Tom Thumb Pearl, yellow; Crystal Palace Gem, yellow, with crimson blotches; Tom Thumb Crimson, bright crimson; and others of that class, are capable of making a vivid glow of colour in bed or border during July and early August. Another useful class is the Calendulas or Marigolds, of which the varieties Meteor, gold yellow, and Prince of Orange, yellow, are two admirable varieties. These grow about 1 foot in height, and come in before the African Marigolds that bloom more into the autumn. This is a class that has been taken in hand by the hybridist, but we protest against the huge ball-like flowers as enormities likely to bring a beautiful flower into disrepute. Why aim merely at creating a flower about as graceful and as severe as a glass ball? The neat-growing Candytufts make excellent edgings, though not particularly long lasting; and we have another beautiful annual in the Clarkia, the varieties such as Salmon Queen and Purple King giving double flowers of the colours indicated by their name. These are very useful for patches here and there in the border, reserving the dwarfer kinds for edgings, &c. Mention need scarcely be made of the Cornflowers, as their usefulness is well recognised, judging from the large supplies that come into Covent Garden and from their extended cultivation in gardens. We have now a strain of several colours, from white, through delicate rose-pink, to the deep lovely blue of the type all know so well. Everyone should grow a good strain of Cornflowers, as flowers that not only give beauty to the garden, but which may be freely cut from for vases and decorations. The Collinsias and the Indian Pinks, as the varieties of Dianthus Heddewigi are generally called, are also charming for the border. We have sown large breadths of the last of the two, and seen what showy flowers they are in a garden. If the seed is sown early in April, the usual time for sowing annuals, an abundant display of flowers will result the same season, and an autumn sowing will also give an early display the summer following. The Iceland Poppies, Godetias, Gilias, Stocks, Asters, Leptosiphon aureus and L. roseus, Limnanthes Douglasi, the brilliant Linum flavum (excellent for the rockery), and Lupines are well worth culture, and are sufficiently known to need further mention unnecessary. A suitable annual for the shrubbery border is Malope grandiflora, the flowers large and showy. The Night-scented Stock exhales a delicious fragrance at eventide, and should be sown near the house. Love-in-a-mist, or Nigella damascena, Portulacas, sown in gentle heat in spring and then planted out; Salpiglossis, Saponaria calabrica, Sweet Sultan, Everlastings, Zinnias, Virginian Stock, Viscaria cærulea, and Silenes are also invaluable, though in a garden of ordinary size it will be necessary to make a selection from these. The Salpiglossis we strongly recommend to be grown, as the flowers are exceedingly quaint, and the charming Schizopetalon Walkeri, with white flowers of delicious fragrance, surpassing even those of the Night-scented Stock in this respect, also deserves a place. From this comparatively small list of flowers we can see what a range of selection there is in the annual flowers to suit all tastes.

E. C.

Milla biflora may be seen in perfection of bloom in the Cape house at Kew, where there is a specimen in a pot bearing numbers of flowers, and as many as three on a stem. I do not remember having seen it more finely grown, and the flowers seem to be larger and whiter than usual. They are quite 3 inches across, and their perfect star shape and pure whiteness make them very charming. Many attempt to grow this delicate Mexican bulb unprotected in the open border, but this is a mistake, except in very mild localities. It is essentially a frame and pot bulb, and when well grown and flowered affords great enjoyment.—G.

Begonias as bedders.—I observed the other day when at Heckfield that some of the terrace beds formerly filled with succulents, &c, mosaically arranged, are this year filled with Begonias. This is a change, although I am not sure it is an improvement. The varieties included many very large-flowered forms which hardly seem to be adapted for bedding. Some other flowers of medium size, borne on stout stiff stems, on the other hand, were admirably fitted for the purpose. In some cases the colours were wonderfully rich. The weather so far had, however, been very unfavourable to Begonias. An effort should be made by raisers to secure a special section for out-door growth, avoiding those with large flowers or a drooping habit. A wide field is open in this direction. Those specially interested in Begonias will find a grand display of these lovely flowers under glass at the Messrs. Sutton & Sons' Reading nursery about the middle of August onwards, with some lovely hybrids also to attract attention.—A. D.

FLOWER GARDEN NOTES.

The weather.—We have actually had (Aug. 9) three consecutive days of fine weather with a good amount of sun, and the flowers are expanding, whilst the foliage plants are growing. The soil is being stirred between the plants with a pointed stick, and the plants re-mulched with Cocoa fibre—at least such meagre growers as require that help to get them to fill out their allotted space. Much may be done by pegging out such plants as the variegated Mesembryanthemum and things of that habit and nature. For the most part the flowering plants that require pegging have grown well, and the covering of the ground in this way is therefore an easy matter. Petunias, Verbenas, Violas, and trailing varieties of Pelargoniums can all be made to cover the ground by a little manipulation of that kind, and this work we are doing and shall continue to do until every inch of bare space is covered. I am aware that by some complete covering of the ground is not considered essential, but my own idea is that until this is attained a bedded-out garden lacks finish, and certainly colour effects are not perfect as long as bare soil interrupts the vision. It is quite hopeless to expect the very tender kinds of plants, such as Alternantheras and Coleus, to fill out their space, and the sooner this is recognised and other plants substituted the more effective will be the garden as a whole. Of course the real difficulty is as to plants to take their place. We have not large plants, and, therefore, are compelled to leave in the half-dead tender subjects and fill the spaces between with Herniaria glabra and Sedums.

Hollyhocks and single Dahlias.—At one time I had doubts as to whether or not a mistake had not been made by arranging these in juxtaposition. I doubt no longer, as the effect is unique, and will yet be better when both kinds of plants are in full blossom. They are in two lines 80 yards in length and backed by hedges of Lawson's Cypress, and both Hollyhocks and Dahlias are securely tied to stout stakes that are half concealed in the Cypresses. The Hollyhocks have been allowed to develop three stems each, which tower above the Dahlias—in fact, over the top of the hedge, and serve to break the line of uniformity of height, which up to the present was thought to be the proper thing, but evidently it was not, because the present arrangements are considered to be infinitely superior, and personally I have no doubt on that matter, and for this reason the Dahlias in such a position must of necessity be trained flatwise. As they never grew higher than the hedge, there was, so to speak, no break in the straight line, but this the Hollyhocks supply, being from 2 feet to 3 feet higher than the hedge. The line is thus broken and formality destroyed. The Dahlias are tied closer to the hedge, and this for the double purpose of bringing the flowers out of the mass of foliage towards the light and of gaining more head-room for the dwarfer plants, as Marguerites, Pelargoniums, Heliotropes, &c., that are planted in front part of border. I ought to have said that the single Dahlias are intermixed with a section of Dahlias that are known as Cactus varieties, and which are as equally suited for the position as are the single varieties. Amongst the most noteworthy of the Cactus section are Mrs. Hawkins, a pale sulphur-yellow; Lady E. Dyke, deep yellow; A. W. Tait, pure white; and Sensation, deep purple, and one of the handsomest flowers of the section I have yet seen. I am not aware whether it is in the trade or not, but it ought to be. It is a seedling of Mr. Cullingford's, and sent to me by that gentleman for trial last season, and right well has it come up to the high expectations and descriptions given me of it. One of our best single kinds named Clytie, a creamy white, is from the same source, thus showing Mr. Cullingford to be as well to the front

with Dahlias as everybody knows he is with Chrysanthemums, as note his variety Cullingfordi.

Carnations, &c.—What a poor flowering time these have had; quite half of our flowers damped off before they had opened and many of the buds turned yellow and never opened at all, and though they are now opening better, the flowers are puny and quite out of all character, and for the present year at least open-air cultivation must be given up. Preparations must be made for another season by getting all layering done forthwith. Those who have not the convenience for layering may put in cuttings. A sound sandy loam well pressed down and either handlights or a frame are modes of propagation in all respects equal to layering, and often prove more successful. Pinks, Pentstemons, Snapdragons, and many other hardy plants can be propagated in the same manner, and if needs be in the same frames. As a matter of course it is always best to have separate lights or frames for each kind, but it does not follow that they will not do well together. From seeds sown in heat last autumn we have saved excellent sorts that are very little worse than the best named kinds.

General work.—The principal item is that of keeping tall plants securely tied to supports, and dwarfer ones pegged down. Gladioli, Lilies and many herbaceous perennials now await this operation, and other perennials, such as Delphiniums, tall Veronicas, Pyrethrums, and others, having done flowering, partial cutting down for neatness' sake is desirable. In the sub-tropical garden Castor-oils, Blue Gums, Hemps and Abutilons are growing so freely that stouter stakes are requisite at once, and the edgings of beds to be trimmed up by cutting the Grass and pegging down or pinching the plants. Propagation of sundry kinds of flowering plants that are in favour, and of which cuttings are to be had, will go on as opportunity offers. Cuttings of most are still scarce, but there are abundance of Violas, Phloxes, Pentstemons, and of most kinds of bedding Pelargoniums, and these will be put in first. Golden Feather Pyrethrum, variegated Mesembryanthemum, and other dwarf ground-work plants we strive to peg or pinch once a week and by this means a neat appearance is at all times ensured.

W. W.

SHORT NOTES.—FLOWER.

Mesembryanthemum uncinatum.—This plant, even when not in flower, has a quaint and distinct appearance, but at present it is very pretty and in full bloom at Broxbourne, the plants being covered with rosy carmine flowers.

Potentilla William Rollisson.—Among the many florists' varieties of the variable Potentillas, this is probably one of the very best. It is a good grower, a free bloomer; the flowers are large, semi-double, and in colour a brilliant crimson-scarlet.

Campanula Haylodgensis.—This is a good dwarf-growing and free flowering kind, belonging to the pumila section. On the rockery at Broxbourne it spreads into large healthy tufts, which are almost hidden in a profusion of large, beautiful lavender-blue flowers.

A fine Foxglove.—The noble Foxglove mentioned at p. 89 is not, I think, of any unusual dimensions. I have just cut one measuring 6 feet in height, and on the main stem are 224 seed pods and buds, not counting those on the side shoots. I have others of equal size. The white-flowered forms are not so strong as the red.—A. R., *Windermere.*

Old Clove Carnation is simply magnificent in the Embankment Gardens by Charing Cross. There are large clumps of it, full of beautifully shaped and coloured flowers, and this in the centre of London. Many a gardener in the country would be proud to have the old Clove Carnation as good as at Charing Cross.

Lysimachia clethroides.—This is a good border plant that produces an abundance of full green foliage, and throughout the summer throws up numerous spikes of white star-like flowers that last in beauty for a long time.

Lythrum roseum superbum is a bright rosy crimson form of the native Loosestrife, and is very effective as a border plant. It was very conspicuous at Broxbourne a few days ago. This would be found a most useful and showy plant for adorning the sides of streams or lakes or grouping upon islands just above the water line.

Dianthus cinnabarinus.—This is a distinct rock Pink, the flowers being, as the name implies, of a cinnabar-red, but fade into carmine. They are produced so freely, every shoot developing its flower-spike, that, judging from appearances, the plant would flower itself to death. It does not, for we were informed that after the flowering season is over it puts forth a crop of Grass which cushions against the rocks all the winter.

Platycodon (Campanula) grandiflorum Mariesi, or P. pumilum, is flowering now on the rockery at Kew and also in the alpine house. It is a comparatively recent and beautiful acquirement, quite dwarf in growth, seldom growing more than 9 inches high, and with every stem bearing several of the large, deep purple flowers that remind one of those of a purple Clematis, although, of course, smaller. The tuft of it on the rockery is blooming very freely, and seems to do well in a moderately exposed position, where there is a good depth of loamy soil.

FERNS.

W. H. GOWER.

BLADDER FERNS.

(CYSTOPTERIS.)

In this small genus are included some very pretty hardy, deciduous kinds, which amply repay any amount of care. Their beautiful fronds, which are freely produced in the summer months, should when dead be pegged down to protect the crowns during the severe weather in winter. The plants grow quickly and form handsome small clumps, but the fronds, as a rule, are not long-lived. Several species and varieties are indigenous to this country; indeed, the genus Cystopteris would appear to affect more particularly the temperate zones of both hemispheres. It has a wide geographical distribution, being found throughout Europe, in Asia, in the Arctic regions, South and Western Africa, New Zealand, North America, and various other places, and it is only reasonable to suppose that the same species would assume various forms through the climatic influences bearing upon it in its different positions. If these distinctions are maintained under cultivation they deserve recognition, and thus, I believe, we should find more varieties than have hitherto been catalogued in books from dried specimens could we see the living plants side by side. The genus Cystopteris obtains its name of Bladder Fern from the puffed-out indusium which covers the spores, and appears to be nearly allied to Lastrea. If a moist, shady position is selected for the plants, they form pretty objects on the open-air rockwork, and also in the cool-house fernery, where perhaps they are seen to the best advantage through being protected from winds and from variations in atmosphere and temperature. If grown in pots, these plants form pleasing summer ornaments for a Wardian case in a shady window in the dwelling-house, but as they lose their fronds in winter they should be removed to some cool, moist place in which to pass their dormant season. I wish here to impress upon the minds of Fern growers the necessity of keeping their dormant Ferns moist and not dry, as some people teach, for in a state of Nature hardy Ferns receive quite as much, if not more, moisture than when active, and I have always found Ferns, when dormant, become impoverished, and frequently die through drought. Cystopteris are not difficult to grow in the open-air fernery if they are protected from the sun and from wind. Peat and loam, mixed with some old brick rubble, suit them admirably.

C. bulbifera is a native of North America and Canada, and is perfectly hardy in this country. It is neither difficult to grow nor to increase, as it produces, on the under side of its fronds, quite a quantity of little bulbils, which drop off when mature, and from which young plants spring up the following season. Its fronds, from 9 inches to 18 inches long and about 3 inches to 4 inches broad in the widest part, are spreading, soft in texture, and light green in colour.

C. tenuis, known also as C. atomaria, is another species from North America, said by some to be identical with bulbifera, but the plant I have cultivated under this name is distinct from it. The fronds are erect in growth, ovate-lanceolate in outline, and deep green in colour. I have never observed any bulbils on its fronds.

C. Douglasi is from the Sandwich Islands, but I do not remember having seen living plants; it appears to be a dwarf, broad-fronded species, simply pinnate towards the top, and deep green in colour.

C. tasmanica is a form from Tasmania, somewhat thin and lax in texture, with fronds some 6 inches high; it is twice divided, the lobes being very obtuse and pale green. I have never seen this plant alive.

C. fragilis.—This is a widely-distributed plant, and is the commonest British plant, of which several named and distinct varieties are recorded. As its name implies, it is of a somewhat fragile nature, and requires deep shade in order to retain its verdure. In a state of Nature in Britain it seldom exceeds 6 inches in height, although I have specimens gathered on the Breadalbane range of the Grampians which are 9 inches high, and also fronds of the same species gathered in Switzerland which are a foot high. This is as large as ever I have seen it under cultivation. The fronds are twice divided, lanceolate in outline, soft in texture, and deep green. Amongst my specimens collected in Scotland, the only variety I found was a form with its fronds divided just above the middle, from thence developing two perfect fronds, but this I cannot look upon but as a temporary sport. The variety Dickieana, however, is a very distinct and fixed form. I have never seen wild specimens of this plant, but have never grown it to more than 5 inches in height; the pinnæ being very broad and closely set together, it forms dense deep green patches of great beauty. The variety angustata is a somewhat lax growing form, with fronds from 6 inches to 9 inches high; dentata is a very pretty dwarf form, with erect, twice-divided fronds of a deep green, the sori being closer to the margin than in the normal state of the plant. Sempervirens, said to be a variety of fragilis, although to my mind it is distinct from it, is a somewhat vigorous grower, and stout in texture for a Cystopteris, and I have had it retain its fronds throughout the winter in a greenhouse fernery, but I cannot say if it would be thus persistent in the open-air rockery. There is said also to be a crested form of sempervirens, but this I have never seen.

C. alpina, also known by the name of C. regia, is now a very rare plant in a wild state, although I have no doubt it still exists in plenty in many an unexplored mountain district. It might be mistaken for C. fragilis in a small state, but it is distinct enough to anyone acquainted with the genus. The fronds are usually more divided than those of fragilis. It forms a charming little tuft, its dark green fronds seldom exceeding 6 inches in height. This species is said not to have produced any sports, but I have grown two forms called rhetica and intermedia, and supposed to be varieties of this plant. Rhetica is a somewhat lax growing plant with fronds 8 inches long and deep green; intermedia produces compact leafy fronds some 8 inches high, deep green on the upper side.

C. montana is a thoroughly distinct plant, with triangular fronds of an entirely different form; indeed they resemble the fronds of Cheilanthes viscosa. I once found this plant in Scotland, the fronds being about 5 inches high, but some specimens of this species I have gathered in Norway are 9 inches high and 5 inches and 6 inches across at the base; they are triangular in outline, three or four times divided, soft in texture, and of a pale green colour. I look upon it as the nearest approach to an exotic Fern amongst all our British kinds.

FILMY FERNS.

Our two native species of Hymenophyllum (Tunbridgense and Wilsoni) are easily distinguished from other Ferns by their Moss-like appearance; though small, they are perhaps the most interesting of British Ferns. The principal difference between the two species lies in the fructification. In Wilsoni it is placed on a short footstalk, and the covering which is cup-shaped and formed of two round convex leaves, is never dentated, whereas in Tunbridgense the fructification is almost destitute of a footstalk, and the edge of the fructification is dentated or jagged. The leaflets on the fronds of Wilsoni are also bent backward and the seed stands erect, but in Tunbridgense both point upwards. These Ferns are rarely found growing more than 1 inch in height, although under favourable circumstances, especially in a damp, close atmosphere under glass, the fronds of Wilsoni sometimes reach nearly 4 inches in length. Although never attaining a great height, these Ferns spread to a wide extent, single patches being commonly found covering upwards of a square yard of surface.

The roots are long, and wiry, and by producing numerous fibres become matted to a great extent, almost forming a kind of turf on the rocks which these Ferns inhabit. Their native habitat is mountain districts, where they grow luxuriantly on damp, shaded rocks, especially those with a northern aspect, but rarely, as some suppose, on wet, dripping rocks. Soil does not seem necessary to the growth of these Ferns, as I have frequently found them on the perpendicular surface of a bare rock; the position, however, generally chosen is the mossy crevices, in which a little soil has from time to time accumulated. Although met with in their native state growing vigorously on the exposed surface of rocks and stones, yet when brought under cultivation, unless means are taken to preserve a close, damp atmosphere, success cannot be relied upon.

When potting these Ferns, broken sandstone and small pieces of crock should be used, placing on the top of this half an inch of sandy peat, on which the plants are to be pegged firmly down; place the pot afterwards in a saucer, which must be kept constantly filled with water, and cover with a bell-glass. Grown as pot plants under glass and kept constantly shaded, or planted in a Wardian case, these lovely little Filmy Ferns appear to the best advantage, and well repay any extra attention bestowed on their cultivation. H. Wilsoni is found more abundantly in Carnarvonshire than Tunbridgense, especially in the Pass of Nant Francon. D.

STIRRING THE SURFACE SOIL.

Whether the surface soil be baked by hot sun and drying winds, or beaten down firmly by heavy rains, it is beneficial to plants to stir the surface when it can be done. A loose surface soil is of great importance to the cultivation of plants, and particularly is it conducive to the prosperity of young ones. The nurseryman and market gardener show their appreciation of this fact by the free use of the hoe when the labourer can be set to work with it. The man who wields the hoe does not merely chop off the weeds; he stirs the soil as deeply as he can consistent with the character of the crop it is bearing. I heard a well-known nurseryman once say that he gave his labourers premiums for deep hoeing among the shrubs and trees in fine weather, and those among which the hoe was freely used stood the drought very much better than those among which the crust of the soil was allowed to remain hard, dry, and unbroken. When the surface soil is lightened to the depth of even 1 inch or 2 inches only, the operation tends to the admission of air and moisture. Air can penetrate freely, and heavy rains can pass into the soil readily, both tending to raise the temperature and add fertility to the earth. It is remarkable that though soil when loosened is advantageous in communicating a higher temperature, and also moisture to the roots of the plants, yet in the heat of summer plants growing in such soil suffer less from excess of heat or want of rain than do others when the soil has not been loosened. This will be found to be the case also, but to a lesser degree, with plants in pots. It is always best to stir soil with a hoe or fork rather than a spade. The latter has to be used with care when the roots of things are near the surface, but they are likely to receive less injury from the hoe than from the spade. The soil is best stirred when it is in a dry state, or nearly so. To hoe weeds during such a wet summer as that through which we are passing is labour lost, for if left upon the ground they soon throw out roots and attach themselves again to the soil. It is best to hand-weed, pulling them up roots and all and shaking the soil from the roots. Plants in pots, as already stated, are greatly benefited by surface stirrings, which tend to keep the soil open and porous, and assist aëration; the surface does not become soddened and produce a green growth or become sour. This is why it is that the florist who grows his Carnations and Picotees, his Auriculas, &c., in pots always makes a strong point of frequent stirrings of the surface soil in the case of subjects that are well established in the pots. Beds of choice flowers, such as Pinks, Pansies, Ranunculuses, &c., are also improved in appearance, and the plants helped in development by stirring the surface soil in drying weather. R. D.

KITCHEN GARDEN.

A VALUABLE CAULIFLOWER.

The variety Early Erfurt (of which we give an engraving) has proved very early in the Royal



Cauliflower Early Erfurt.

Horticultural Society's Gardens at Chiswick. Seed of this was sown in a box during last March; the plants were pricked off and planted out on the 16th of June, the first heads being ready for cutting on the 3rd of July. The heads, which by the kindness of Mr. Barron we have tried, are of moderate size, firm, of a good white colour, and of excellent quality. This, like many other good things, instead of being sold to us by its true name, is re-christened occasionally by many of our seedsmen, not certainly for the public convenience, and not of any real benefit to the trade.

The Bush Vegetable Marrow.—This type of Vegetable Marrow is largely cultivated by the market growers of Bedfordshire. It is a very distinct variety, as the stems do not run. They are very thick and short, and produce large leaves. The plants throw out in clusters numerous fruits, which are of a good length, green in colour, and somewhat ribbed. Long beds of the Marrow are planted in the fields and the plants are placed a yard or less apart. The beds are 12 feet to 15 feet apart, and between them are breadths of Rye, which afford shelter from winds and help to keep the plants snug and warm in the early part of the season. This type appears to be identical with the Italian Vegetable Marrow of the French, which is much grown in Italy, and the fruit eaten quite young, much younger than it is the custom to gather them in this country. The long white Bush Marrow is not so well known in this country, but it is becoming more grown each succeeding year. It is a very early Marrow, turning in more rapidly than the green one, while the white colour appears to be more acceptable. Anyone seeing the Bush Marrows growing for the first time might be led to suppose they were plants arrested in their growth from some cause, but it is not so. How it originated I am unable to say, but the Bedfordshire market gardeners evidently find it a remunerative variety.—R. D.

NOTES ON VEGETABLES.

Peas.—One of the most interesting of the new Peas at Chiswick this season is Laxton's Gradus, an odd and very unmusical name for a good variety, such as this apparently is. In it we find the very earliest of all wrinkled or marrow Peas, for it was in good pod only two or three days later than Earliest of All. In height the kind is about 3 feet, is apparently a good cropper, and promises to make, as soon as plentiful, a first-class early Pea. Some other kinds have been certificated at Chiswick also, but later in podding. We have such a wealth of first-rate mid-season Peas that something of unusual excellence is needed to excel them. One of the very best of the dwarfer established kinds is Sharpe's Triumph, a splendid cropper and of capital quality.

Potatoes.—There is a large trial of seedling Potatoes with a few good older kinds at Chiswick this season, and, so far, the disease has appreciably spared the tops, the worst affected being, as with me, the new American Early Puritan, which seems to be too tender for cold seasons such as this present one has been. Some of the northern seedlings have thrown up perfect thickets of haulm, just as though grown to make cover. Exactly the same feature characterises the recently imported variety from Peru, which the Messrs. Sutton and Sons obtained on the recommendation of a South American resident as never being affected by the disease. The present season will probably test its value in that respect, as the Peronospora is rapidly spreading through all Potato breadths in the south. The most important point, therefore, is what to do with the crops in this case, some being anxious to lift, others being equally cautious and unwilling to do so. The present very wet condition of the soil renders the lifting of Potatoes very difficult, especially where clay abounds; but in all cases so saturated is the ground with moisture that the tubers come out buried in dirt. If August, as anticipated, should bring some warmth and dryness, the progress of the fungus in the tops may be materially checked, the soil dried, and the tubers considerably matured, and those points would be great gain. Should the disease continue to increase, immature Potatoes lifted and stored, especially whilst the air and leafage are full of disease spores, are almost certain to be affected, and will rot in a few weeks. Left in the ground until the tops have died down, the soil dry, and the skins have become set, it is just possible a large portion of the crop may be lifted in a sound state. Should warm dry weather ensue, no doubt the later crops will escape altogether, but the bulk will hardly be ready for lifting till October, and we may be almost certain that it will be a fine autumn.

Cabbages.—Judges who have to make awards to Cabbages at shows constantly find reason to deplore the too common growth of big, coarse, leafy varieties, for these appear in the competitions in the proportion of 80 per cent. Any nice hard-hearted, medium-sized Cabbages, with but few outside leaves, are invariably preferred by the judges. That there are plenty of first-class Cabbages of the kind desired is evident, and none stand out more prominently than does Etampes, a very superior French variety, having conical solid hearts with few outer leaves and very early. I saw a variety called Earliest of All the other day at Heckfield, where it was a long way better than the coarse Defiance and finer and better than Ellam's Early, a good kind, but now in danger of being displaced. In the way of Rosette Coleworts, I have had an unusual experience

this season. A quantity of plants put out rather late last autumn just stood through the winter and made no heads worthy of mention. The plants ran off to seed in the spring as usual, and I had them hard cut back, with the excellent result that now they are producing a wealth of handsome firm heads, which are most delicate, sweet eating. Possibly the cool, moist season has been helpful, and has also checked the production of caterpillars, the chief Cabbage pest.

Tomatoes.—Plants out of doors will need some wonderfully warm weather to enable them to ripen fruits this year, and under the most favourable conditions the crop can hardly be other than a poor one. We can only hope to grow tender exotics in the open ground when the weather is favourable. Specially valuable this year, therefore, are all indoor trials, and none I have seen excel in interest as well as in excellence of cultivation and productiveness the remarkable trial of Tomatoes now proceeding at Chiswick, where the large span house once devoted to Roses is full of one of the finest lots of Tomato plants perhaps ever seen there. The beds which border each side of the centre path are filled with plants chiefly of the Perfection type, and now from 5 feet to 6 feet in height; whilst the side borders are planted with taller forms, now some 7 feet to 8 feet in height, amongst which stand out in striking form Horsford's Prelude, a wonderful cropper, the fruits, round and handsome, of a bright red hue, and in size about what we found those of Hathaway's Excelsior to be when first introduced, being borne in long clusters. This variety seems to rank as the most free fruiter of the whole batch. Ham Green is a larger fruiter of the same type, and a tremendous cropper also; indeed, the cropping of all kinds here is remarkable, as every plant set its bloom close down, and the clusters of the fruits start from the ground upwards. The wretched weather of the latter part of July proved very harmful to the setting of the middle bloom, but the kind specially mentioned, Horsford's Prelude, seems to have suffered less than any other. The soil is fairly good, but has been inappreciably watered; so far, of course, more will be needed should great heat yet come. Culturally, as well as for other reasons, the trial of planted-out Tomatoes at Chiswick is one of the best yet seen. There is also a big trial of kinds in pots in another house.

Broad Beans.—A few years ago I selected from a stock of the Seville Longpod a semi Broad Windsor form on one plant only. That has now developed into a larger stock, and, judging by its development as compared with a selected stock of the Harlington Windsor growing close by, it bids fair to excel that kind both for earliness and for size of pod, as all these have three Beans in, whilst few plants of the best stock of Broad Windsor show more than two beans per pod. I hope to get it more thoroughly tested next year. Some of the largest podded Beans I have seen were at Messrs. Sutton's trial grounds, where their Reading Mammoth gave wonderful examples, and a selected English grown stock gave apparently even longer pods. A very serviceable Bean is a selection from the Improved Mammoth, the pods being shorter and very profusely borne. The Harlington Windsor is here being selected with considerable success for the production of three Bean pods, a matter of considerable consequence, as the crop is thereby practically increased 30 per cent. Naturally out of large breadths of these Beans there is certain to appear here and there some distinctive form, which may show even but a trifling improvement, and the aim of the observant seedsman is to select and fix that newer character. Only experts could do this, for by ordinary growers small divergencies are rarely noted. The introduction of the Seville Longpod strain has helped appreciably to the creation of improvements in our old Bean stocks.

A. D.

Sowing Onions.—Cottagers are often good vegetable growers, and they frequently exhibit samples that would do a professional gardener credit. This is mainly because they concentrate their attention on this phase of gardening, flowers occupying but a small portion of their time. One of the best Onion growers I have ever known is an agricultural labourer, who has a large garden and gets as much out of it as I should say it is possible to do. Very rarely indeed is his Onion crop a failure, and this is rather remarkable, as owing to the attacks of the fly it is difficult to get good Onions in this district. This cultivator attributes his success principally to early sowing. Formerly he used to sow early in March, and then he had frequent failures; now he sows as early in February as possible. The young plants are thus enabled to get better root-hold, and are consequently so much stronger, that the maggot cannot harm them much. Prior to the seed being sown the ground is trenched 18 inches deep, and plenty of pig manure worked in, and a good coat 4 inches thick of the same spread on the surface. In this way the welfare of the plants is assured from the time they come through the ground. The manure lying on the surface all the winter becomes sweetened, and is easily broken up into small particles when worked into the ground at sowing time, and is thus in a more suitable condition for small fibrous roots to feed upon. It is therefore evident that to very early sowing and to a thorough preparation of the soil this cottager owes his success in Onion culture, and no doubt the attacks of the maggot might often be neutralised in a similar manner.—J. C. B.

KITCHEN GARDEN NOTES.

Sowing Lettuce Seed.

In the colder parts of the country now is a good time to sow seed with the aim of securing a good bed of plants to stand through the winter, but in the more favoured southern districts the end of August is soon enough to sow. Neither very large nor quite small plants will survive through a severe winter, and, as a rule, the wisest plan is to make two sowings—one now, and another a fortnight later on. Should the autumn be mild the earliest raised will become too large, and the second batch will in this case prove of the greatest service. Any way, the attempt to raise and preserve a number of plants should be made, as they are always superior to those raised in heat early in the year. Of Cos varieties the hardiest are Hick's Hardy Green and either of the selections of Brown Cos. The quick-hearting Early Paris Market is nearly or quite as hardy as the All the Year Round and Hammersmith hardy green Cabbage varieties, and for the future it will be largely raised here and wintered on sheltered borders. Our plan is to sow the seed in drills drawn rather thickly in the open ground, the plants being eventually pricked out about 4 inches apart each way on sheltered borders, and also on raised ridges at the foot of sunny walls. Another plan, and which is the most simple, is to sow the seed broadcast on a warm border, where the plants are to remain undisturbed till the spring. In either case the soil should be moistened prior to sowing the seed rather thinly, and a little fine light soil distributed over the seed is preferable to attempting raking it in.

Tripoli Onions and Successional Crop.

Mildew has greatly interfered with the free growth of Onions, and they will be much smaller than usual in consequence. All with their tops still erect ought now to have these twisted down, this assisting the bulb to swell to a greater size, and also favouring early ripening. As soon as it is found the bulbs come away from the ground easily, they ought to be cleared off and laid on mats either in a sunny open position, or, better still, under glass to finish ripening them. When left too long on the ground they are apt to strike fresh roots, and will not keep long after they are stored. Tripolis, whether sown in the autumn or in the spring never keep so well as do the spring raised varieties of the white Spanish type, and ought, therefore, to be the first used. Directly the Onions are cleared off the ground the surface should be cleaned and well hoed, this being the only preparation needed for a successional crop of Coleworts. The latter being raised in June ought to be quite large enough for putting out in close succession to the Onions, and no better use can be made of the ground. They may be dibbled out about 12 inches each way, and beyond receiving one or two waterings, and an occasional surface hoeing, no further trouble need be taken, a capital supply of tender young hearts being available late in the autumn and frequently throughout the winter.

Arrears of Work.

A long spell of wet, sunless weather has been most prejudicial to the kitchen garden operations, weeds and slugs having very much their own way. Lettuce and Endive were cleared off wholesale by the slugs, and the young Cabbage plants have also been much thinned out. More of each ought, where required, to have been sown directly it was found the first sowings were failures, extra pains being taken in moistening the drills prior to sowing the seed, afterwards covering this with light soil obtained from the frame ground. This ensures a quick germination, and, as far as we are concerned, by adopting these measures no great gap in the supply will be perceptible. Spinach sown for the winter supplies ought especially to be closely looked after, as it is an important, yet very fickle crop. If the earliest sowings fail, no time should be lost in re-sowing either the whole of the ground or wherever there are blanks. Broccoli and winter greens generally planted at this late date rarely attain a very serviceable size, and may, therefore, be safely planted more thickly than was advisable earlier in the season. All should be kept well supplied with water until they are growing strongly, after which a good moulding up is all that is necessary. Brussels Sprouts, where put out early, as they ought to be, are now of good size, and unless well moulded up will soon fall into each other. The most productive plants are those given good room and kept erect; mould up with a spade rather than hoes, and if the ground is rather poor pour a liberal quantity of liquid manure of some kind in the furrows. Autumn Cauliflowers similarly treated will produce exceptionally fine heads. A close look-out should be kept for caterpillars and slugs, as they soon disfigure the hearts. Leeks dibbled out now will not attain a great size, but they will be found useful for soups. During mild winters and on good well-manured ground they do not cease growing, and many a late planted breadth of Leeks has agreeably surprised those who put them out. Jerusalem Artichokes, where not planted on a fresh site, have come up very thickly and are growing strongly. They ought to be thinned out freely, or otherwise the crop will be light. Very large roots are not needed, and we always replant on unmanured ground. Late Peas ought to be staked, well mulched, and given good soakings of water or liquid manure occasionally. Mildew is very prevalent among Peas generally, and for this there is no remedy. Where the Peas are grown on very rich and deeply dug ground they not unfrequently yield a good first crop, and subsequently form a strong second growth, which gives a good late supply of well-filled pods. Those of the Telegraph type mostly do this, and the rows ought not, therefore, to be too quickly cleared off the ground unless the space is needed for other crops. After a few dry days rows of Peas in full bearing very quickly become dry at the roots, and in order to keep them in a profitable state as long as possible, good soakings of pond or soft water, or, better still, liquid manure, ought to be given. This should be applied before they give signs of failing, as it is of little use after a severe check has taken place. Runner Beans should be similarly assisted, or otherwise they may cease to bear well long before frosts intervene.

W. I. M.

Walker's Perpetual Bearer Pea.—I take this to be one of the most valuable late Peas grown. It is in the way of Veitch's Perfection, and was, I think, originally selected from it, but it is very late, and being a strong grower does not take the mildew readily. The seed is white, wrinkled, and it is a very prolific bearer. Those who grow it say that they can pick from it later than from any other variety. In this respect it is highly valuable.—R. D.

Early Puritan Potato.—Mr. Iggulden is in error in calling this Potato a white form of Beauty

of Hebron. I had the White Beauty from Mr. Sharpe, of Sleaford, under the name of Duke of Albany several years before Early Puritan was mailed direct from New York. Duke of Albany is an English sport from Beauty of Hebron, Mr. Laxton also securing a similar sport at the same time. Early Puritan is less robust than the White Beauty, and the tubers are longer and less broad. The tops, however, bear a close resemblance.—A. D.

STOVE AND GREENHOUSE.

T. BAINES.

STREPTOCARPUS.

This is a genus of comparatively small, low-growing, perennial herbaceous plants that bear flowers of distinct appearance. They are easily grown, require little room, and thrive best in a cool stove or intermediate temperature. They are exceedingly free flowering, keeping on blooming for a considerable time during the summer sooner or later, according to the amount of heat they receive. The flowers last well and are very useful for cutting, particularly those of the pale blue-flowered S. Rexi, which is a Cape species, and the purple-flowered S. Saundersi, which comes from Natal. Recently several interesting varieties have been raised at the Royal Gardens, Kew. They are distinct in appearance, and, I believe, are the result of crossing S. Rexi with others, amongst which are S. Dunni, a red-flowered kind. In S. Rexi, which is the best known plant, the leaves are thick in texture, much corrugated, and lie almost flat on the surface of the pots. The flowers are borne on comparatively tall and wiry stems, being well thrown up above the foliage. From the freedom with which they are produced the plant is very effective. S. Saundersi is also a desirable sort and very free blooming.

The different kinds can be increased from seed, which the plants produce freely enclosed in the curiously twisted capsules. They can also be propagated by division of the crowns, which are formed as the specimens increase in size. Where the latter method is adopted, spring, just before growth commences, is the best time for carrying out the work. The way to do this is to turn the plants out of the pots and shake most of the soil away, so as to be able to secure a good portion of the roots unmutilated to each crown. They may either be broken up into single crowns or simply divided into two or more pieces, according to the quantity of stock that happens to be required. Put the divided pieces in pots proportionate to their size; much root room is not necessary. Specimens consisting of from two or three to six or eight crowns will not require more than from 6-inch to 8-inch or 9-inch pots. Moderately light turfy loam, with a little leaf-mould, sand, and some rotten manure finely sifted, forms a compost that answers in every way. Drain the pots well, securing the soil from getting washed down amongst the crocks by putting a layer of fibrous matter over them. Pot moderately firm and put the plants in a growing temperature, giving less air to them than ordinary for a few weeks until the root and top growth have begun to move. A thin shade will be requisite during the middle of the day when the weather is bright, but less is necessary for Streptocarpi when they are fully established than is required by many things, as the tough, somewhat leathery texture of the leaves renders them less subject to injury from the solar rays than most plants. They like a fair amount of light and air, especially in the growing season. Syringe overhead in the summer once a day, and keep the soil fairly moist, but not too wet. A temperature of 50° or 55° in the night will suffice through the winter. In the summer season the plants will make more progress if they are stood on some kind of material that can be kept a little damp. When these Streptocarpi are to be grown from seed it should be sown early in spring. The course to follow is to drain and fill a large sized seed-pan with a mixture of sifted loam, leaf-mould and sand, make the surface smooth and even, and sow the seeds thinly, for as the seedlings will not be ready for potting off as soon as many things, it is better to allow them sufficient room. Cover the seed slightly with a little of the finest of the soil, stand in moderate heat, and shade the pan from the sun. As soon as the plants appear let them have plenty of light, but still protect them from the sun. It will be better to defer potting off until the first leaves are about an inch long, as the plants will thus make more progress than if disturbed sooner. When something like the size named has been attained put them singly into small pots, using soil of a like description to that in which the seed was sown, but now adding a little finely sifted rotten manure. Keep them for two or three weeks after potting in a moderately close, warm atmosphere, so as to encourage the roots to take to the new soil; afterwards give more air, but still shade in bright weather and syringe overhead in the afternoons. Continue this treatment through the summer and autumn, before which another shift will be required. Give pots two or three sizes larger, according to the strength of the plants. In the winter let them have an intermediate temperature, by which means they will go on growing slowly. In spring when the plants are fairly well rooted move into larger pots. As the sun gets more power increase the temperature and use a thin shade. Keep the soil moderately moist, and again syringe daily.

Streptocarpi are naturally such free bloomers that they will flower whilst small. During the summer they will begin to push up their flowers, which they will continue to produce for several weeks. Let the winter treatment be the same as in the last, and again in spring give larger pots, regulating the size according to the strength and condition of the plants. Managed as before, they will bear a plentiful crop of flowers this season. The treatment after this must be of a like character to that so far recommended, giving more root-room as it is needed if large specimens are desired, or dividing the crowns if smaller examples are preferred. The last, say such as can be grown in 6-inch or 8-inch pots, will generally be found the most useful.

The plants are very effective for standing along the front of the side stages of the house amongst small Ferns and other things of suitable size. The different shades of blue and purple which the flowers of S. Rexi and S. Saundersi afford, varying from a lavender tint to a deep hue, are scarce in plants that require pot culture, and associate well with those of most other things. Though the plants will make more progress when kept in moderate heat, especially in the early stages of their growth, than when subjected to greenhouse treatment, they will still do with the latter, particularly S. Rexi, and the varieties that are raised by crossing it with other species.

Desfontainea spinosa.—A very good description of this most interesting and beautiful shrub appeared in THE GARDEN, July 28, 1888 (p. 80). I do not know whether "H.P." has ever tried this shrub in the open border. I should say not, as I have a good specimen of it here, and I should think if anyone were to travel over England he would not find a more exposed position, and Desfontainea spinosa thrives well. The plant I am speaking of is about 5 feet in height and 2½ feet in circumference, is well covered with bloom, and in the best of health. Anyone who would like to grow this shrub cannot do wrong in planting it in the open border. I, myself, have grown Desfontainea spinosa as a greenhouse plant within the last five years, and was very much surprised when I came here and found the best specimen I have ever seen growing in the open border. When Desfontainea spinosa was first introduced it could be seen in the stove. Now anyone who has a collection of trees and shrubs would do well to try this most beautiful shrub amongst them. It would not be right for me to say one word against it as a greenhouse plant, as I consider it is well worthy of greenhouse room, and it is very easily propagated in the manner described by "H.P."—NORTH.

Pelargonium Duchess of Teck.—This is one of the latest novelties among the Regal Pelargoniums, characterised by an unusual number of petals in the flower, and in thus forming an almost semi-double blossom. It is a free, strong-growing variety, which in its ample foliage suggests a relationship to Madame Thibaut, a beautiful crimped-edged, carmine-rose-coloured flower now much grown. The blossoms of Duchess of Teck are pure white, except that some of the upper petals are slightly feathered with purplish rose. In this respect it is very variable, for even on the same truss some of the flowers will be thus marked while others will be pure white. From its vigorous habit it should be a valuable addition to this class of Pelargoniums, especially where cut flowers are required in considerable numbers. The blooms of this variety are somewhat in the way of those of Volonte Nationale alba, which was awarded a certificate at Kensington three years ago, but the habit is altogether more vigorous.—H. P.

Lagerstrœmia indica.—Though introduced during the early years of the century, this is quite a rare plant; why it is difficult to say, as it is of very easy culture, while the blossoms are extremely beautiful. The Lagerstrœmia, or Crape Myrtle as it is sometimes called, forms a free-growing much-branched bush, which will be about this season heavily laden with its bright rose-pink coloured flowers, whose beautifully crimped and frilled petals add so much to the attractiveness of the specimen. If kept throughout the year in the stove, this Lagerstrœmia will grow away freely, but will seldom flower well, the best results in the way of blooming being obtained by encouraging the plant after flowering to make its growth in the temperature of a stove or intermediate house, and then removing it to pass the winter in a greenhouse, when the soil should only be kept slightly moist, in order that the wood may be thoroughly ripened. The propagation of the Crape Myrtles is easily effected by means of cuttings put in during the spring and early summer months. For this purpose the short-jointed shoots should be chosen, as they root much more readily than the stouter ones.—T.

Cienkowskia Kirki.—A coloured plate of this showy Ginger-wort was given in THE GARDEN Nov. 19, 1881, but it still remains quite a rarity, though it is not only a pretty, but very distinct plant. Like many others of the same class, it forms a fleshy underground rootstock that remains dormant during the winter, and then somewhat late in the spring it pushes up a few broadish leaves of a light green tint. The flower-scape which makes its appearance afterwards reaches a height of about a foot, and bears several comparatively large blossoms. The individual blooms remind one of those of Miltonia (Odontoglossum) vexillaria, being more than a couple of inches in diameter, and of a beautiful delicate pink colour, just marked with yellow in the centre. This Cienkowskia is by no means a difficult subject to grow, for we find it does well with the following mode of treatment: After flowering our plants are kept in the stove, then towards autumn, as the leaves show signs of going to rest, the soil is kept somewhat drier. During the winter we keep the plants under the same conditions as the Caladiums, that is to say, with the soil in a slightly moist condition. Then in the spring they are re-

potted, using for the purpose turfy loam with an admixture of sand and decayed manure. After this, of course, more water is given in order to encourage as rapid a growth as possible. It can be easily increased by division, and I have also raised a few seedlings.—H. P.

Mimulus moschatus ruber.—One of the best specimens I have ever seen of Mr. Clapham's fine hybrid, the dwarf-growing Mimulus moschatus ruber, was grown in a greenhouse on a shelf fully exposed to the sun, the pot standing in a pan of water which is kept constantly filled. It had grown freely and flowered with great luxuriance, the blossoms being much larger than is usually seen.—R. D.

WORK IN PLANT HOUSES.

GREENHOUSE.—ROSES.—Were it not for the want of room that often exists in plant houses during the summer, pot Roses, especially the Tea varieties, would be better kept indoors altogether. On the amount of stout growth the plants make through the summer after being forced depends their ability to flower well when the time again comes for their blooming, and with proper attention they will make much more progress indoors than outside. This arises not only from the encouragement given by the additional and more equal warmth they receive under glass, but also from the greater assistance that can be given them with manure water when the roots are out of the reach of drenching rains which do away with the necessity for giving water at all. In addition to this, the attacks of mildew, which Roses more than most plants are subject to, are more easily kept under in houses than out of doors. Another and greater advantage attached to having the plants inside is that at the present season when such of the stock as require more root room are best potted, the roots move more freely when the plants are located where they can be kept a little closer for a short time after potting than when in the open air. Less water should be given for a few weeks than in the case of plants that have not been disturbed. When stood out of doors any portion of the stock that is in want of more room should at once have a shift, as if this is deferred longer the plants will not have time to derive the benefit they should from it before the growing season is at an end. When forced Roses are properly treated during the time that elapses between their flowering in winter or later on in spring and the autumn, the plants keep on increasing in size for many years. In addition to the partial renewal of the soil that takes place by repotting, and by keeping up the fertility of the soil of those that are not repotted, the plants must be kept quite free from aphides, red spider, and mildew, as if any of these three principal enemies which the Rose grower has to contend with infest the plants, it is useless to expect them to either grow or flower satisfactorily. Plants of Maréchal Niel Rose that are turned out in beds or borders and have their tops trained under the roof or to the end of the house should have had a portion of their old wood cut away when done blooming, and should now be encouraged to make as much growth as possible, for on this depends the quantity of flowers they will be in a condition to produce next spring. This variety and other strong-growing climbing sorts require considerable support to keep them in a vigorous condition. Liberal top-dressings applied to the beds their roots occupy, as well as a free use of manure water are necessary. The ensuing season's crop of bloom depends much more on what is done for the plants during the time they are making their growth than upon any assistance that can be given them in spring when they are coming into bloom.

CAMELLIAS.—Plants that flowered late in spring and that are required to come in at a similar time next year will now need their treatment regulated so as to have the bloom-buds in the right state to admit of their opening when wanted. In determining this it is necessary to take into account the temperature which the plants will be wintered in. Where no more heat is used than will suffice to keep out frost, the buds require to be further advanced than when the plants are wintered in a moderately warm greenhouse temperature, as a difference of 5° or 6° night and day will influence the time of blooming. In the immediate neighbourhood of large towns there is more difficulty in having the flowers late than there is in the country, as in the town the winter fogs are impregnated with noxious gases that often cause the buds to drop in quantity; whereas in a purer atmosphere the fogs in question have little effect in the manner named. If the plants happen to be in any way weak, the buds are more liable to drop when they are small at the end of summer than when they have attained a greater size. This is particularly the case with the old white variety, which is still most to be depended on to give a succession of bloom.

AZALEAS.—Plants that were forced so as to bloom during the early winter months, and that were afterwards kept in a genial growing temperature, will now have their flower-buds plump and prominent. If a cool, airy house is at liberty where they can have the lights fully open night and day, they will be much better there than stood out in the open. Where there happens to be a lean-to structure facing north it is just the place for Azaleas that are in the state named, and also for early Camellias that are forward enough, giving a thin shade in the middle of the day to keep down the temperature when the weather is bright. Azaleas that flowered late in spring and are wanted to again come in late should be kept in a growing temperature through the greater part of the autumn. There is an idea that if late Azaleas are allowed to remain where their buds will get well up before the end of the season the plants will come into bloom sooner than they are wanted. Yet such is not the case, as if they are kept cool enough during the winter they will not bloom before the end of May or later if wanted. The syringe should be used freely every day, as well in the case of the earliest plants as of those that have not yet finished their growth. By this means their worst enemies—thrips—will be kept under. Should this pest become troublesome, fumigation or washing with tobacco water will be necessary. If red spider attacks the plants it is best to wash with tobacco water, to which add two or three ounces of Gishurst to a gallon of water, as neither tobacco smoke nor tobacco water alone will kill the spider.

BOUVARDIAS.—Those who have to depend for their supply of these favourite flowers on young stock will see the advantage of propagating early, for with the cold, sunless spring and summer we have had, the progress has been slow unless fire-heat has been regularly used. In the case of late-struck plants that are now small and backward, no time should be lost in giving them the warmth requisite to push on the growth, as the autumn season will soon be over, when, if the plants are wanting in size and strength, the amount of bloom they will give will be proportionately deficient. Advantage should be taken of all the sun-heat that is available during this and the ensuing month by shutting up early, using fire as well to push on the necessary growth. Give manure water once a week, being careful not to use it too strong. Old plants that were cut back after flowering and have since been shaken out and repotted will have a better chance of attaining a size that will enable them to give a full crop of flowers. If they are at all deficient in root-room they may yet have a shift. Give them pots proportionate in size to that of the plants and the amount of roots they have already made. In the case of cut-back examples, that do not require larger pots, but have got well hold of the soil, they also should have manure water at short intervals. By giving sufficient support in this way, along with the additional warmth that has been advised, the plants will attain double their present size by the end of September. No more stopping should be attempted, as it is much better to have a moderate number of strong shoots than a thicket of small weakly ones. The strong growths will invariably be found to give the finest flowers and to yield a longer succession, as after the crop that is borne on the extremities of the shoots is gathered, a second and a third set of full-sized trusses will be produced from the eyes that push lower down.

BOUVARDIAS PLANTED OUT.—Where the plants have been turned out in pits and frames, it is necessary to encourage the growth by extra fire-heat where means for this exists. Where the structures they occupy are not heated, the most must be made of the solar heat available. Syringing overhead at the time the air is shut off will be an assistance, and will help to keep the plants free from insects.

SALVIAS.—Where these and other quick-growing subjects intended for flowering in winter have been planted out of doors for the summer, with the intention of lifting and potting them later on, the continued moist weather that we have had will have caused them to make more growth than usual, which will be softer than is generally the case, so that when the time for taking them up comes the plants are likely to feel the shift in a way that will affect their blooming unless more than the customary attention is given to prepare them for moving. This will be best effected by cutting them round earlier than is necessary in ordinary seasons. A sharp spade or an edging iron will do the work. The roots should be severed sufficiently near the collars of the plants to enclose a ball of earth not too large to go into the pots they are intended to be put in, bearing in mind that it will be necessary to again similarly sever the roots. This should be done a little further from the collars of the plants than on the present occasion. The spring-flowering kinds, such as S. gesneræflora, may require their shoots pinching back once more, without which it is not unlikely that the plants may get too tall.

VERONICAS.—The early blooming, small-growing sorts of Veronica will soon be showing their flower-spikes, and when planted out should be taken up and potted before the flowers begin to open. In their case less check will be felt in removal if the roots are cut round a week or ten days previous to potting them. Later flowering sorts that attain a larger size, such as V. Andersoni, and the old Willow-leaved variety, V. salicifolia, will be better for having their roots shortened in the way named; for though it will not be necessary to pot them for a month or more, an extra cutting in in a season such as this will be an advantage.

T. B.

GARDEN FLORA.

PLATE 662.

THE GALANGALES.

(WITH A PLATE OF KÆMPFERIA ROTUNDA.*)

THE genus Kæmpferia is rarely met with outside botanic gardens, not one of them having as yet risen to a conspicuous position as a garden plant. Probably when they become better known they will find favour. Certainly the plant represented in the accompanying plate is beautiful enough to deserve a place in every collection of stove plants, and K. Kirki (once known as a Cienkowskia) is, perhaps, even more meritorious than this. All the kinds that have been in cultivation are very easy to manage, and they are as easily kept from year to year as a Gloxinia. The Kæmpferias belong to the same family as the Ginger, and they have for their near relations such beautiful plants as the Hedychiums, Alpinias, Curcumas, Costuses, and Roscoea. The last named is the only member of the Ginger family that is hardy in England. It grows and flowers freely, is in bloom now, in fact, in a sunny border at Kew. All the others are more or less tropical, except, perhaps, Hedychium Gardnerianum, which will thrive in a position sheltered from frost.

There are about a score species of Kæmpferia, all of them natives of the tropics of Asia and Africa. They have fleshy tuberous root-stocks,

* Drawn for THE GARDEN in the Royal Gardens, Kew, March 27, 1888, by H. G. Moon. Lithographed and printed by Guillaume Severeyns.



KÆMPFERIA ROTUNDA

which are hot and Ginger-like to the taste ; the leaves are herbaceous and annual, and the flowers are produced on short stems either before the leaves appear, or along with them. The best known and most useful are

K. Galanga, the root of which in India is used both as a medicine and a perfume. It has green, oyster-shell-shaped leaves, which lie flat on the soil, and the flowers spring from the centre of the tuft in summer. They are about half the size of those here figured, their colour being white and bright violet-purple.

K. rotunda was cultivated in English gardens a century ago, and it has long been a favourite garden plant in India, because of the beauty and fragrance of its flowers. The root has the same properties as K. Galanga ; the flowers are developed in April, and the leaves about two months later. The flower-scapes are 2 inches high, composed of sheathing, leaf-like bracts ,from between which the flowers push out and open one or two at a time. The size, form, and beautiful markings of these are faithfully reproduced in the plate, which renders description needless. It is easy to perceive how great an attraction a good tuft of this plant would be in bloom, and although each flower lasts only a day, yet the blooms are produced in such abundance and quick succession, that the plants are beautiful for about a month. The leaves are from 1 foot to 1½ feet long, about one-third that in width, while the upper surface is dark green with an irregular band of grey-green running along each side ; the under surface is purplish.

K. Kirki was figured in The Garden Nov. 19, 1881 (p. 504). It develops its green Plantain-like leaves first, and then the stout, erect flower-scape, a foot or more long, with numerous large flowers which expand in pairs from the bottom upwards. I have seen this plant go on developing flowers for over two months without a break. Each bloom is 3 inches across ; the shape suggests the flower of Miltonia vexillaria, and the colour is soft rosy mauve, with a blotch of yellow in the throat, and radiating lines of white. It would be difficult to find a more beautiful stove herbaceous plant than this.

K. secunda is a new introduction which flowered recently at Kew, and which is pretty, though small. The leaves are borne on erect stems about 8 inches high, and the flowers are developed from terminal sheathing bracts, from which they are pushed and expand usually one at a time ; each flower is 1½ inches across, Pansy-shaped, and coloured deep rose with white in the centre. This species comes from Assam, where it is abundant in wet, grassy places.

K. Roscoeana is a pretty leaved species, the flowers being small and white. It is very rarely seen, although its round flat foliage, which is coloured like that of some of the most beautiful of Marantas, ought to find favour among cultivators of ornamental-leaved plants.

K. Gilberti is another small species with prettily variegated leaves. It is a first-rate plant for growing in tufts in pans, its green and white foliage being bright and attractive all through the summer.

K. ornata is another new introduction. It has large, Canna-like foliage which is green banded with white, the under surface being purplish. The flowers are yellow and not very attractive.

Culture.—All the plants above mentioned are grown successfully at Kew, their treatment being as follows: About the end of February the roots are shaken out of the old soil and repotted in a mixture of peat, loam, and good leaf-mould, with the addition of plenty of sand. They are potted lightly ; the small growing kinds are planted in pans a foot or so across, the stronger growers in 3-inch or 5-inch pots. They are then placed in a moist stove and well watered. Here they soon start, and in a short time they are in vigorous growth. When the leaves begin to fade in autumn the plants are placed on a shelf and gradually dried off. They are kept dry all the winter and in a temperature not lower than 55°. W. W.

Fruit Garden.

W. COLEMAN.

SPLIT PEACH STONES.

Can you give any information as to the cause and cure for cracked stones in Peaches and Nectarines, which are unusually prevalent with me this season? This year also we have many fruits which become affected by a spot of decay on the tip, looking like drip, but not caused by this. Decay spreads inside, and mould appears round the stone. I have not known this disease before this year, and I should be glad to hear of a remedy. The house has been in bearing for years, and the fruit ripens in June and July.—M. R.

*** Split stones in Peach houses, and not unfrequently upon open walls, are familiar to all stone-fruit growers, but the true cause of this defect down to the present time has barely been touched upon by qualified writers. In some soils and situations, and after very remarkable seasons, which in some way or other have interfered with the proper formation of the buds or the setting of the fruit, stone-splitting is very troublesome. Certain sorts again, notably Early Rivers, one or two forms of Royal George, and occasionally the fine old Bellegarde, split sometimes to an extent which allows daylight to pass downward from the apex to the stalk of the fruit. When this defect—I believe in fertilisation—is present, the kernel perishes and the evenly divided stone becomes mildewed, whilst the skin at the apex shows a small brown spot not more than the eighth of an inch across. This small, apparently scalded portion of the cuticle sometimes, but not always, cracks, when a hollow or vacuum becomes apparent, at once showing that this disfigurement is the effect of stone-splitting, as we never observe anything of the kind where the stone is sound. Early Rivers, physiologists say, has an extra long pistil not readily operated upon by the pollen, an assertion which leads us to suppose that they attribute splitting to imperfect fertilisation; but this, I think, is hardly sufficient to account for the large number of faulty stones year after year, especially where insects have free access and fertilisation with the brush is never neglected. Having myself grown this variety for a great number of years, and eventually given it up after the most careful attention to hand-fertilisation with foreign pollen, I am quite prepared to assert that the true cause, or possibly one of the several contributory causes, lies deeper than the mere accident of imperfect fertilisation. The defect in some trees, I believe, is constitutional, whilst in others it may be incidental to an unsuitable stock, as no fruit with which I am acquainted is more fastidious than the Peach, certain varieties positively refusing to unite with some Plums, whilst upon others they will grow like Willows. This question of stock, however, is not the cause of failure in the case now before us, as we learn from the writer that the trees have been grown for years, and this is the first time they have suffered to an extent which calls forth serious notice. But what about the roots, are they satisfactory? has the past hot, dry season paralysed them? have the best fibres perished through want of water? have the strong roots got down into a cold, crude subsoil in search of moisture denied them near the surface? or, more likely still, were the buds imperfectly formed, prematurely ripened, and, as has happened in many places this spring, have they been comparatively destitute of perfect male organs, without which it is simply impossible that fertilisation could take place? Assuming that the physiologist is correct in tracing splitting to imperfect fertilisation, the cause may lie beneath the surface of the border, or it may be due to the intense heat and drought of 1887. The latter, I think, is most likely to be the cause, as everyone is complaining of a bad set and the unusual number of imperfect or malformed fruits. This being so, trees which have behaved well for a great number of years may never again transgress. It will not, however, do to trust to chances, as some slight defect in the border or the drainage, or possibly constitutional weakness, must be corrected before the trees can be expected to give full crops of perfect fruit. The owner of these trees then should satisfy herself that the wood and buds they are now maturing are satisfactory. An examination of the borders then should be made, and in the event of these being found out of order, the true remedy will lie in lifting, re-draining, and replanting in fresh compost. The best compost for Peaches is strong calcareous loam from an old pasture in which Roses and Strawberries will grow well, plenty of old lime rubble, and a dash of bone-dust. These materials, quite innocent of animal manure, should be thoroughly incorporated when dry a month or so before the trees are lifted or partially lifted, as the case may be, and the fruit being ripe now, the operation should not be delayed beyond the second week in October. Meantime they must be kept clean, free from insects, abundantly ventilated, and on no account after the crop is off must they feel the want of water at the roots. —W. Coleman.

BARREN STRAWBERRIES.

A good deal has been written lately respecting barren Strawberries, and in my opinion the best cure for this is to rely on young plantations. I notice Mr. Burrell in his article the other day did not appear to be very much in favour of annual planting, and till within the last few years I was of the same opinion, but experience often modifies one's views, and six years' experience on the soil with which I now have to deal has taught me to regard annual planting as almost a necessity, as most of the varieties tried are very uncertain after the first year. Vicomtesse Héricart de Thury is an exception to this rule, and continues fruitful for several seasons, but even this variety is less profitable after fruiting for two years. Next to Vicomtesse we have found Eleanor continue bearing the longest. Last season we had a large crop of very fine fruit from one-year old plants of this variety. The ground was mulched and the plants kept well supplied with water during the fruiting period, and received a good soaking after the fruit was gathered. After this treatment we looked forward to a good crop this season, but the variety has never behaved worse, as over 90 per cent. of the plants were blind and the few that fruited bore no comparison to the one-year-old plants. This leads me to think that lack of moisture has not so much to do with barren Strawberries as "J. C." (p. 108) and other correspondents seem to think. We are retaining but few of our old Strawberry plants this year, and if another season's experience confirms that of the past six, we shall for the future depend entirely on one-year-old plants with all varieties except Vicomtesse Héricart de Thury. In speaking of one-year-old plants I do not refer to runners which are taken off the old plants and dibbled into permanent beds at once, but to strong early runners layered into 3-inch pots in the same way as for forcing, and planted out in their fruiting quarters early in August. Without well-prepared plants, annual planting would certainly prove a failure. Last year many complained of the scarcity of runners, but we experienced no difficulty in obtaining the required number from young plantations, and this year ours were obtained sufficiently early to enable us to plant out about the third week in July. Had we depended on runners from an old plantation, we must have planted out an inferior stock at least three weeks later, a serious loss of time if a good crop is expected the year following. E. Butts.

Leigham Court.

The Strawberry crop.—This has undoubtedly been a good season for Strawberry growers who were fortunate enough to escape the worst visitations of the late tempestuous weather. During the whole of the gathering time the temperature ranged so low that the fruit did not ripen sufficiently fast to admit of glutting the London market; consequently prices have been more uniform and rather higher than is the case where a week or two of hot

weather brings in the fruit with a rush. Thus, if crops were lighter than usual, they have probably proved more valuable where the rainfall has not been so great as to induce rot. I have heard great complaints not only of the wholesale destruction of the berries in this way, but also of mildew, which has completely ruined whole fields. This is an enemy that baffles the outdoor Strawberry grower. To sulphur an acre or two of plants involves an expenditure of labour that the low average prices at the present time scarcely allow of being bestowed on them, and unless the sulphur is mixed with soft soap, it is liable to be washed off by rain before it has time to cauterise the fungus. It is evident that the attacks of mildew are becoming more frequent and virulent, and that both dry and wet seasons favour its development. This year I had it in the open, but it came on with the parching, ungenial weather that preceded the damp time now experienced. In only two parts of my garden do I get mildew, and that is where there is a current of air. In the more sheltered places the plants invariably escape. In addition to bad weather and mildew, barren plants in unusual numbers appear to have lowered the producing power of Strawberry plantations. Although we had here the full share of dry weather protracted till the close of autumn, strange to say I have had a less proportion of barren plants than usual. I cannot account for this, for I could not give them any water, and the ground was as dry as dust in the early part of the autumn and the foliage looked dried up. I grow mainly Marguerite, President, Sir J. Paxton, and Sir C. Napier, and the percentage of sterile plants was about equal in the four kinds.—J. C, *Byfleet*.

Vicomtesse Hericart de Thury Strawberry.—I refer to this kind, first, because in this case ample proof is given in the name of its French origin, and also of the fact that, in spite of it having also been named Garibaldi, the original French appellation has been strictly adhered to. But why will the French append such long tiresome names to their products? "J. C. B." refers to it as having no flavour, for he says of it, "the less said the better." On the other hand, many good growers much prefer its flavour, and one eminent authority mentions it as "richly flavoured." When, however, it is found that it will not thrive in many places whilst it does so well in others, especially forced in pots, it becomes evident that variation of soil and position may seriously affect flavour also.—A. D.

Strawberry plants in pots.—Unlike last summer, the present one has afforded an opportunity of getting an abundance of good runners to select for pot culture, and those who secured them early will by this time have their plants well advanced. I, however, find that the excessive wet and sunless weather are causing the plants to make a more elongated and leafy growth than usual, in fact more than I like to see, because the rooting process does not correspond with it. If the weather should continue in the same unsettled state throughout the autumn, it may be an advantage to issue a word of warning to the inexperienced that there is likely to arise some difficulty in securing good and well ripened crowns by the ordinary process of cultivation. A wet autumn favours a prolonged growth instead of early maturity in the crowns, and it may be necessary to place the plants under temporary shelter much earlier than usual. If so, the plants ought to be exposed to all the light and air possible, and on a hard dry bottom. Water should not by any means be withheld, but sufficient given them to keep them in a healthy fresh state. I do not agree with the system of drying off the plants in winter so as to become dust-dry. I always let the plants have sufficient water to keep the roots in a moist fresh state, believing they make no more of these than are needed to support them in the process of forcing. I do not practise the system of storing up the plants in winter by laying the pots on their sides packed one over the other, as thus the plants become too dry and many of the best roots are destroyed. While I believe that a special preparation is necessary for plants that are to be subjected to early forcing, the severe treatment practised by some growers is unnatural, unnecessary, and conducive more to failure than success.—T. R. F.

VINES TOO THICK.

If there is one error more frequently committed in Vine culture than another, it is that of planting too thickly. I lately had occasion to inspect some Vines that were not doing so well as the owner thought they ought to, and one cause of their unsatisfactory condition was to be found in the crowded state of the foliage. The leaves of one Vine grew in among those of its neighbour, so that the glass could scarcely be seen through the confused mass. Consequently they were, through deficiency of light, thin and flaccid and in no proper condition to draw up a plentiful supply of sap. It is an axiom in plant culture that every leaf should be fully exposed to light, and even in the case of such as will not bear the direct rays of a hot sun, this is never lost sight of by experienced growers. If this is important in the case of plants grown for their bloom or foliage only, how much more so must it be when a more or less heavy crop of fruit is to be brought off. In the case here mentioned the grower had aggravated the evil by allowing the growth that pushes from the extremity of the lateral to extend somewhat. The small leaves that are produced in this way are of but little help to the Vines, being thin in texture, but they keep off a great portion of light from those that have the great work to do, and on the health and strength of which entirely depend the size, flavour, and colour of the berries. Where the Vines are so thickly planted that their laterals intermingle, the evil may be much minimised by stopping at one leaf beyond the bunch. The ordinary practice is to allow two leaves to remain, but I have never yet been able to perceive any difference in the quality of the fruit when growth has been more restricted. I should like to know what your Grape-growing readers have to say on this matter. My impression is that what takes place in thinning the berries has its counterpart in stopping the shoots. The second leaf but represents diverted force from the one nearest the bunch, which having nothing to share the flow of the sap with it gains much in size and substance. There is one big leaf instead of two moderate-sized ones, and every grower knows that it is not so much the quantity of foliage as its quality that regulates the fruiting power of the Vine. This is a more important matter than would at first sight appear, for if it can be proved that the extension of the shoots is not very helpful to the crop, more fruit can be got from a given space. Some of the best Hamburgh Vines I ever saw were in a house the principal use of which was to bring on a late crop of Strawberries. By planting thinly it was thought the Strawberries would get sufficient light to ripen them, and there would be a fair crop of Grapes later on. Although I do not think that much was gained by this arrangement, I am convinced that finer Grapes were produced. A good space being allowed between the Vines, the wood and foliage were very strong, and the berries always coloured remarkably well. J. C. B.

Grapes at Heckfield.—In one of the vineries at Heckfield, Golden Queen Grape, worked on to Foster's Seedling, having several bunches, shows perhaps the largest berries yet seen. Ordinarily of a fair oval form, these berries on the graft on Foster's Seedling almost resemble in length the old Minie rifle bullets, but are, of course, rounded at both ends. The change in the form of the Grape is another product of graft variation. In the Lady Downe's low span-roof house there is this year one of the finest crops I have yet seen in it, and I have seen some good ones. The old Vines have been replaced by young ones on one side, and these are fruiting grandly, the canes running over on to the bottom of the other side; but Mr. Wildsmith will not again adopt the plan of rooting the tops into the soil, as was done several years ago with the old Vines. On one half of the north side of the house there yet remain several halves of the old Vines standing on their heads, or, in other words, existing on the roots formed where the leaders were originally laid. These Vines would pass muster with strangers as being naturally planted. Although severed from the main stems two or three years, they are doing well and fruiting admirably. Though the experiment may not be worth repeating, yet its performance and the results, especially as now seen, have proved some interesting facts in vegetable physiology. In all the vineries, and there are nine of one sort and another devoted to the culture of Grapes at Heckfield, the crops look well, in spite of a very difficult and ungenerous season.—A. D.

HARDY FRUITS.

The no-fruit scare having passed away, a matter of more serious import now stares us in the face, and this, I need not say, is the precarious condition of the present crop, its time of ripening and getting the wood thoroughly matured for another year. Fruits of nearly all kinds are more plentiful than we at one time anticipated, and Apples, Pears, and other wall fruits so far have swelled fairly well, but unless this leaden sky soon gives way to sun heat and broad daylight, it is unreasonable to suppose choice varieties can come up to the average in size, colour and flavour. Trees of all kinds have made and are still making a gross, soft, watery growth, which will take all the sun we are now likely to get to ripen it moderately, and then, should the winter of 1860 repeat itself as the summer appears to be doing, the damage will be very serious. I do not predict anything of the kind, as no man, I believe, can tell twenty-four hours in advance what the weather is going to be; but forewarned we are forearmed, and now I venture to say is the time to turn every stone that is likely to hasten the ripening of the fruit and wood. Peaches, for instance, in good bright average seasons we allow to grow out a little from the walls, knowing right well that a slight leaf shade is beneficial to the fruit; indeed, last season we deferred close tacking and pinching until the colouring process obliged us to go on with the work. This year the conditions are changed and our tactics must be changed too; we must hang up the hose, as the borders are now wet enough to finish up the crop, and possibly, if this weather continues, we may think well to remove a portion of the mulching to let sun and air into the borders. Then, as to the manipulation of the trees, the rules laid down for the suppression of leaf and soft vapid growth may be put into practice, just by the removal of every shoot not likely to be wanted next year, and second, by the incessant pinching of all laterals and sub-laterals at short intervals. Spider is hardly likely to be troublesome, but should this happy harbinger of hot dry weather come to the front, insecticides which will not saturate the soil must be the substitute for drenchings with clear water. Mildew, on the other hand, may be expected, and much as we dislike infusing sulphur into the woolly coat of the Peach, this is the best and safest substance for application to trees on open walls. Mildew sometimes takes a firm hold before it is detected, but if there is a Royal George in the garden this variety must be closely watched, and so long as it remains free the gardener may rest in peace. If the antidote for spider and mildew is used dry, it may be dredged pretty freely into every part of the trees affected, but the quickest and best mode of applying it to trees in a vertical position is in solution, as the water can then be driven into every old joint and nail hole with the syringe. As sulphur water can be used moderately strong and does not deteriorate or become disagreeable, the simplest plan is to reduce two or three pounds to a paste, put it into a large tub, fill up with soft water, and ply in a clear state after sundown. Large trees carrying full crops of fruit should now be kept closely and neatly tacked or tied in to the walls, all gross shoots, especially those in the centres, pinched to check and balance the flow of sap, whilst others which will be cut away after the Peaches are gathered may be shortened back a few inches in preference to crowding. Young trees must be allowed to extend so long as the leading shoots maintain an even balance, but once any of

them show signs of becoming too gross, pinching the points or bending into an oblique course must be resorted to. As wood of this kind increases rapidly after pinching, it will be necessary to keep a sharp eye on the ties and shreds, and not only to loosen, but to reduce their number, light ligatures, especially against nails, shreds, or wires, being the main cause of canker and gumming.

PEARS AND PLUMS,

if not already sufficiently thinned, should now be reduced to their proper number. The fruit this year is remarkably clean and kind; all it wants is brighter and better weather. This may come, but whether it does or not, no one should lay himself open to the fault of overcropping. We cannot have quantity and quality, neither can we expect the trees to bear well every year where thinning is neglected. If sub-laterals on wall trees pruned last month are persistent, as most likely they will be, they must be removed to let in light and air, and to concentrate the sap on the fruit and flower-buds now forming. Pyramids and bushes must be treated in the same way, and then I question if the fruit from many choice late trees will ripen up properly. The operation, nevertheless, should receive extra attention, as we are passing through a cold, sunless summer, whose influence will be felt long after this trying year has passed.

BUSH FRUITS

of all kinds having made much rank wood will require extra thinning, not only to let in light and air to the fruit, but also to favour the ripening of the spurs. It is very common practice to prune for the benefit of the existing crop, as colour and flavour in Currants even are deficient where light and air are excluded, but at the present time, fruit or no fruit, I would strongly advise a general thinning out and shortening back of Gooseberries and Currants, the latter especially. A few leaves or shoots more or less, many persons say, make very little difference to the ripening fruit or bud, but this is altogether a mistake, as one single leaf on the sunny side of an Apple, Pear, or Peach will prevent the shaded part from colouring, whilst the exposed part may be bright and pleasing to the eye if not much sweeter to the taste. Raspberries, again, enjoy shade, but they also revel in warmth, and for this reason the suckers, this year so gross and watery, should be well thinned down to the orthodox number required for tying in next autumn. Another step towards maturity also may be made good by cutting away all the old canes as soon as they have ceased fruiting. The work sooner or later must be taken in hand, and the quicker the better, as the stakes or trellises can be refurnished with the young canes before autumn wind and rain twist and destroy them.

STRAWBERRIES,

so prominently to the fore, not so much by their fertility as their extraordinary eccentricity, in like manner must be divested of runners and the beds of weeds so soon as the crop of fruit is gathered, whilst old plantations may be chopped or broken up altogether. Many acres this season will have been destroyed, and the ground planted with members of the Brassica family, but the gain where space even is limited will be more apparent than real, as these heavily-manured plots cannot be restored to fine healthy tilth without undergoing a thorough breaking up and exposure to the elements. When young plantations in which say half the stools have proved blind are allowed to stand over another season, it will be interesting to watch and note their behaviour next year. Will these blind plants return to fertility or will they continue unfruitful down to the end of the chapter? Knowing they have been taken from fruitful plants, I am inclined to think they will not fail, but runners being so abundant I would suggest taking future stock from fertile parents. Although the season is late, young plants by this time will be well rooted and ready for detachment from the parent stools, an operation which, for two reasons, should not be delayed. In the first place, they can be removed from the shade of rank foliage to an open airy situation, and in the second, the certainty of their fruiting next season will be greatly enhanced by early planting in their permanent quarters. Early varieties are often put out in July, but August is a very good month, the month in fact in which the broadest beds are planted, as very few who take a preparatory crop can get their ground in good order before this date. Light soils should be well manured, and perhaps dressed with marl in a dry pulverised state, firmly rammed until as solid as an old pasture field, levelled and planted as soon as the ground will work without becoming pasty. Heavy soils, on the other hand, work best when manured and deeply dug in dry or frosty weather the preceding winter. Runners of the preceding year then being ready and the soil in thoroughly fine tilth, the beds may be made firm and planted in May, or early Potatoes, the best of all fallowing crops, will put it in still better order for runners of the current year. May or August then being the best month for making new plantations, the choice must be governed by the condition of the ground, as Strawberries must be started well by those who would succeed in treating them as biennials. We have learned a lesson which a lifetime should not enable us to forget, and this is the fact that we must not trust to old plantations in the future.

FIGS,

we learn from all quarters, are plentiful on open walls, but they are late, and trees on the poorest soils are rank, two points which will militate against early ripening. Much, however, may be done by reducing heavy mulchings to favour the descent of sun heat into the borders, by thin training close to the walls and the removal of every bit of young wood not absolutely wanted. Standards and untrained wall trees even in the Fig counties will be heavily handicapped by the season; but here much may be done by timely thinning and regulating the shoots, as few, I think, will risk missing a crop of ripe fruit for the sake of carrying out an idea.

THE ORCHARD.

The principal work in this department for some time to come will be attention to stocks and grafts now growing very freely. The ligatures upon all whip-grafted stocks should now be cut, the buds or young shoots below the union rubbed off, and the rising growths securely staked to prevent blowing out in the autumn. Old trees to which ties of any kind are inapplicable are best left alone, as stem growths very often save their lives, but the clay or dubbing should be examined and repaired to prevent the air and wet from penetrating to the scions. If American blight has not been thoroughly eradicated from the trunks, it will have found safe shelter and a fertile breeding ground beneath and about the clay, but this must not be allowed to go on unchecked, otherwise it will reach the young shoots before the leaves fall in the autumn. Total destruction at this season being impossible, a decided check for the time being is all that can be expected, and this can be compassed by getting into the trees and saturating the clay and bark, avoiding the young scion growths, with Gishurst compound or the usual strength of paraffin and water. If the stakes attached to newly planted standards have not been examined, this work should not be delayed, as it is by no means unusual for the soil to sink and strain the roots to cracking tension. The remedy suggests itself, viz., loosing and re-tying the trees with the old or fresh yarn and the addition of a slight covering of fresh compost.

EARLY APPLES

intended for market, it must be borne in mind, may be gathered as soon as they have attained a fair size and before Plums become too plentiful. Early Julien, Keswick Codlin, Lord Suffield, Irish Peach, and Echlinville Seedling crop well, and command a good price early in the season. Beauty of Bath is a valuable and handsome early Apple, which should be extensively planted. W. C.

Some Currant bushes, with stems 5 feet in height, with large heads, just as you enter the kitchen garden here, are always admired. Underneath are growing St. Bruno's Lilies, Golden Balls, &c., with a front row of the old dark Clove. These trees have produced annually fine crops for fourteen years without any stimulant. They are summer pruned, easily covered from birds, and ornamental. Gooseberries are grown in the same way, and even Black Currants, with some success.—G. BOLAS, *Hopton Hall Gardens.*

*** With the above communication Mr. Bolas sent us some very fine samples of both Red and Black Currants gathered from the trees referred to.—ED.

PROPAGATING.

ESCALLONIA MONTEVIDENSIS.—The note in THE GARDEN (p. 112) relating to the propagation of this plant will also apply to many other subjects that do not strike root very freely, for it is a well-known fact among propagators that in many cases the weaker the shoot the more readily will it produce roots, and consequently it is a common occurrence to keep the plants intended for propagating in a higher temperature for a little time than they naturally grow in in order to weaken the shoots or draw them out, as it is commonly called. Many subjects occur to one that are benefited by such a mode of treatment, among others being Heaths, Epacrises, Rhododendrons, and nearly all the various so-called hard-wooded plants, while in the case of such subjects as Azaleas, Kalmias, and Andromeda japonica, that are often forced into bloom early in the season, the shoots produced under such treatment strike root in one-half of the time occupied by those that are grown entirely in the open, and consequently put in later in the season. That the very stout, pithy shoots do not form good cuttings was recently shown in the case of

CASSIA CORYMBOSA, which under general conditions is by no means a difficult subject to strike. The only cuttings available, however, in my case were a few of the very stout shoots, so I cut them up into convenient lengths and inserted them into some pots of light sandy soil. They were put into a close propagating case in an intermediate house, where I expected them to soon root, but, though put in early in the spring up to three weeks ago, there was not one cutting struck. Despite the absence of roots, they had, however, pushed forth young shoots that attained a length of several inches, so I took the young shoots, which, having been produced in the close atmosphere of the propagating case, were of course very weak, and they are now all rooted.

SENECIO PULCHER is now rapidly approaching the flowering stage. It is one of the most showy of late summer flowering perennials, and can be increased very rapidly by cuttings of the roots, which may be taken at any season, though the spring is preferable, and being cut up into lengths of 1 inch or 2 inches and dibbled into pots or pans of sandy soil, will, with the protection of a frame, quickly form young plants.

PELARGONIUMS also can be increased by means of cuttings of the roots, especially those of the French, show, and decorative classes, but in the case of any varieties that have been obtained from sports if their characteristics are not thoroughly fixed, plants raised from the roots are apt to revert to the normal type.

CROTONS.—Though the propagation of Crotons is principally carried out during the spring and early summer months, yet it is often possible at this season to obtain better cuttings than could be got earlier in the year, and where it is desired to still further increase the stock, a batch of cuttings may be put in at this season. Most of the foliage will be by now well coloured, and if the cuttings are taken, put singly into small pots without delay, and plunged in a gentle bottom-heat in a close propagating case, they will very soon root. Care must be taken not to overcrowd them in the case, as if given plenty of room very few of the leaves will be lost.

ANOMATHECA CRUENTA. — This pretty little greenhouse bulbous plant now in full flower as a rule seeds freely, and in this way young plants can be raised, for if kept until the spring and then sown in a gentle bottom-heat they quickly make their appearance. A notable fact in connection with them is the (for a bulbous plant) short time that elapses between the sowing of the seed and the production

of flowers, for plants raised in the spring will flower during the summer.

Thibaudias, Vacciniums, some greenhouse Rhododendrons, and others of this class will by now have completed their new growth, and the shoots being partially ripened will be in just the right condition for cuttings. All the Ericaceæ family, to which these belong, produce delicate, hair-like roots, and in preparing cutting pots for any of this class they must be thoroughly well drained and filled firmly with a compost consisting of equal parts of peat and silver sand, leaving just enough space for a thin layer of sand on the top. The compost must be sifted through a sieve with a quarter of an inch mesh, as it is very necessary to close the soil thoroughly around the cutting, and this cannot be done so effectually when the compost is rough. A length of 3 inches to 5 inches is very suitable for the cuttings, and wherever possible the entire shoot should be taken for the purpose, cutting it off cleanly just at its base where there is usually a cluster of dormant buds, as roots are produced more readily there than from any other part of the stem. Where the entire shoot is too long to be used as a cutting and it is not possible to have its base to form the lower part of it, the shoot should not be cut off cleanly at the bottom, but a sloping cut employed instead. If this is done there is a much greater amount of rooting surface than would be the case if simply cut straight off. When the cuttings are dibbled in and watered they should be stood in a close case for a few weeks, and if they are then plunged in a gentle bottom-heat they will push out roots more quickly than if such was not the case. T.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Raphiolepis ovata (Japanese Hawthorn).—A beautiful Japanese shrub, perfectly hardy in southern districts, and with a little winter protection may be planted in cold parts even. It is a low spreading bush, somewhat open and straggling; the evergreen leaves are thick, oval and dark green. The flowers are large, white, and sweet-scented, borne in clusters terminating the young branches. It should not be crowded with other shrubs, but allowed ample room to develop itself in a light open spot. Some of the other species of Raphiolepis, such, for example, as R. indica and R. salicifolia, both from China, though not hardy enough as open bushes, make capital wall shrubs.



Raphiolepis japonica.

Rhodora canadensis (Canadian Rhodora).—A pretty deciduous shrub allied to the Rhododendron, and a native of the swamps of Canada. It is therefore very hardy and needs only a moist light soil, preferably peat, in order to grow it to perfection. In very early spring it produces its clusters of rosy purple flowers before the leaves unfold, and is therefore interesting on this account. It is a thin growing bush from 2 feet to 4 feet high.

Rhodotypos kerrioides (White Kerria).—A beautiful deciduous shrub from Japan, recalling in growth and foliage the familiar old Kerria japonica on cottage walls, but the flowers are white and like single Roses. It is of slender



The Japan Varnish Tree (Rhus vernicifera).



The Cut-leaved Sumach (Rhus glabra laciniata).

growth, but makes a dense bush when well grown, and is usually about 5 feet or 6 feet high, though against a wall it reaches a height of 10 feet or 12 feet. It flowers in May and keeps in bloom a considerable time. Though introduced from Japan over twenty years ago, it is not generally much known.

Rhus (Sumach).—Several important ornamental shrubs are contained in this genus, and a few of them are indispensable in all gardens. They are mostly remarkable for their elegant foliage and picturesque growth, though such as the Venetian Sumach and Stag's-horn Sumach are beautiful when in flower. The Venetian Sumach, Wig Tree, or Smoke Plant (R. Cotinus) is one of the most remarkable of late-flowering shrubs, and being so different from all others is of exceptional interest. The illustration of it on p. 162 admirably shows a well-grown isolated specimen on a lawn, though as a rule one sees it in a crowded shrubbery. The flowers themselves are inconspicuous, but the feather-like clusters that succeed them being of a reddish purple are highly attractive, and remain so for several weeks. It is a very old introduction from Southern Europe, is perfectly hardy, and thrives almost anywhere, but should always be allowed ample room to develop itself.

The Stag's-horn Sumach (R. typhina), called also the Vinegar Tree, is a most beautiful shrub or small tree in autumn, with its massive and dense spikes of bright crimson fruits looking like velvet and which keep on the plant till destroyed by frosts. The foliage, too, is handsome, the leaves being long and numerous, and the growth being open and irregular, is singularly picturesque when fully developed. It is, therefore, a striking tree as a single specimen on a lawn or grouped with the dwarfer Sumachs. There are some distinct varieties of the Stag's-horn Sumach, one called arborescens being of more tree-like growth than the ordinary kind, and that named frutescens, which is dwarf. The crimson seed clusters are characteristic of all except the variety viridiflora, in which they are green. The popular name Stag's-horn Sumach describes the resemblance of the crooked branches, covered with a downy substance like the young horns of a stag. It is North American.



Rhodotypos kerrioides.

The Smooth Sumach (R. glabra) has elegant foliage, and in the variety coccinea the seed clusters are velvety crimson, but not so beautiful as those of R. typhina. The cut-leaved variety, R. glabra laciniata (see illustration), is very elegant in foliage, and young and vigorous specimens of it are most valuable for planting to produce a sub-tropical effect. The foregoing comprise the best of the Sumachs, but there are others in cultivation that could be added, and these include R. vernicifera, or Japan Varnish Tree, with pinnate foliage (see illustration), and R. semialata Osbecki, also Japanese, an elegant shrub, but not perfectly hardy, except in the south. The creeping or trailing Sumachs, such as R. radicans, Toxicodendron, known as Poison Ivy, Poison Oak, and Poison Sumach, are not desirable in a garden, as the sap of the bruised growth is highly poisonous, as is also that of R. venenata, the Poison Elder, which should likewise be excluded from a garden.

A NOBLE SYCAMORE.

On the broad lawn at Newbridge House, Donabate, county Dublin, there is growing certainly one of the most remarkable ornamental trees I have ever seen. It is a fine specimen of a showy, red-fruited variety of the common Sycamore, quite surpassing in depth of colour and effect anything of which I had imagined the species capable. It is, in fact, so distinct from other specimens of Acer pseudo-platanus on the same estate, that one might be excused for supposing it to be quite a different and distinct thing. I was half doubtful of my own tree-wisdom as I stood before this lovely specimen, and so sent a branch to Mr. Nicholson, of Kew, who says it certainly is a variation from the well-known type. I had always thought of the Sycamore as a dense, green, round-headed mass of Vine-like leaves; but the particular specimen to which I allude was so richly furnished with long drooping racemes of red fruits, that at a distance of a couple of hundred yards it somewhat suggested a gigantic Rowan tree or Mountain Ash in fruit rather than an Acer of any kind whatever. On the uppermost branches, in full sunshine, the racemes of fruits were rather crimson than red, and the effect of these on a handsome tree, at least 60 feet in height, backed by noble Beech and Chestnuts, could neither be imagined nor adequately described. Herewith, by the kindness of the owner of the tree itself, I am enabled to send you specimens which will at least afford some slight notions of its distinctness and beauty, and I think it may quite fairly be called a most remarkable variation from the typical species—so distinct, indeed, as to be worthy of a varietal name. The tree itself in growth resembles the type, but the leaves are smaller and of a more shining or glossy green, being glaucous behind. The leaf-stalks or petioles are bright red, and the fruits, instead of being in dense or short-clustered racemes of a greenish hue, are borne in long-stalked clusters and are red, verging on crimson where fully exposed to the sun. It might well be known as the red or crimson-fruited Sycamore.

Apparently there is no history, nor tradition even, attached to this remarkable tree, but its owner, Mrs. Cobbe, tells me it has oftentimes been much admired for its handsome habit of growth and glowing fruitage. The chances are that it is a chance seedling, one of those spontaneous or seemingly accidental vagaries which, springing from a common race or species, are at once a surprise and also an object of beauty. Not seldom, as in this instance, if not quite "a

joy for ever," it is at least so for the summer season. F. W. Burbidge, F.L.S.

Trin. Col. Bot. Gardens, Dublin.

*** The racemes of fruit are of a beautiful colour, and the tree is well worth growing.—Ed.

AMERICAN SHRUB NOTES.

A fragrant Maple.—Fragrant flowered Maples are not common; for this peculiarity, and for the great beauty of its brilliant autumn foliage, the variety of the well-known Tartarian Maple which is found in the valley of the Amoor River, in Manchuria, is well worth general cultivation. It is the Acer Ginnala, or, as M. Maximowicz now considers it, the Acer tataricum var. Ginnala, a small bushy tree, attaining here a height of 15 feet to 20 feet, with bright green, smooth and shining, ovate, serrate leaves. The yellow, long-pediceled, small flowers are deliciously fragrant; they are produced in rather loose erect axillary racemes. The Manchurian plant differs from the typical Acer tataricum in its thinner and less coriaceous, narrower and more deeply lobed leaves, in which the middle lobe is much longer and narrower. The Manchurian Maple is a perfectly hardy, fast-growing plant, whose autumn foliage rivals that of the Sugar Maple in the splendour of its orange and scarlet tints. It is very easily raised from seed, which has been produced here in great abundance for several years.

The American Crab Apple (Pyrus coronaria) is less frequently seen in gardens than the Japanese and Siberian Apples. It is, however, an ornamental tree of very considerable value and beauty, and it has the great merit of coming into flower ten or twelve days after all the other Apples have shed their petals. The American Crab Apple is a small bushy tree, 20 feet or 30 feet high, pretty generally distributed through the Appalachian forests from Ontario to Alabama, although not extending into New England and Eastern New York. It has pale pink or rose-coloured flowers, which are nearly 2 inches across. The orange fruit, flushed with bright scarlet when fully ripe, is 1 inch or 1½ inches in diameter; it hangs on long slender stalks, and like the flowers is deliciously fragrant; it is sometimes used for preserving. This tree loaded with fruit in the autumn is hardly less ornamental than at this season of the year.

The Chokeberry (Pyrus (Aronia) arbutifolia) is now in flower, and is exceedingly ornamental both in foliage and in flower. There are two distinct forms of this plant, the var. erythrocarpa, with narrow leaves, very woolly on the lower side as well as the cyme, and purple-red or scarlet fruit, which remains upon the branches late into the winter, and the var. melanocarpa, which is nearly smooth and produces black fruit. Pyrus arbutifolia is a common shrub throughout the eastern part of the continent from Newfoundland to Louisiana, with slender branching stems 2 feet to 10 feet high, covered with greyish brown bark. The leaves are 1 inch or more long, dark green and shining above. The handsome white flowers, often tinged with purple, and with conspicuous purple or brown anthers, are produced in compound downy corymbs; they are nearly an inch across when expanded. Those in the red-fruited variety, which is most common in the South, are considerably smaller and appear here fully a week later. The fruit is a five-celled pome, the size of a Blueberry, rather dry, but sweetish to the taste. The common northern smooth forms, with purple or black fruit, vary considerably in the shape of the leaves and in the size and colour of the flowers. Some of these forms are exceedingly ornamental when in flower, and the variability which this plant displays naturally makes it not improbable that, as an ornamental plant, it might be greatly improved through cultivation and selection. I am not aware that its improvement has ever been undertaken systematically; the field is certainly not without promise. Some of the large-flowered forms are often found in American nurseries grafted as standards on tall stems of the Mountain Ash; it is, however, a far handsomer plant if allowed to grow naturally on its own roots, when it forms a tall, upright, and rather compact shrub, which is beautiful from spring to autumn.

Hudsonia ericoides.—Of the two species of Hudsonia which are found in the Northern States, this is the earliest in bloom. It is a bushy, Heath-like, dwarf shrub, rarely exceeding 6 inches or 8 inches in height, covered with slender awl-shaped greenish leaves, and producing numerous small, fugacious, showy yellow flowers along the upper part of the branches. This is a very common plant along the sea-coast of the New England and Middle States, where it often covers broad stretches of dry, sandy, barren soil, making a conspicuous and beautiful appearance when in flower, and later in the season forming masses of grey-green foliage. The Hudsonias are not easy plants to establish in cultivation, but once established they grow and spread, especially if they can be slightly protected in winter. They are excellent dwarf rock-garden shrubs, or they can be used as a carpet about taller-growing plants.

Pyrus fennica, a native of the mountainous parts of Central Europe, and by some botanists considered a natural hybrid between P. intermedia and P. Aucuparia, although reproducing its characters from seed, is in bloom. It has been described under many names, of which the most common of those still in use are Sorbus hybrida, Azarolus pinnatifida, Sorbus fennica, Pyrus pinnatifida, and P. sorbifolia. It is sometimes known in nurseries as Sorbus quercifolia. It is a small tree, with smooth, yellow-brown bark and erect branches, and attains, under favourable conditions, a height of 40 feet or 50 feet. The flowers are creamy white, half an inch across, and borne in wide branching corymbs. The pome is small, rarely more than half an inch in diameter, and dull scarlet in colour. Pyrus fennica is a plant of considerable ornamental value; it is very hardy and grows rapidly, and thus far has not been attacked here by insects, although, like the Mountain Ash, it will doubtless suffer from borers. Specimens differ considerably in size, and especially in the cutting of the leaves.

Symplocos paniculatus is a hardy ornamental Japanese shrub now in flower. It has attained a height of 4 feet or 5 feet. The branches are stout, erect and covered with light brown slightly scaly bark. The young shoots are hairy. The small white flowers, less than half an inch across when expanded, are produced in short, loose panicles, 1 inch or 2 inches long, terminal upon short lateral leafy branches, which appear in great profusion along the principal stems. The fruit is blue and the size of a Pea. The introduction of this very beautiful and interesting addition to our list of hardy shrubs is due to the Messrs. Parsons, of Flushing, who sent it to the Arboretum several years ago.

Among climbing plants none are hardier and few are more vigorous here than Schizandra (Maximowiczia) chinensis, a member of the Magnolia family, and a native of Manchuria, Northern China and Japan, where it is often seen in the forests climbing over trees to a height of 20 feet or 30 feet. The long flexuous branches are covered with red warty bark. The flowers are produced in few-flowered axillary fascicles which are completely hidden by the leaves. They are long-peduncled, drooping, three-quarters of an inch in diameter, pale rose-coloured and deliciously fragrant, and are followed by scarlet baccate fruits an inch in diameter, and which remain a long time upon the plant. This is a very hardy and fast-growing vine, which might be cultivated much more frequently than it is in this country.—*Garden and Forest.*

The Mezereon (Daphne Mezereum).—This well-known hardy-flowering shrub is now, and has been for some time past, covered with berries in many cottage gardens, and is very attractive, every branch being closely studded with dark red fruits which contrast well with the light green leaves. There is nothing unusual in this plant fruiting in the way it is this season; the only remarkable feature about it is that the birds should have left the berries alone so long. When the plants occupy positions in shrubbery borders the birds generally attack them before they get thoroughly ripe. There are a good many hardy shrubs that are more highly valued than this, but there are few that flower during the winter that can claim, as this one does, two distinct seasons of attractiveness.—J. C. C.

COLOURED-LEAVED TREES AT MARESFIELD.

With the many improved kinds of our hardy deciduous trees, some of which have brightly self-coloured or prettily variegated leaves, it would be possible to make gardens pictures of colour the whole summer through. It is possible, but requires care, forethought, and good taste, so that the brighter colours may not be overdone, and the variegated-leaved forms too freely used. For instance, Acer Negundo variegatum is a pretty tree, most effective when judiciously planted, but when, as I saw it once last summer, scattered over all parts of the garden, the whole effect is marred.

Acer polymorphum atropurpureum grows well at Maresfield, forms a handsome bush, and in the form of a nice group fringing a shrubbery would introduce a novel, but beautiful effect. The leaves are very rich and deep in colour, the young ones being a reddish purple, deepening with age to a purplish black. A very conspicuous Maple is A. Schwedleri, which, moreover, forms a large tree. As we saw the young stock making a vigorous growth, this kind might be singled out as likely to form a noble and characteristic tree. It is a purple-leaved kind, the leaves being very large and sharply lobed. Probably, as the tree grew larger the leaves would not attain the great size which distinguished this kind in a young state, but it might be well to adopt a system of annually cutting the plants as the Ailanthus and Paulownia are often treated. The experiment would be worth trying with some specimens, leaving others to grow on into trees. Acer Worleyi is a distinct and new Maple with large Sycamore-like leaves. The young shoots are pretty with their mottlings of yellow, red, and green. The leaves are yellowish green in colour.

A distinct tree at Maresfield is a variegated Tulip Tree, the colour assuming the form of rich mottlings, clustering around and radiating from the mid-rib of the leaf, a rich yellow overlying green. A variegated Balsam Poplar was conspicuous, being marbled with yellow, whilst in some leaves the colour was divided, one half of the leaf being yellow and the other green. The Purple-leaved Nut is deep in colour, distinct, and showy. These were a few of the best coloured things noted, though there were many more of interest that one never sees except in a good tree nursery, but which might well be introduced into hundreds of gardens. The Copper Beech is seen to the best advantage when used as a foreground tree to a group of the green form, and many of these coloured-leaved trees would make permanent pictures if associated in like manner. A.

SHORT NOTES.—TREES AND SHRUBS.

Indigofera floribunda.—The Indigoferas make such pretty wall shrubs, that it is surprising they are not more often seen. A large specimen of the above named kind on the end outside wall of one of the glass-houses at Chelsea is a perfect picture. The branches grow out from the wall gracefully, and are clothed with a profusion of little spikes of small lilac-tinted flowers. The Indigoferas remain in flower and are strikingly beautiful for a long time.

The Swamp Honeysuckle.—Northern swamps are now white with the flowers of the Swamp Honeysuckle (Rhododendrom (Azalea) viscosum), the last of the whole family to flower here, and well worth a place in the garden on account of its late and deliciously fragrant clammy flowers. It is found from Maine to Kentucky, but generally near the coast, and sometimes grows to a height of 8 feet or 10 feet. It requires the same treatment and can be grown as easily as the other plants of its class.—*Garden and Forest.*

Olearia Haasti.—This beautiful evergreen flowering shrub will shortly be in full flower. Year by year it continues to grow well and flower so freely as to be converted into a veritable wreath of snowy whiteness.

It is a shrub not in any way fastidious in its requirements, doing well even in the heart of London, and is therefore a most suitable subject for planting in town gardens, being a prettier ornament than hundreds of dingy Privets and sickly Lilacs. It has the additional merit of lasting in full beauty for a very long time. A large bush is now in full flower in the Society's Gardens at Chiswick.

SHRUBBERY BEDS AND BORDERS.

Now that shrubs and trees in the ornamental plantations are at their best, it is the most suitable time to go over them and inspect them with a view to a rearrangement when planting time again comes round, marking those for removal that are getting crowded out or are of least importance from an ornamental point of view, at the same time bearing in mind those that are intended to permanently remain by giving them every encouragement to become shapely plants. Due observance of this is better than leaving too many for the sake of variety and having to prune too severely in order to give them room to become shapely plants. This is especially necessary in those plantations where the plants are getting well established, because the first few years after planting will give a chance of deciding which are likely to do the best and afterwards make the most suitable specimens.

The prevailing custom to plant thickly at first for the sake of immediate effect is a very good one, provided a periodical and judicious system of thinning is practised in order to encourage a uniformity of growth and a suitable variety in arrangement. Neglect of this in young plantations cannot be so well remedied in after years, hence the disappointment in ornamental effect.

The above remarks apply to the mingled system of planting, because it appears to be the one generally adopted. Therefore in the arrangement of a plantation of this sort, one important matter to consider is its size or extent, and whether for distant or home effect, and if bounded on both sides by walks or drives so as to require both sides to be always presentable. After this the beginner would be able to decide upon the disposition of his trees and shrubs and get at the proportion of evergreen to deciduous varieties, and the number of flowering plants required to those of a variegated character. By studying the different gradations each plant will be required to take in turn, a permanent and pleasing effect will in time be effected.

T. R. F.

Pink Broom is the name given by the residents in the Middle Island of New Zealand to the pretty shrub called by botanists Notospartium Carmichaeliæ, and which is now in full flower in Messrs. Veitch's nursery at Coombe Wood, where it has proved hardy. It is much like the Rush-leaved Broom (Spartium junceum) in growth, the branches being round and quite devoid of leaves. The flowers are tiny, but very numerous, and are borne in crowded clusters at intervals on the branches. They are Pea-shaped and pink; therefore, very showy when the bush is well flowered. It makes a beautiful pot shrub for the greenhouse, and in cold districts it should be planted against a sunny wall.

Veronica Traversi. — This is one of the hardiest, if not actually the most hardy of all the New Zealand species of Veronica, and is also very distinct from those that are most commonly grown, represented as they are by such kinds as V. speciosa, salicifolia, Andersoni and their varieties. V. Traversi forms a much-branched dense-growing bush, very thickly clothed with small deep green Box-like leaves, and at this season is profusely laden with spikes of blossoms which in colour are nearly white, being indeed only slightly suffused with mauve. As a neat growing evergreen bush of easy propagation and quick growth this Veronica has much to recommend it, for grown in the shade of small specimens it is during the winter avaliable for various uses, and when treated as a hardy shrub, though it is liable (at all events around London) to be injured during unusually severe frosts, even then if cut to the ground it quickly recovers and grows away freely. Cuttings of this Veronica just dibbled into a shady border and covered with a hand-light will soon strike root.—T.

ORCHIDS.

W. H. GOWER.

ONCIDIUM AUROSUM.

This is a charming species, and blooming as it does at this season and lasting through the months of August and September, it becomes doubly valuable, as just at these times the Orchid houses are apt to be somewhat bare of flowers. This plant is said to be identical with O. excavatum of Lindley, but the plant figured in the *Botanical Magazine*, t. 5293, under that name does appear to be different to the aurosum of Reichenbach figured in the *Illustration Horticole*, t. 34, and it is upon this latter plant that I wish to say a few words. It is usually considered a cool-house species, but although a native of Peru, I have found it thrive better in a house a few degrees warmer than that in which the majority of the Odontoglossums thrive. My experience is also confirmed by my friend Mr. Osborne, who has charge of Mr. Buchan's fine collection at Southampton, where several enormous specimens are now bearing immense panicles of flowers, and these are produced every season. It is a robust-growing plant with large ovate-oblong, wrinkled bulbs and leathery leaves, the whole plant being pale green in colour and very leafy. The spike is stout and erect, much branched, the branches all being erect, and bearing from a hundred to nearly double that number of large, richly-coloured blossoms, which are deep golden yellow; the sepals and petals barred transversely with spots of reddish or cinnamon-brown; the lip is of the same rich hue, relieved by blotches on the crest only. It succeeds best as a pot plant with good drainage and rough fibrous peat only. This species is well deserving more extended cultivation than has hitherto been accorded it. I believe it is one of the discoveries of that grand old collector Warscewicz, but was first introduced to cultivation by M. Linden, of Brussels, through Wallis.

Cattleya Schofieldiana.—A very fine form of this grand Cattleya is now flowering with Mr. Buchan, Wilton House, Southampton. The plant belongs to the granulosa section of the genus, and produces flowers some 6 inches across; the sepals and petals are tawny yellow or buff tinged with greenish purple, thickly marked with irregular shaped spots of purplish crimson; lip white, middle lobe rich magenta-purple, with a narrow white border. It comes from Brazil and enjoys the temperature of the intermediate house. This plant first appeared in cultivation at the end of 1882, and it still remains rare.

Cypripedium superbiens and C. Curtisi.—From amongst a gathering of Orchid flowers received from Mr. Measures, of Streatham, come fine varieties of these two plants, and a closer examination of them serves to show that they are very nearly allied, the shape of every part of the blooms being very similar; the petals in C. Curtisi, however, bear a heavier fringe of black hairs, whilst their spotting is not so bold; the lips are very similar, but the dorsal sepal in Curtisi is much deeper green in the centre. These two kinds I look upon as amongst the very best of the barbatum section of the Slipper Orchids.

Odontoglossum mirandum.—As a species, this appears to belong to the Lindleyanum section, and thrives well under the same conditions. It is a bold, robust growing plant, producing large and brightly coloured flowers. Several plants which I recently noted in Mr. Buchan's collection at Southampton show this to be a very fine and most desirable form. The habit is robust, and the spike of bloom is strong, the individual flowers being large and brightly coloured. The sepals and petals are chestnut-brown, with a broad border and tip of yellow; lip similarly coloured, slightly marked with purple.—W. H. G.

Odontoglossum Krameri.—This lovely and rare species, from Costa Rica, has always been scarce; indeed, it would appear to be a rare plant in its native country, having hitherto been found but in one district, and as this spot is rapidly being cleared the plant is fast disappearing. It will, therefore, well become us to prevent its extermination under cultivation, where I am impressed with the idea that it has not yet been seen at its best. It appears to enjoy a much warmer temperature than the majority of its congeners, although I do not think it requires so much warmth as Cattleyas. It thrives well with Mr. Buchan at Southampton, where there are several fine examples of it in vigorous health. They are hung up near the roof glass in a house with a temperature somewhat higher than that in which the majority of the Odontoglossums are grown, and rather cooler than that in which the Lælias and Cattleyas are cultivated. In this house a very equable temperature is maintained, and the plant appears to enjoy light, but requires shading through the hotter parts of the day in summer. When growing it should be supplied liberally with water, but after growth is completed it appears to like a partial resting, much in the same way, but not so severe, as its near ally, O. citrosmum. The species was first discovered about twenty years ago by the collector whose name it bears.—W. H. G.

Epidendrum nemorale majus.—A lovely plant belonging to a large family, and one that includes more worthless species from a horticultural standpoint than any other genus in the Order; there are, however, some notable exceptions to this rule, and the present species is one of them. It would appear to have been misunderstood, as Lindley, Hooker, and Paxton have all called the plant E. verrucosum. It is a compact evergreen species, bearing broadly ovate pseudo-bulbs, which are smooth when young, but become somewhat wrinkled with age, and bear on the summit a pair of rather narrow sword-shaped leaves. The panicle is drooping, bearing a great quantity of large, delicately coloured fragrant flowers, the sepals and petals being of a soft rosy mauve; lip three-lobed, side lobes small, deep rose, middle lobe broad, white in the centre, where it is marked with several reddish violet lines, the margins being rosy mauve. This plant is considered by some to be difficult to manage, but if treated in the proper manner no trouble will arise. It does not like a long season of rest, and soon after its flowers are past growth will commence, and it continues to grow all through the winter, sending up its spike immediately after the new growth is mature, so that if this plant is rested through the winter months by keeping it dry, no wonder it is pronounced difficult to manage. It is best grown upon a block or in a shallow basket hung up near the roof glass, where it can obtain abundance of light, and should be grown in the coolest end of the intermediate house. It requires great care in watering, as its roots speedily die if the plant gets an over-abundant quantity. It is now flowering in Mr. Buchan's collection at Southampton.

SHORT NOTES.—ORCHIDS.

Cœlogyne speciosa.—This is the plant referred to under the name of C. cristata in The Garden, Aug. 4 (p. 116), as flowering with Mr. Horsman at Colchester, the name cristata having crept in erroneously.—W.

Odontoglossum Schrœderianum.—This extremely rare natural hybrid is now flowering in Mr. Measures' collection at Streatham. I had only once previously noted the plant in The Dell collection. It is a very distinct plant, and quite different from anything I have previously seen. Its parentage is supposed to be O. Pescatorei and O. tripudians.—W. H. G.

Cattleya Hardyana.—This exceedingly rare and very beautiful Cattleya is now flowering with Mr. Measures at Camberwell. It is supposed to be a natural hybrid between C. aurea and C. gigas; in

growth it resembles the last-named plant, but the flowers are a superb mingling of the colours of both parents, and measure some 8 inches or more in diameter. The sepals and petals are rosy purple; lip broadly frilled in front, some 3 inches across, where the colour is of a rich magenta, bearing two rich yellow eye-like spots near the sides of the throat; the throat itself is rich yellow, lined with dark purple. In addition, the superbly coloured flowers are exquisitely fragrant. It may be classed amongst the most brilliant kinds in a large and highly beautiful genus, and it is also as rare as beautiful. It should be grown in the warm end of the intermediate house and near the roof glass.



The Venetian Sumach or Smoke Plant (Rhus Cotinus) on a lawn. (See p 159.)

Anthurium Thellusoni is the name of a new variety of A. Andreanum, from which it does not differ materially, except in the colour of the spathes, which are decidedly of a more brilliant shade of scarlet. It is an advance in the right direction, for we have now almost too many forms of the A. ferrierense stamp. A. Thellusoni is now in flower at the Royal Exotic Nursery, Chelsea, and can be seen side by side with Andreanum and other kinds.

DESTROYERS.

THE ASPARAGUS BEETLE.

(CRIOCERIS ASPARAGI.)

If a poll could be taken throughout the country on the question as to which is the favourite vegetable, I presume that Asparagus or Peas would stand far ahead of any others, and that probably Asparagus would prove first favourite. Potatoes hardly come into the same category as other vegetables. Now it is unfortunate that both these favourite esculents should suffer from the attacks of insects; but so it is. The Asparagus, however, escapes better than its rival, for only one insect, the Asparagus beetle, is credited, or perhaps I should say discredited, with the charge of attacking it. The grubs of this pretty little insect—and it is one of the handsomest of our English beetles—gnaw the stems and feed on the foliage of the Asparagus sometimes to such an extent that the plants are much weakened by their attacks. Late in the season the Asparagus heads which are being cut for the table are sometimes spoiled by the number of eggs laid on them. Fortunately, they are not so abundant in this country as they are on the Continent, for the late M. Godefroy-Lebeuf, the well-known horticulturist of Argenteuil, states in an article on the cultivation of Asparagus that "these destructive insects will devour a whole plantation in a brief time if their ravages be not checked immediately they are perceived." Cultivators of this vegetable should be well on their guard lest this beetle should become as common here as it is in Argenteuil. These insects are troublesome to get rid of, but their destruction is by no means an impossible undertaking. As soon as the Asparagus is fit to cut, a sharp look-out should be kept for the beetles, which will be just beginning to make their appearance. It is most important that these early specimens should be destroyed, as otherwise they would be progenitors of numberless grubs. When the Asparagus has grown to some height, the beetles may be shaken over an open umbrella or a white cloth and thrown into a basin of tobacco water. In capturing these insects their habit of falling to the ground and remaining for some time quite motionless when disturbed should be remembered. These beetles when once they are recognised cannot be mistaken for any other, their form and colouring being peculiar to themselves. They are rather long and narrow and about a quarter of an inch long, very glossy, with a bluish black head and prominent reddish eyes; the thorax (the part that looks like the insect's neck, but is not) is brownish red; the wing cases are considerably wider than the thorax, and are yellowish with the outer margins rather darker; the inner margins are bluish black, forming when the wing cases are closed a dark central stripe; each wing case is also ornamented with three bluish black spots, one near the shoulder, another about the middle, and the third at the tip. The legs and antennæ are bluish black. The eggs are laid on the leaves or young shoots generally singly; they are club or skittle-shaped, and about a twentieth of an inch long. They stand out at right angles to the leaves. The shoots on which the eggs are laid should be gathered and burned or buried. The eggs after a little practice may be found without any difficulty; they should be searched for on a still, cloudy day. If there be much wind the plants will move, so that it will not be easy to see the eggs, and if the sun shines brightly the shadows cast by the fine foliage will prove very puzzling.

The grubs are hatched in about a week or ten days after the eggs are laid, and do not attain their size until they are about a fortnight old, when they are three-eighths of an inch in length. Their heads are black, and their bodies of a greenish slate colour; they are much stouter towards the tail than they are in front; the joints are well defined and much wrinkled. The first three each bear a pair of very crooked black legs, which give the insect a very firm hold on the narrow leaves; the rest of the joints are furnished with fleshy tubercles which serve as legs. The grubs when disturbed raise their heads slightly and emit from their mouths a drop of blackish fluid, which no doubt is a means of protection against some of their enemies.

The grubs are very voracious and will soon strip a plant of its foliage, and even the bark of the young shoots. They may sometimes be shaken off the plants in the way recommended for the beetles, but they cling much tighter, and probably gathering the sprays on which they are feeding would be the easiest way of getting rid of them. The shoots should be put into a basket and carried to a bonfire or thrown into boiling water. When the grubs have attained maturity they let themselves fall to the ground, into which they work their way to the depth of about 2 inches. They there form a thin paper-like cocoon round themselves and become chrysalides. In the course of about a fortnight the transformation is completed, and the insect leaves the chrysalis case as a perfect beetle. The Asparagus beetle makes its appearance in April and may be found throughout the summer until September; during this time there are probably two or more generations, but as eggs, grubs and beetles may all be found together, it is by no means easy to find this out with any degree of certainty. Another member of the same genus (Crioceris 12 punctata) which is equally, if not more, destructive on the Continent to Asparagus than the species now under consideration is, though a native of this country, fortunately rare, and, from a horticulturist's point of view, may it long remain so.—G. S. S., in *Field*.

ROSE GARDEN.

HARDINESS OF TEA-SCENTED ROSES.

THOSE intending to plant Tea Roses would do well to note the remarks by Dean Hole in THE GARDEN, Aug. 11 (p. 122). We have in our own garden a fine bed of Tea Roses, and I have not the least anxiety about their being injured by frost or anything else. It is simply a matter of careful preparation to start with. They do best on a clayey loam, but merely digging over the soil is not enough. I found that it would not be possible to grow Roses or anything else in the garden I had to deal with unless it was perfectly drained. The garden, I was told, had been drained, but to test this a hole was dug about 3 feet deep in the winter, and next morning it contained a foot of water. The first operation was to see that drains were cut 3 feet deep and a free outlet found for the water. It was a Grass field on which the Roses were to be planted, and the soil had not been disturbed for many years. I marked off the space for the bed and trenched the ground 18 inches deep, working in at the same time plenty of stable manure. The trenching brought the soil up quite 4 inches higher than the surrounding surface. On the top of this a good thick layer of manure was placed, and 6 inches or 7 inches of good soil above it, and in that the Roses were planted, the sides and ends of the bed being turfed over. All the Roses are on the seedling Brier and were planted in November, and round the roots of each plant was placed a good mulching of decayed stable manure. The union of the stock with the scion is covered over at planting time, and part of the Rose growth is covered with the manure. The winter following was severe and nearly the whole of the plants were killed down to the line of protection, but they all started away freely again from the base. Tea Roses succeed remarkably well on their own roots, and are very easily propagated from cuttings taken now with a heel attacked to each, and planted firmly in sandy soil, using hand-lights or low frames to cover them. The cuttings must, of course, be protected from the sun, which would cause them to shrivel up before they were rooted.

I once put a lot of cuttings of Tea Roses into 4½-inch pots and covered them with hand-glasses. The cuttings were ready for potting off by the end of September, and most of them produced very nice blooms under glass the following spring. The plants were put out in the summer and flowered again in the autumn, after making very vigorous growth. Roses of any kind degenerate in the quality of the flowers if they are allowed to remain too long in the beds without removal. It is best to remove them every second or third year, replanting them again on the same bed after they have been rearranged as to height. Some varieties of Roses are very much more vigorous than others, and the best effect is produced when they are arranged so that weakly sorts may be near the margin of the bed, and the vigorous, tall-growing varieties in the centre.

I found our large bed of Tea Roses, as well as a much larger one of Hybrid Perpetuals, had become very irregular from the uneven growth of the Rose bushes, they having been planted four years. I had all the plants taken up and the ground retrenched, manuring it well. The Roses were planted as we proceeded with the work, and some new rich loam was added to the beds, a portion of it being placed in immediate contact with the roots of each plant. All the Roses have grown well, the Teas being much finer than they ever were, making now very clean, strong growth with blossoms in abundance. Wherever Tea Roses do not succeed well planted on level ground, they should be tried on raised beds prepared and planted as I have described. People will have their Tea Roses budded on tall stems from 3 feet to 5 feet high. Some varieties will do very well on such stems, others will not, and none of them are so satisfactory as they are on their own roots, or budded close to the ground on the seedling Brier. J. DOUGLAS.

A SUGGESTION ABOUT ROSES.

TO THE EDITOR OF THE GARDEN.

SIR,—The following method regarding dwarf and own-root Roses may possibly possess points of interest, especially to amateurs and those who desire to perpetuate their Roses with the greatest certainty and at the same time have them always in the beds and in good condition. The method is based on the observation that almost all Roses if left to themselves make suckers at or just under the level of the ground. These suckers are generally pretty well matured by the end of September. Now it is observed also that if a plain piece of wood or cane having a root be planted rather deeply, it will all the same send out suckers from the eyes about the ground level. It is also a point universally observed that at about the end of September the rooting tendency of Rose trees is strongest.

Suppose, then, that a seasonable moist time is present, and that a bed of own-root Roses is to be renewed, or that a few large isolated plants are worn out, then proceed as follows: First dig up the old plant, being careful not to bruise or injure the junction of the stems. Then fill and level the hole, and by preference prepare to plant afresh at a place where the soil is light and fresh, but if it is a bed, then have nice manure ready, spread it and trench in 15 inches or 18 inches deep, well mixing all the staple. Then comes the important operation of splitting up the plants. Have ready a large chisel and mallet, and also a block, lay the Roses on it, and cleverly divide the hard-wooded stools as if they were herbaceous plants. Replant on the bed rather deeper than usual, so as to give a little clean stem under the soil, also prune back somewhat, according to requirements. They will be making a lot of fresh roots long before the winter, and go along in fine style the following season, sending up strong suckers from the stem above the stool or old root. In three years' time the bed may be so treated again.

ALF. D.

The Cherokee Rose is a common plant in many districts of Southern China and Japan, but it is not recorded how the Cherokee Rose first reached America, in whose garden it was first planted, or how it escaped to the woods and took such a hold upon the soil that it acquired the name of the tribe of Indians which once occupied much of the upper country in what are now the States of Georgia and the Carolinas. Michaux, the French botanist, found it in Georgia late in the last century so thoroughly naturalised that he mistook it for a native plant and first published it in his "North American Flora" many years before it was known as a Chinese plant at all. Elliott speaks of it in his "Sketch of the Botany of South Carolina and Georgia," published in 1821, as having been "cultivated in the gardens of Georgia for upwards of 40 years, under the name of the Cherokee Rose." It is a shrub with long flexible branches which may be trained to a height of 15 feet or 20 feet, but which, if left unsupported, fall to the ground and take root. This habit, its vigorous, rampant growth, and the stout, sharp, incurved prickles with which its branches are armed admirably adapt the Cherokee Rose to form high hedges, which, if left unpruned, soon form thickets 20 feet or 30 feet through, into which no animal will penetrate. There are hundreds of miles of such hedges lining the highways in different parts of the Southern States, and nowhere are they more beautiful and luxuriant than in that part of Western Louisiana watered by the Achafalaya and the Têche. When in bloom the Cherokee Rose is an object of much beauty, its pure white, single, fragrant flowers, 2 inches or 3 inches across when expanded, contrasting charmingly with the dark, shining, evergreen foliage.—*Garden and Forest.*

*** We believe this is the beautiful single Rose which is so vigorous and graceful in Madeira.—ED.

SHORT NOTES.—ROSES.

Madame Hoste.—Among new Tea Roses this is said to be the best, and is described as a pale yellow Anna Ollivier.

Madame A. Etienne.—This is a beautiful Tea with soft pink flowers, which deepen in colour towards the centre, and are of a full, fine globular form.

Papa Gontier is an American Tea Rose largely grown for forcing in that country, but as we saw it recently at Waltham Cross it looks a promising kind for English gardens.

Madame Norman Neruda.—This pretty rosy-cerise variety is essentially an autumn bloomer. We noted a large breadth of it at Cheshunt carrying many flowers which are sweetly scented.

Duchess of Albany.—This deeper-coloured form of La France fully sustains all that has been written in its favour. Like La France, it a most abundant bloomer, and in every sense a good garden Rose.

The Bride and Francisca Kruger have been two of the best Teas this year in Messrs. Veitch's Langley Rose grounds. The last named kind has been particularly free in flowering. It is a Rose of good form.

Rust on Rose trees.—Will any reader of THE GARDEN kindly say what is the cause of rust on Rose trees? The foliage of many of mine is completely destroyed by it, and suffered much from it last year. Is there any remedy, and what is the best treatment to give them?—R. L. B.

Madame Eugene Verdier.—This is a Tea with some of the vigour of Gloire de Dijon, from which it originated. It is surprising how little this variety is grown, for it is a most distinct and beautiful kind, with flowers of globular form, exquisite scent, and in colour a deep chamois-yellow.

Rose Luciole.—This is one of last year's novelties, and proves to be a Tea Rose of great merit. In the bud state it is most charming, and the colour is a combination of beautiful tints, rose deepening into carmine, with a suffusion of yellow and copper, while the back of the petals is tinted with bronze. In addition to this it is sweet-scented and fairly vigorous.

Rose Camoens.—This is a very pretty Rose, belonging to the class called by the not very pretty name of Hybrid Teas. In colour it is a coppery rose, most exquisite in the bud state, and when fully expanded the blooms assume the tint of those of the old China. The special merit of this variety is the exceeding freedom with which it flowers, equalling the monthly Roses in this respect.

Rose Bruce Findlay.—This is a seedling of Mr. George Paul's, and one flower recently exhibited at Manchester created quite a sensation. It is perhaps somewhat premature to say much about it at present, but we saw some bloom recently at Cheshunt which looked most promising. It may be described in colour as a Louis Van Houtte with the form and substance of A. K. Williams, and should this character be sustained Bruce Findlay will be a great Rose.

Madame Joseph Desbois.—This new Perpetual proves to be a distinct and beautiful Rose. It is of the Merveille de Lyon type as regards habit of growth and freedom of flowering, but in other respects is distinct. The flowers are of great size with plenty of substance and open well, the colour being flesh-white passing to pink and soft rose. It was the most conspicuous Rose in a large plantation at Slough a few days ago.

Rose Earl Dufferin.—This Rose as a maiden on seedling Brier has given some grand blooms, and

judging from its free-flowering habit and strong bushy growth, it will probably do still better as a cut-back and lose the serrated edges to the outer petals, which rather detract from its otherwise excellent form. The colour has been remarkably bright and distinct, somewhat between Louis Van Houtte and Xavier Olibo, and is very lasting. If Earl Dufferin can stand the ordeal of a hot dry season on this side of St. George's Channel, it will take very high rank as an exhibition variety, while in a cool season its success is already assured.—North Herts.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

August 14.

We expected a larger meeting for such a month as August at the Drill Hall on Tuesday last, especially after the brilliant summer weather, so long denied us. The two groups, however, from Messrs. Paul and Son, of Cheshunt, and Mr. T. S. Ware, of Tottenham, were interesting and extensive, showing that the hardy garden in August is as rich in flowers as it is in July, if only a proper selection of things is made.

First-class certificates were awarded as under:—

Papaver orientale var. Blushing Queen is the same as the one fully described in The Garden (p. 74), and represents quite a distinct break away in the Oriental Poppies. We hope to see a series of colours now that a pink variety has been obtained. From Mr. T. S. Ware, Tottenham.

Croton Aigburth Gem.—Crotons have been rather at a discount during the past two or three years, but this new and exceedingly beautiful variety should bring them forward again. It is one of the interruptum class, and has an abundance of narrow, gracefully-drooping leaves, coloured with the most brilliant red, this overlaid here and there with patches of deep green. We should think it would be hard to find a brighter table plant. From Messrs. R. P. Ker and Sons, Aigburth Nursery, Liverpool.

Carnation R. H. Elliott.—We should like to see more of this Carnation to express a decided opinion as to its merits. It seems to have a most desirable character, being by its growth of the tree or perpetual class, strong in habit, free, and with medium-sized, full, even flowers. The ground colour is yellow heavily flaked with rose. It belongs to a type of bloom just now in request. From Messrs. Laing and Mather, Kelso, N.B.

Tuberous Begonia C. Stowell.—This beautiful double variety shows that there is still plenty of scope for the hybridist in the improvement of the tuberous Begonia. It is one of the finest we have yet seen, the flowers as double as those of a Camellia, which they much resemble in the severe outline, crimpled petals, and massive character which distinguish this new addition. They measure about 3 inches across and as much in depth, the colour being of the most lovely shining self-rose imaginable. From Messrs. H. Cannell & Sons, Swanley.

Hardy flowers were of interest, as a good selection was exhibited. Messrs. Paul, of Cheshunt, had a silver-gilt medal for a large bank, together with cut Roses, which were surprisingly fresh. Amongst the hardy flowers were the useful Coreopsis lanceolata, a brilliant August flower, not half so much grown as it ought to be; Lysimachia clethroides, an interesting Moneywort, with slender spikes of white flowers; Geum coccineum plenum; Centaurea ruthenica, one of the choicest of the Centaureas, the heads of bloom being of a soft sulphur yellow; and Gypsophila paniculata, the most elegant and free-flowering hardy plant in the garden just now; it is exceedingly light, and beautiful in a mass; Lythrum roseum superbum, rose-purple; Shirley Poppies and Carnations were excellent, and amongst Carnations and Picotees there were good flowers of Clara Penson, white with a thin purple edge; Beauty of Whitley, scarlet; Fedora, brilliant rose; Prince of Wales, deep crimson; W. P. Milner, white; Mary Morris, bright rose; and Alegatière, scarlet. A Phlox named La Fille de l'Air, not more than 18 inches high, and a mass of white flowers, with a central ring of rose-lilac, also deserves notice. In the collection of Roses, such lovely Tea varieties as Comtesse de Nadaillac and Mme. Cusin were shown in fine character. Mr. T. S. Ware, of Tottenham, had a group in which were the Canadian Lily and its variety rubrum, which has more richly coloured and thickly spotted flowers than those of the type; Gaillardias of many kinds, and French Cannas, the variety Victor Hugo being noticeable for its rich crimson colour. This race deserves all the care possible to improve it. A very free and beautiful blue-flowered Pentstemon shown was P. heterophyllus, and a gay show was made by the blue Delphinium chilense. Summer-flowering Chrysanthemums were also shown. A bronze medal was awarded. Mr. A. Dean, of Bedfont, had a bunch of the Carnation Fair Maid, the colour bright salmon, and also of a variety named White Lady, pure white, and Rosa Mundi, a Picotee with a very pale ground, forked with thin stripes of rose-magenta; another Picotee named Paladin was white, striped with dark crimson. Mr. Dean also exhibited seedling Phloxes of promise, pyramidal Stock Mauve Beauty, the colour pale mauve, and Chrysanthemum segetum grandiflorum, a form of the common Corn Marigold, the flower enlarged to about three times its normal size by selection and careful culture.

Mr. G. F. Wilson, Weybridge, had several interesting exhibits of a kind we should like to see more of at these meetings. There was a white-flowered Maurandya, raised from seed, sent from the Sandwich Islands; also the pretty Streptocarpus-like-flowered Stenogastra concinna, Lilium longiflorum, with four fine flowers on a spike, varieties of L. superbum, Gentiana asclepiadea, septemfida, cruciata, and ornata, and Opuntia flowers from an open bed.

A box of the old La Biche Rose was sent by Mr. J. Walker, Thame, Oxon, and it was a pleasure to see this old Noisette Rose that used to adorn many an arbour in the time when Lamarque, Jaune Desprez, and old-fashioned Roses of that class, now seldom seen, were in their full tide of popularity. La Biche is a good climbing variety, vigorous, and has clusters of white full flowers of sweet scent.

From the Royal Gardens, Kew, was exhibited the singular Mucuna imbricata, a member of a tropical genus of leguminous plants, this particular species coming from India. It was figured in the *Botanical Magazine*, t. 4945, under the name of M. prurita. Eucomis bicolor is a Cape bulb of no great beauty, but the flowers which are closely set on the spikes are interesting. In colour they are pale green, edged with violet-purple. Also from Kew came the beautiful Littonia modesta, a liliaceous plant, excellent for training on a pillar in a warm house. It is a South African species, and there is only one other in the genus; the flowers are rich orange, bell-shaped, and very showy against the pale green leaves, each terminated with a tendril. Professor Michael Foster, Shelford, Cambridge, showed spikes of hybrid Gladioli, in one case the result of a cross between G. Papilio var. atrata and G. Saundersi, and in the other between G. oppositiflorus and G. Saundersi. All are perfectly hardy, and the colours are bright, especially those resulting from the last-named cross. We hope Professor Foster will still further experiment in this way. Mr. Charles Turner, of Slough, showed Carnations which we shall note later on, and an excellent assortment of Kæmpfer's Iris was sent by Messrs. Gordon, of Twickenham. Several of the best varieties shown are mentioned in the present number, and all we need say here is that a most interesting range of decided colours is appearing, but speckled flowers should be destroyed as worthless. Lobelia Miss Hope, pure white, came from Mr. G. Davidson, Carmarthenshire, and Mr. T. Williams sent a seedling from Blue Beard, good for a basket. Mr. W. Williams, Walcot Nursery, Ryde, sent two Carnations, but they did not seem to be better than existing varieties. Messrs. H. Cannell and Sons, Swanley, exhibited, besides the variety certificated, the following double-flowered tuberous Begonias: Mrs. Paget, yellow buff; Mrs. F. Jenkins, soft yellow; Mrs. Hadden, rose; and Mrs. Cornwallis West, yellow, shaded with salmon-pink, all charming varieties.

The Orchids were not numerous, but Mr. Ballantine, gardener to Baron Schrœder, The Dell, Egham, showed a rich and rare collection of cut flowers. Lælia callistoglossa, a cross by Mr. Seden between Lælia purpurata and Cattleya gigas, is the finest hybrid that has appeared. The flower is as large as that of C. gigas and exceptionally rich, the sepals and petals pale lilac, and the lip deep purple. Another interesting exhibit was a flower of Lælia Batemanniæ, now classed as Sophro-Cattleya, this being a cross between Cattleya intermedia and Sophronitis grandiflora. It is like the Sophronitis in growth and has almost the same brilliant colouring, the form of the bloom showing its affinity to the Cattleya genus. There was also the darkest coloured Lælia elegans we have yet seen; a magnificent raceme fully 2 feet long of the lovely pure white Saccolabium Heathi, or the white S. Blumei; Sobralia leucoxantha, white with yellow lip; Cattleya Chamberlaini, a hybrid between C. guttata Leopoldi and C. Dowiana, the colour deep, and the form like that of the first named parent; and Pachystoma Thomsoni, a very rare African Orchid, the flowers white except the long tapering magenta-purple lip; Cattleya Schrœderæ and a fine spike of Cypripedium Morganiæ were also shown. A good form of Lælia elegans came from Mr. M. S. Cooke, Coombe Bury Cottage, Kingston Hill; and Cypripedium concolor Regnieri, a more slender and less profusely spotted flower than that of the type, and C. unicolor, small, quite self-yellow, from Messrs. Hugh Low and Co., Clapton. Mr. Cowley, gardener to Mr. F. G. Tautz, exhibited Cypripedium Canhami, and Mr. Charlesworth, Heaton, Bradford, showed Bifrenaria bicornuta, which has closely packed spikes of small brownish flowers, and a good form of Odontoglossum Alexandræ named Heatoniense. Mr. Swan, gardener to Mr. G. C. Raphael, Castle Hill, Englefield Green, had a well-grown plant of Oncidium splendidum.

Messrs. Cheal, of Crawley, had an arrangement for exhibiting single Dahlia flowers so as to present them on the exhibition table to full advantage.

Fruit was plentiful, especially Gooseberries. Messrs. James Veitch and Sons had a collection of trees in pots, showing the productiveness of the several varieties, and picked fruit of such standard kinds as Whinham's Industry, Yellow Champagne, Pitmaston Green Gage, Keen's Seedling, and Red Champagne, all small-fruited sorts of delicious flavour. Ironmonger, Crown Bob, the finest flavoured fruit of all and the best market kind, and Red Warrington are also representative kinds. All those of the Whitesmith class, such as Snowdrop and Nonpareil, are generally excellent for dessert. We have far too many fat, watery varieties. Messrs. Veitch also showed early Pears, as Citron des Carmes, Doyenné d'Eté, Jargonelle; and early Apples, as Red Juneating, Red Astrachan, and Irish Peach; also a dish of the Waterloo Strawberry in excellent condition. A silver medal was awarded. Messrs. Paul, of Cheshunt, had a collection of Gooseberries; also a dish of Carter's Champion Black Currant, which has fruits almost as large as Black Cherries. Mr. W. Roupell, Harvey Lodge, Roupell Park, exhibited a basket of dessert Apples from trees on Paradise stock. The fruits of Red Astrachan, Red Juneating, and Gladstone were very good. The last Apple on ordinary soil is dull green, striped with red, but on soil mixed with soot and lime the colour is quite bright red. Mr. Chambers, Isleworth, had splendid fruits of the Royal George Peach. A collection of Gooseberries, Currants, and Raspberries was sent by Mr. J. Walker, of Thame, the fruits of all-round good quality. Messrs. Cheal and Sons, Crawley, showed Fay's Prolific Red Currant, the fruits large and in fine clusters. The same variety came from Mr. G. Lee, Cliveden, and Strawberry Filbert Pine, very late, from Messrs. Lovel, of Driffield. A Pea that deserves further trial is Witchford Hero, from Mr. Banyard, Poplar Hall, Cambridge. From the Royal Society's Gardens at Chiswick was sent an interesting collection, including Plum St. Etienne, a yellow-fruited and rather small kind, the flavour fair; and Princess of Wales and Blue Gage varie-

ties; also Figs. There were also good samples of the Doyenné d'Eté and Citron des Carmes Pears.

NOTES OF THE WEEK.

One of the most charming sights in Battersea Park at present is a straggling mass of Clematis Jackmanni and the Everlasting Pea. Both plants are intermixed and covered with bloom, thus forming a most picturesque appearance.

Lælia elegans.—An excellent spike of a good variety of Lælia elegans comes to us from Mr. Malcolm S. Cooke, Kingston Hill, S.W. It bore several blooms, which are of deep purple-rose colour, the lip being a shade more intense.

A Hose-in-hose Gloxinia.—Mr. R. H. Rayner, Norris Hill, Stockport, has sent us flowers of a Hose-in-hose Gloxinia, the colour bright rose, with the throat white. We advise that this variety be improved as much as possible.

The Scottish Bird's-eye Primrose.—No plant is so beautiful on the grassy headlands of the Pentland Firth as this Primula or miniature Auricula. Popularly it is known to a few as "The Powdered Bean." I tried to find a white form, but without success.—C. Stuart.

Cape Leadwort (Plumbago capensis) is used as a bedding plant in Battersea Park, and notwithstanding the inclement weather we have had this summer is flowering fairly well. In favourable seasons it would undoubtedly prove an acquisition among bedding plants.

Cistus algarvensis.—On a warm bank or rockery nothing can exceed this choice little shrub. The beauty of its bright yellow flowers with dark blotch and its persistency of blooming are qualities as conspicuous in this as in its larger relative C. formosus.—G. J., *West Surrey.*

Double-flowered Anemone.—I send you a small gathering of double Anemones, which are very pretty and useful at all seasons. We have had a constant succession all the summer by planting at different times. —John Grey, *Normanton Park, Stamford.*

*** Very rich in colour and exceedingly well grown. —Ed.

Clove Carnation Paul Engleheart.—No praise can be too strong for this capital variety of the old Clove. It blooms in short-stalked, upright clusters of flowers of a splendid scarlet-crimson colour, and of sweetest scent; wants no staking, and has a richer effect in the mass than any Carnation I have seen, from its dwarf, stiff habit and mass of bloom.—G. J.

—— I send you a bunch of my stiff-stemmed Clove Carnation Paul Engleheart. The individual flowers are below their standard this bad season, but I hope the colour and scent will please you, as it has done in former years.—G. H. Engleheart.

*** A beautiful bunch of this lovely Carnation. The stems are very stiff, need no support, and the flowers of delightful scent and splendid colour.—Ed.

Carnations from Cambridge.—From Mr. Rogers, of Whittlesea, comes a nice gathering of Carnations, among them some good selfs of decided colours and excellent form, also some prettily laced kinds. They were sent under numbers, so we have no means of finding out what they are, but should like to hear more from Mr. Rogers about them. The strain appears to be a free-flowering one, with hardiness and exceptional vigour combined.

Carnation Miss Joliffe is largely grown for the market, being generally cultivated in pots, but in the Royal Horticultural Gardens at Chiswick there is a bed of it full of flower in the open ground. The flowers of this beautiful pink-flowered Carnation realise as much as 1s. a dozen wholesale, as they supply a colour peculiarly fashionable just now. Arranged with Maiden-hair Fern, a bloom of this Carnation is exceedingly bright and handsome.

Seedling Carnations.—A few years ago you mentioned that a good strain of border Carnations was wanted, as those with the smooth edges and round outlines of florists' flowers were not free enough. What is wanted is a plant or plants from which you can cut and come again. I think I have got what you suggested, and send a dozen colours for your inspection. I have at this moment plants eighteen months old with 450 to 500 blooms and buds.—R. G.

*** Among these were some magnificent kinds, a delicate fringed pink, one like Painted Lady, and another of a most delicate flesh colour. There were also some pretty distinct shades of crimson and magenta, the whole series embracing many shades of colour. The flowers were not so large as those of the beautiful selfs, but this is probably owing to the abundance of bloom.—Ed.

—— I send for your opinion a small gathering of seedling Carnations. The seed was sown in February, 1887, and when large enough the plants were pricked off into boxes and afterwards transferred to the beds where they now are.—J. Arnold, *Cirencester House Gardens.*

*** Bright and well grown flowers. The best sent were a deep rose variety and a red-coloured self, but their precise value could only be found by growing them side by side with the best known standard kinds. The one marked is not good enough for naming.—Ed.

—— I have sent a few blooms of a pink seedling Carnation to ask your opinion of it, and I have also sent another that I have grown for some time. —Alfred Gardner, *The Gardens, Mount Mascal, Bexley, Kent.*

*** We think the pink Carnation a very pretty, delicately coloured kind. Take care of it, and give it one simple name, not a rigmarole. The one with the number is very similar to the kind Redbraes.—Ed.

—— I shall feel much obliged by your letting me know if you consider the enclosed single Carnation (seedling) worthy of cultivation and a name.—E. J. Smith, *Clonard, Dundrum, Co. Dublin.*

*** A striking seedling worth keeping, but not worth naming until you have proved it.—Ed.

The Swamp Milk-weed (Asclepias incarnata) is not by any means a bad plant, for when grown well it is showy and lasts a long time. It is now in bloom in the Coombe Wood Nursery, where the plants, though on a dry slope, are about 4 feet high, each slender stem being surmounted by a broad flat cluster of flesh-pink flowers. It thrives best in a damp place, such as the edge of a ditch or pond. It comes from North America, and is hardy.

A note from Scotland.—Four beautiful shrubs in flower just now are the plume-like Spiræa ariæfolia, Deutzia scabra, D. crenata fl.-pl., Veronica Traversi, and I may also add Escallonia Philippiana to the number. The Deutzias are flowering with remarkable profusion this season. Amongst herbaceous plants the Funkias have been very conspicuous for some time past. I have never seen them so free-flowering as they are this year. I find them do especially well by the margin of a pond, where they grow and flower with great luxuriance, proving themselves to be of a semi-aquatic nature.—J. G. M. G.

A note from Haslemere.—It may interest some of your readers who are patrons of outdoor gardening to know that a plant of Desfontainea spinosa, which has been planted out in the open here quite away from walls for four years, has now upon it forty-five flowers and flower-buds. The plant is 2¼ feet high and 1 foot through. A plant of Eucryphia pinnata near it of about the same size is showing over fifty flower-buds. The situation faces south, but is 550 feet above sea level. Spiræa gigantea, a somewhat new introduction from China or Japan, has sent up stalks 6 feet high crowned with graceful plumes of white flowers, and seems perfectly hardy.—B. E. C. Chambers, *Grayswood Hill, Haslemere, Surrey.*

Tomatoes at Chiswick—Tomatoes in the open ground are a complete failure, and those who have an abundant crop under glass are reaping a splendid harvest. One of the best houses of Tomatoes we have seen is in the Royal Horticultural Gardens at Chiswick. There are about 400 plants now bearing a magnificent crop, the result of skilful culture and close attention. The varieties that are especially good are Horsford's Prelude, which produces large clusters of excellent fruit and sets well, Tennis Ball, Hathaway's Excelsior, Ham Green Favourite, with fruits of great depth and solidity, and Perfection; this is a fruit of rounder form, large, smooth, exceedingly handsome, and of good quality. Those who are interested in Tomato growing will be repaid by a visit to Chiswick to see this splendid crop of indoor Tomatoes. The fruit hangs in profusion, and the growth the plants have made is surprising, considering the weather and lack of sunshine. There is also a trial of Tomatoes in pots, and amongst them varieties of promise which will be noted later on.

Fuchsia Riccartoni and Hyacinthus candicans.—At Kew at the present time is a bed of the hardy Fuchsia Riccartoni mixed with the tall Hyacinthus (Galtonia) candicans. The tall spikes of the Hyacinth hung with large pearly white bells seem to gain beauty by contrast with the abundant red bloom of the Fuchsia. The Fuchsia has been in flower for several weeks, and the Hyacinth being now in full bloom will make the bed attractive for a few weeks longer.

Gladiolus Saundersi.—We have received spikes of this showy Gladiolus from Messrs. Dickson, of Chester. The flowers are large, scarlet, and white at the base of the lower segments, overlaid partly with spottings of crimson. This species is almost as fine as many of the hybrid varieties, and is quite hardy, blooming well if planted in a light soil and sunny position. It is a wonder that this beautiful Gladiolus is not more often grown. A coloured plate of it was given in The Garden, July 21, 1877 (p. 64).

Spigelia marilandica.—There is often much unnecessary fuss made about the requirements of this pretty North American hardy herbaceous plant, and, as a rule, a moist peat border is recommended for it, but that it will thrive on a dry slope in ordinary soil is known to those who have seen the plant often under varied conditions. In the Coombe Wood Nursery at the present time one may see a fine specimen of the plant in full flower on a sunny slope, where moisture cannot possibly collect, and thriving in the greatest luxuriance. I much admired the other day its tall spikes of crimson and gold—colours so uncommon in hardy flowers that the plant attracts the notice of everyone. It is one of the brightest of August flowers, and no one need have any doubts about its hardiness. I should always plant it where it could have slight shade during the summer months, as then it grows taller and looks more vigorous. It is the Pink Root or Worm Grass of the Pennsylvanian woods.

A large fungus.—I send the stem and a slice out of a fungus found a week since on a sloping bank to a stream of one of my Grass fields. It was perfectly white outside when found, and as the rabbits had nibbled it a little I was disposed to think it edible. I think its dimensions must be rather unusual; it is 18 inches in diameter, and 11½ inches in the centre in thickness. I should be glad to know its name.—S. E., *Peover.*

*** The fungus is the giant puff-ball (Lycoperdon giganteum), edible when snow-white inside. Your example, 18 inches in diameter, is certainly an unusually large specimen.—W. G. S.

Changing dates of flower shows.—Is it usual for horticultural societies to alter the dates of flower shows and not to give any intimation to their subscribers? I am a subscriber of two guineas a year to the Manchester and Northern Counties Botanical Society. The date of Auricula show was postponed for a week; the Rose show was five days earlier, and so I missed it; the Carnation show was dated next Saturday (18th), and I have just heard that it has taken place to-day, and so I have missed this also. I had no intimation of any of the alterations.—An Old Subscriber.

Simplicity in plant names.—The name given to a new variety of the Japanese Crab is Pyrus Malus Toringo nivea polypetala! This, I believe, comes with the plant from the Continent, where a string of names for new varieties seems to be considered a necessity.—G.

Names of plants.—*H. B.*—Staphylea pinnata.——*Bon-Accord.*—1, old Orange Lily (Lilium croceum); 2, Campanula sp.; 3, Campanula rapunculoides (very highly coloured); 4, Lysimachia clethroides.——*Strensall.*—The Marsh Gentian (Gentiana pneumonanthe).——*J. W. Davis.*—Tussilago farfara variegata, the varigated form of the common Coltsfoot. ——*John (Perthshire).*—Brome Grass (Bromus commutatus). ——*W. Crick.*—Andromeda floribunda.——*A. H. H.*—1, Nephrodium dilitatum; 2, Lygodium scandens; 3, Asplenium Adiantum-nigrum.——*Vela.*—1, Stobæa purpurea; 2, Liatris spicata; 3, Astrantia minor; 4, Campanula sarmatica; 5, Silphium perfoliatum; 6, Astrantia helleborifolia; 7, Campanula barbata; 8, Acæna myriophylla.——*J. W. Marriott.* —The true Odontoglossum brevifolium.—*T. W.*—1, Angulua uniflora; 2, Cattleya Loddigesi (dark variety) 3, Oncidium longipes (quite different to O. Cresus).——*F. B.*—Rhipidopteris peltata.

WOODS & FORESTS.

DISEASES OF FOREST TREES.

Some species of trees are apt to be very much affected by dry rot, and the conditions under which such trees are often growing are so unlike, that at first sight one would be led to conclude that the cause of the disease must have originated in some other way than that of bad soil. The Scotch Fir seldom suffers from this disease under any conditions, but then the Larch and Spruce Fir, both of which are valuable forest trees, often suffer immense damage, and when the disease is of long standing the rot gradually ascends the centre of the stem, eating away the wood and reducing the lower part of the trunk to a hollow tube. The disease is then known by the familiar name of "pumping." I have found this disease prevail to the largest extent upon stiff, adhesive soils that retain excess of moisture, dry soil resting upon hard gravel, and light, sandy soil resting upon loose shingle. The Larch and Spruce often, to all appearances, make a favourable start upon any or all of these soils, but in the case of the Larch when the roots come in contact with the cold, retentive subsoil, their further progress is arrested, the small, tender fibrous roots become inactive, rot sets in, gradually reaches the stem, and lays the foundation for heart rot. The Spruce Fir is often affected in the same way, although in cases where the ground contains excess of moisture it proves to be a hardier tree, and often attains a large size before rot makes its appearance at all. In cases where the trees are planted upon soil resting upon hard gravel, the roots are often damaged by excess of surface water during winter, as the hard, impervious subsoil prevents percolation, and as the water lies in a stagnant condition about the roots, many of them perish. On the other hand, trees planted upon this class of soil are apt to suffer damage from drought during summer, so that between the two extremes it is not to be wondered at that trees growing under such conditions contract rot and sometimes die a premature death. The practical lesson which we are taught here is that trees should never be grown in such a soil without breaking up the hard subsoil at the places where they are to be planted. If the subsoil is loosened in this way the plants get a good start, and as the roots extend they gradually break up and pulverise the ground for themselves. Light, sandy soil resting upon loose shingle is always deficient in clay and organic matter to attract and retain moisture for the healthy development of trees; consequently during a spell of dry weather many of the small roots get dried up, loose their vitality and contract rot, which in course of time reaches the stem, and produces heart rot in the timber. But in these soils it is not only coniferous trees that suffer, as I have also found the Ash, Birch, Poplar, Gean, and others more or less affected with heart rot.

Although the Scotch Fir is almost exempt from this disease, yet it often suffers considerable damage by blotch or ulceration in the stem. Various opinions have been assigned as to its origin, some holding that frost is the cause, others that the vessels of the stem get ruptured by the oscillation of the tree during a storm, while others contend that wet ground is the cause, and others say it originates from the puncture of an insect. Many years ago the late Prince Consort, who was no mean authority on tree culture, told me that he thought the blotch was caused by an insect, and I find this opinion corroborated by Brown in his second edition of the "Forester" (p. 424), where, in speaking of the Larch and Scotch Fir, he says:—

> This disease is mostly found upon young trees of these tribes, and is occasioned by insects lodging their eggs in the inner bark, where the young live for a time and destroy the alburnum. I have frequently observed this disease take place in young Larch plantations where the soil was unfavourable to their growth, and in those cases wounds were the original cause.

Notwithstanding these high authorities, I have not found their statements verified by actual experience and observation, although at the same time I have given a good deal of attention to the subject during my career as a forester. We all know that the Pine beetle and Pine weevil never attack trees in this way, neither for breeding nor feeding purposes; and then, again, although the Pine aphis (Aphis Pini), one of the largest species of this tribe of insects, attacks the Scotch Fir by puncturing the bark, yet it confines its attacks to the terminal shoots of the leaders and branches, and in place of laying the foundation for blotch and ulceration, the spots produce pseudo-galls of a reddish colour, and in shape something like a small cone of the tree. With regard to wet ground being the sole cause, this is also fallacious, for although I have found trees affected on such ground, yet I have found them equally bad on dry gravelly ground that required no draining in the natural forest where the timber, as regards quality, was of the highest order. I therefore come to the conclusion that frost and wind are the principal agents. Trees growing on exposed ground at high elevations are often exposed to intense frost of long standing, which penetrates the trunk to a considerable distance, during which time the atmosphere is often calm and still. When the storm breaks up and fresh weather sets in, it is often accompanied by a strong gale of wind, and as the frost has not had time to leave the stems, I have occasionally seen them snap over like a piece of ice, while others had some of the vessels of the stem ruptured by vibration, thus laying the foundation for disease. J. B. Webster.

THE LONG-LEAVED PINE.

This widely distributed tree (Pinus palustris) forms almost exclusively the immense forests of the lower Southern Pine Belt, which with scarcely any interruption cover tens of thousands of square miles. Pinus palustris furnishes not only enormous supplies of valuable timber, but is also the chief source of the resinous products of North American forests. It is therefore first in importance amongst all the trees of the southern division of the Atlantic forest region.

From the northern confines of North Carolina the forests of Long-leaved Pine extend in a belt, varying from 90 to 120 miles wide along the coast of the Atlantic States to Florida, crossing the Peninsula to the Everglades, and from Western Georgia following the shores of the Gulf of Mexico to the bluffs of the Mississippi River. One vast forest of Long-leaved Pine covers the belt of gravelly and sandy drift soils from 5 to 25 miles in width, which traverses Alabama from its eastern to near its western borders. On detached patches of the same formation such forests reach in that State the 38th degree of north latitude at an elevation of about 800 feet above the sea. West of the Mississippi River this belt appears beyond the alluvium of the delta on the drift-covered uplands. The magnificent forests of Long-leaved Pine of the western Gulf region stretching from the Pachita River to the valley of the Trinity in Texas and from the thirty-second degree of north latitude to the savannahs and marshes of the coast are unsurpassed in the luxuriance of their growth and their timber wealth.

Provided with a powerful tap-root, the finely shaped trunk of this tree rises when fully grown to a height of from 100 feet to 115 feet, with a diameter of 24 inches to 32 inches near its base, and free from limbs to one-half or two-thirds of its length. The massive, horizontally spreading limbs, rarely exceeding 20 feet in length, divide into short gnarled branches, forming an unsymmetrically shaped head which affords but a scanty shade to the ground beneath. The leaves to the number of three in a sheath of a rich glossy green and from 8 inches to 12 inches in length, are shed during their second year, and therefore with the increasing shortness of the axis of annual growth are crowded at the extremities of the otherwise naked branches in dense tassels or tufts. The edges of the bracts being fringed with fine, long, silky hairs, provide the densely crowded leaf buds terminating the branches with a soft covering of silvery white, by which this species is readily distinguished at first sight from its nearest allies.

The flowers, situated near the apex of the young shoots of the season, make their appearance early in the spring. The long, slender, slightly bent cones ripen during the second year, and shed their seeds late in October. These afford a rich mast eagerly devoured by many denizens of the forests. If at this season the weather continues wet and warm, the seeds sprout in the cone and the crop is lost.

After fruitful seasons, which are observed to happen at intervals of three to four years, seedlings spring up in the openings of the forest wherever the rays of the sun can reach the ground, the seeds sprouting soon after having fallen. In the following season the plantlet produces dense tufts of its secondary or foliage leaves, the stem scarcely rising above the ground. During the succeeding three or four years its growth is very slow, being rather directed to the early development of a powerful root system. At the end of that period the tufts of the leaves of the young Pines scarcely reach above the surrounding herbage. The simple stem having by this time attained a certain thickness, now increases suddenly in height. In the course of the following years irregular branches are thrown out, which, somewhat before the tenth year, begin to form regular whorls. Trees ten years old average 12 feet in height. During the next fifteen years growth proceeds at the most rapid rate. At the age of twenty-five years the trees average from 40 feet to 45 feet in height, with a diameter rarely exceeding 10 inches. At 100 years of age they measure from 70 feet to 80 feet in height, which during the next half century increases to over 90 feet, with a diameter of from 16 inches to 18 inches 3 feet above their base. From this age to the second century of its life the Long-leaved Pine furnishes merchantable timber of the required standard—that is, logs 24 feet long and 15 inches across the smaller end. Trees furnishing square timber in lengths from 35 feet to 50 feet, with a uniform diameter exceeding 15 inches, show from 250 to 300 rings of annual growth.

Under such conditions of growth and under the continually increasing strain to which they are subjected to meet the demands for their products, the reproduction of these Pine forests is not keeping pace with their depletion. Considering the ever-increasing drafts upon them under wasteful and destructive methods of management, considering devastation caused by the tapping of the trees for their resin, and the damage inflicted by recurring forest fires and by live stock, involving the total destruction of the young growth, the prospect of their maintenance seems hopeless, and their destruction cannot be long delayed.

Other causes are contributing to the same result and weaken the chances of the Pine for survival in its struggle with competing species during the earlier stages of its life. If the removal of the original growth of Long-leaved Pine happens to be succeeded by a series of barren years, the soil is overgrown by a stunted growth of deciduous trees which completely shade the ground and exclude for ever the offspring of the Long-leaved Pine. Towards the northern limits of the Pine belt where the Long-leaved Pine is associated with various deciduous trees, it invariably succumbs in the struggle to gain a hold on the soil.—Karl Mohr, in *Garden and Forest.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

W. COLEMAN.

CROWDED VINES.

WHEN "J. C. B." puts his pen to paper upon any subject, fruits especially, his remarks are worthy of careful reading. I have just seen his article upon planting Vines too thickly, and although I concur with him in his disapproval of the practice of allowing laterals to run into each other and waste the force of the Vine, I do not quite see the utility of cutting off every particle of young growth so long as trellis room remains uncovered. When Vines are very closely planted, close stopping not only upon the bunch of Grapes, but also upon the first leaf of every lateral and sub-lateral becomes absolutely necessary; but this I think is the result of an injudicious arrangement by the planter, and does not touch the fringe even of the arguments put forth by the extension trainer. It is just possible that I may not have caught the true meaning of his remarks, and yet I fail to see the force of his condemnation of close planting if one leaf minus laterals beyond the bunch answers every purpose as well as two, three, or say half a score. The Vines to which he alludes no doubt injured each other, not by producing a number of leaves and laterals, but by shading the premier foliage, which, as he justly observes, had to do the work, and this shutting out of sun and light and air would affect the health of the Vines much as overcrowding affects individuals when huddled together in badly ventilated rooms. "J. C. B.," unfortunately, does not relate the advice he gave to the owner of these overcrowded Vines, but I venture to think it would run in this way: "Stop back the laterals to an extent that will favour a free circulation of warm air through this thick canopy and allow solar heat and light to play upon all the main leaves, but do not expose the bunches to the full force of the sun, as black Grapes always colour and finish best when shaded by a series of stout leaves which can move with the breeze, and in this way favour the passage of solar heat indirectly to the shoulders. When the crop is cut remove every alternate Vine, or at any rate reduce the number to an extent that will favour the full development not only of the main leaves, but also of a moderate spread of laterals next year." This reasoning on my part may be presumptuous and fallacious, but for all this I think our views upon this point are identical, as I cannot believe that he is opposed to sound healthy leaves so long as there is room for their full development and exposure to sunlight. Having myself long been an exponent of extension training, I will conclude this paper with a few remarks which I have proved to be correct by actual experience. At this place I have an old Vine, which fills a house 72 feet by 20 feet. It starts from the south end, travels north beneath the ridge, and throws its arms right and left down to the eaves. Many years ago I increased the length from 42 feet to the present length, and started a new leader. This, after repeated stoppings, covered the 30 feet of wire in one season, the old part giving a good crop of Grapes, very fine in the berry, and, contrary to previous seasons, free from shanking. The new leader was cut back to within 9 feet; two pairs of arms were taken down, and so on, until the new part of the house, a span roof, was quite full. I then turned my attention to the old rods in the original part of the house, but instead of cutting them out, having an abundance of buds breaking from the main stem, young rods were carried down between the old ones, which, by the way, throughout this mode of rapid extension were giving bunches of Hamburghs 4 lbs. to 6 lbs. in weight, with enormous berries. In due course the old rods were cut out close to the main stem, and the young ones from that time to this have given excellent crops of Grapes. It is not, however, of the crops so much as the mode of training that I wish to speak, as it proves, in my opinion, quite conclusively that a great number of leaves in advance, so long as they have light and air, do not detract from, but rather add to, the size and weight of the bunch hanging beneath them. One matter of detail I may say I never neglect, and that is pinching every shoot at the second leaf beyond the bunch. The intervening space after the shoots are tied down is then evenly filled up with laterals, which in their turn are stopped, long or short, according to the number of leaves required for completing the canopy over every part of the house. The first stopping, I am inclined to think, produces an obstruction to the flow of sap past the bunch; afterwards it matters not how many leaves are made, provided each of them has full exposure to light, and the laterals upon which they are growing are stopped before they have run themselves out. In other houses I have followed up the same method with equally satisfactory results, and invariably secured the largest bunches, the best bloom and colour, where leaders and laterals have been extending in every direction. I have not touched upon root management, the question being this: Do Grapes gain or lose in weight and quality by having more than one, or at most two premier leaves in advance of the cluster? I maintain that they do, so long as those leaves from the first set of laterals have full exposure to light, and sub-laterals are regularly pinched before they have time to produce shade, or are allowed to run themselves out. The weight of Grapes from a single Vine under a given area of glass may not exceed that from a number of the same variety when at their best, but the gross weight in the long run, say in twenty or thirty years, will, I think, draw the scale in favour of the single stem, which yields annually from generation to generation. Vines upon the restrictive principle sometimes reach their jubilee, and octogenarians occasionally are met with, but in three-fourths of the gardens in the United Kingdom a man may renew his houses several times, when, independently of the inferiority of the produce from young canes, the grapeless planting years and the light cropping years pull down the average.

Grape Muscat Hamburgh.—A statement contained in THE GARDEN, August 11 (p. 131) to the effect that the above Grape was one of the most capricious in cultivation rather surprised me. Is it possible that this Vine does not like being forced, and that the stoneless berries of which "J. H." complains are caused by unnatural pressure put upon it? A few days ago I was consulting my gardener how to find room for another Vine or two of this variety. One, three years old this spring, the only one I possess at present, was full of fruit, and one of the bunches (now just changing colour) which it was allowed to carry is 11 inches long. Its roots are in an ordinary outside border; the bloom was never artificially fertilised, and the leaves are never syringed. My practice is to wet the floors at closing time, and if the weather is warm or sunny, to do without fire in the daytime. No modern invention can improve on sun heat, but in this climate additional warmth is wanted at night, even during summer, for it is a theory of mine that delicate and exotic plants take but little harm if they get during the night-time the warm atmosphere to which they are accustomed in their native homes. Therefore we give free ventilation during the daytime, not forgetting to keep the lights closed and only the door open during risky weather. With this treatment the Black Hamburgh, Muscat Hamburgh, Buckland's Sweetwater do well, coming in about the end of August when other table fruits are growing more scarce. I think if people could see my three greenhouses full of Ferns, creepers, and flowers, with the crops of Grapes I get year after year in each house, all from outside borders and under moderate temperature, one half of the expense of fire, labour, and waste of space now generally expended on the cultivation of Vines might be avoided.—NORTH-WEST CHESHIRE.

GRAPE MADRESFIELD COURT.

MAY I venture, as a humble amateur in the fruit-growing line, to entirely agree with all that Mr. Barker has written with regard to the cause of Grapes cracking, more especially the Madresfield Court. I have tried the methods he condemns as old-fashioned, viz., notching or boring the branch to check the flow of sap, allowing the laterals to grow ahead freely, and so on, with precisely the same result he speaks of, that little or no good is produced by such methods. For the last three years I have done what he recommends in the way of keeping the house, or rather that part of the house in which the Madresfield Court Vine is growing, as dry as possible, and I have not been troubled with cracked Grapes since. I should say that I have only one Vine of this kind at the end of the house, the other Vines being Royal Muscadine, Grizzly Frontignan, Mrs. Pearson, and two Black Hamburghs. The Vines are planted inside the house, but the front wall being built on arches, the roots have free access to the outside, and cannot easily therefore be kept dry. Nor does this seem material so long as the internal atmosphere is under control. The method by which I prevent evaporation near the Madresfield Court is to cover the whole of the ground beneath it and around its roots with newspapers. This simple plan answers admirably, and though at one time I had serious thoughts of getting rid of it on account of this unpleasant peculiarity of cracking, I am glad now that I did not do so, for in most other respects it is all one could wish for. It is a strong grower, the bunches are large, the berries are very fine, and it is an excellent Grape to eat. The chief faults I have to find with it are that it does not keep well owing to its skin being so thin, and also (a worse defect still) that it does not colour well, the upper part of the berries being almost green. But this probably arises from some defect in my treatment, and if Mr. Barker could put me right as regards this matter I should be greatly obliged to him. No doubt it would be easier managed if grown by itself, but I have only one vinery, and the Madresfield Court has to take its chance with others. The house is about 32 feet long by 12 feet wide, a half-span, with opening ridge, and I find I can get sufficient Grapes in this to carry me on from July 1 to Christmas, the Royal Muscadine being the first to ripen and Mrs. Pearson the last. The latter Vine I look upon as a most valuable variety. It is a delicious Grape with a strong Muscat flavour, very little inferior to the Muscat of Alexandria; it is a free setter, and its stout, but not thick, skin enables it to hold on well into the winter months. I am surprised that this Grape is not more generally cultivated. I would certainly advise no one to get rid of the Madresfield Court who already possesses it; but it is by no means so easy a Grape to cultivate as Mrs. Pearson or the Black Hamburgh, and anyone who plants it must be prepared to study its peculiarities and satisfy its requirements as best he can, the chief of these being a dry atmosphere immediately it begins to ripen. G. J. BLOMFIELD.

Norton Rectory, Stoke-under-Ham, Somerset.

Phylloxera in vinery.—With this I am sending a few roots of Muscat Vines, and shall be greatly

obliged if you will kindly inform me if there are any signs of Phylloxera about them. The Vines were planted four years ago in an inside border, which was well made. The growth of the first two years was all that could be desired. Last year they carried a few bunches which shanked badly; at the same time the growth was very weak. This year the growth is weaker than last year, and I need hardly say the shanking is worse also. This makes me very much afraid that the Phylloxera is the cause of it, although no signs of it can be seen.—S. N. C.

*** The excrescences on the roots are identical with with those noticed in Phylloxera-infected Vines, and the general appearance of the roots denotes the presence of this dreaded malady. Will you please send some roots packed in damp tissue-paper, as those sent became too dry, and we were unable to discover the living specimens.—Ed.

FRUITS UNDER GLASS.

Pines.

Summer weather at last, with a rising glass, is all that can be desired for Pines in general, and early-starting Queens in particular, especially where the latter have not made their usual progress. Where only a few plants are selected for ripening and resting with a view to their starting in February, these should now be drawn from the general stock and plunged by themselves in a light airy pit for special treatment. A violent bottom-heat at this stage being fatal, a well-worn bed, ranging from 78° to 84°, will be found preferable to a new one, as the temperature will not rise, but, on the other hand, gradually decline as days decrease in length, and the plants, by their sharply-pointed centre leaves, show that growth has nearly ceased. When plunged in a bed of this kind, tepid liquid or clear guano water may be given with the best results whenever water is actually necessary; but on no account must they be dribbled or shut up with a profusion of atmospheric moisture after the gradual decline to rest has set in. But rest amongst Pines is a condition of comparative inactivity only, which must be as gradual as the fine weather of which just now we are so much in need will allow, and this is best secured by full exposure to light and liberal ventilation on fine days, by closing moderately early with a sparing supply of moisture, and the avoidance of fire-heat whenever the night temperature can be kept at 70° without it. In this way the Queen, whose roots must not fall below 70° in November and December, can be let down safely, and the shows the following season will be perfect in form and crown, an event which does not always follow a check which destroys many of the most useful roots. Cayennes and Rothschilds being much hardier do not so readily suffer, but even these should be kept in a bottom-heat that will not entirely check root growth, for the moment this takes place many of the soft spongioles, especially near the tops of the pots, will perish. Returning to the general stock of coming fruiters, the bed being satisfactory, a re-arrangement that will admit of full expansion of the foliage outward, a free circulation of air, and close proximity to the glass will tell greatly, if not just at present, certainly when daylight is counterbalanced by darkness and airing is more difficult than at present. These plants, as a matter of course, will require liberal feeding, plenty of atmospheric moisture, but not too much overhead syringing, and early closing to economise our greatest plague in Pine culture—strong fire-heat. As these will not start before the end of February or early in March, growth must be kept up for a considerable time yet; but a season of rest, principally by withholding water and moisture and lowering the house temperature, must be given in December and January.

Fruit-bearing plants in various stages, save that of ripening or changing for ripening, will stand what is known as generous treatment—that is, plenty of solar heat by early closing on fine afternoons with atmospheric moisture so easily produced by damping the surface of the bed, the walls, the floors, and filling the evaporating pans with tepid liquid or soot water in a clarified form, and dewing them overhead with pure soft water. Root-watering must be liberal whenever water tinged with liquid or guano is absolutely necessary, but there must be no watering to keep want away, otherwise black hearts will predominate and the flavour, after this sunless weather, will be deficient. The better to carry out this method of forcing late shows forward with strong solar heat and moisture, all plants carrying fully developed fruits should be lifted out bodily and placed where they can have more air and very little (if any) water, as Pines, like all other hothouse fruits, are greatly improved by being kept on the dry side when ripening. Another advantage where the fruit from a small number of plants is expected to span the season is the length of time the Pines can be kept in a dry, cool, airy vinery or Grape room after they are quite ripe. It is usual to keep the fruit upon the plants, but this is not absolutely necessary, as Queens and Rothschilds can be preserved for several weeks with their stems inserted in bottles of water, and Smooth Cayennes will keep five or six weeks after they are cut, and the plants or stools are returned to bottom-heat for suckers.

Successions in all stages and in every compartment should have a sharp, moist bottom-heat that will favour liberal ventilation by day and a suitable air temperature through the night without the aid of much fire. Slight shade for a few hours after so much dull weather may be necessary, but of two evils it is better to allow them to become slightly brown in the leaf than soft and flabby by overshading. Suckers may still be put into 6-inch pots and plunged in a moist bottom-heat of 85° to 90°; indeed, as I stated just now, where a small number of plants are expected to give a Pine whenever it is wanted, a few strong, well-ripened suckers should be taken off and potted at short intervals. As very few are over-stocked with Smooth Cayennes, now is a good time to collect all the old stools, strip off all the leaves, and bury them in shallow boxes lightly filled with leaf-mould. The most unlikely stools generally contain a few dormant buds, which cannot be induced to start in any other way, but barely covered in the boxes and plunged in a bottom-heat of 90°, they soon make a start, and make nice little plants in the course of the following season.

Melons.

The past two months have been sadly against these sun-loving plants and their fruit, but the change to better weather is already causing a marked improvement in the foliage and very fine fruit may now be expected in the autumn. Like Cucumbers and Pines, they will stand any amount of sun-heat and moisture after closing, but they should have more air through the early part of the day, and if they flag a little this will do less harm than shading. When grown in this way with their surface roots barely covered on small elevated mounds, the lights frequently may be drawn nearly off the pits for an hour or two in the hottest part of the day, especially when they are in flower, and whether it be exposure to insects or fresh air, one thing is quite certain: every fruit sets, and canker is an unknown enemy. In the good, old-fashioned summers which preceded the flood of hybrids of all shapes and colours, a few choice and exquisitely flavoured green-fleshed varieties were grown, and grown well without the aid of fire-heat, and so happy were they under this full exposure to sun and fresh air above and sharp manure heat below, that they finished the first crop well, and were badly managed by unskilful hands when they failed to ripen a second. The old Egyptian, Bromham Hall, Beechwood, Victory of Bath, and Spencer's Bowood Green were the leading sorts, and the parents of the present degenerate race, and I for one much regret that some far-seeing grower did not store a mummy with seeds for the rising generation. Surely some old conservative has kept true stocks in germinating condition; if so, let him grow and show them well, and a handsome return, I venture to say, will speedily follow. A great number of new varieties, I must say, are excellent, but delicate sorts now come thick and fast, and growers are bewildered, as some of them persist in fogging off or ripening their foliage before the fruit is ready for table. If the wisest prophets can see twenty-four hours ahead, brilliant weather is yet in store for us, but hot days must not lead to the neglect of bottom-heat, as delicious aroma cannot be secured without it. I do not undervalue fire-heat, as it saves a great deal of time and labour; but, be the pit ever so well fitted with hot-water pipes, the main force of 85° to 90° for some time to come should be obtained from fermenting materials. Due attention, as a matter of course, must be given to the supply of diluted liquid, which should range a few degrees higher than the heat of the bed, and flooding without wetting the collars of the plants, stems, or vines is the best and safest mode of applying it. Melons in pits or houses should never be deprived of a single primary leaf, as cutting or breaking is often the stepping-stone to canker. Neither should they be touched with water from the syringe on bright mornings, but once closing time arrives they may be bathed and saturated with soft, clear, tepid water, as though they were aquatics.

Late batches with plenty of fermenting material for giving the roots a good start should not be overdone with soil, neither should they be planted nor plunged far away from the bottom-heat pipes, as these by-and-by may lend their friendly aid in setting, if not in swelling, and certainly in ripening, the fruit. Good roots and leathery foliage in light airy pits and plenty of water are the main factors in the growth of late Melons; the plants in pots or small cubes of soil should have plenty of room, and once the fruit is set not one atom of force should be lost in the growth of useless spray and lateral. If very late Melons are in demand, a few seeds of some sound, hardy, early variety may yet be sown, but time and space will be more than wasted unless a tropical top and bottom heat can be maintained throughout October.

Cucumbers.

As the time draws on for getting out winter plants the sowing of seeds in many places is regulated by the condition of the Melons they are intended to succeed. Many growers put in a few seeds of Telegraph or a kindred sort in August for fruiting up to Christmas, or perhaps longer, but for coming in through February and March the plants should not be started before September, and then a firm, steady, short-jointed growth, and not too strong, should be the aim, as gross plants which put forth enormous leaves early in the winter generally collapse before their produce is worth having. Sowing then from this time forward must be governed by the period at which the different compartments are likely to be ready for the plants. Always be it understood that they are put out before they become pot-bound. As the Melons are removed the pits should be cleared out and thoroughly cleansed with boiling water and newly slaked limewash, and in the event of the lights and wood-work requiring paint, a determined effort should be made to get them put in thorough order, as it is possible the house may not be again vacant for eight or nine months. After cleansing, a moderate quantity of fermenting leaves and stable manure, the latter well worked to free it from noxious gases, will form a suitable bed for giving bottom heat until cold weather necessitates steady firing, but so long as solar heat is found sufficient and summer plants continue in bearing, the less fire-heat above or below the surface of the bed the better. When the plants are fruited in pots this method offers facilities for economising fuel, as fresh Oak leaves from time to time can be introduced, whilst the warmth and moisture constantly rising from them reduces the necessity for continuous syringing in dark cold weather. If planting out is preferred, the pits devoted to the roots should be extremely narrow with flow and return pipes running in the chamber beneath the drainage, but sufficiently low to admit of a good layer of half rotten leaves or manure and turf, Grass side downwards, to prevent the roots from striking into a dry bottom-heat. In either case the compost, consisting of light rich turf, bone-dust, or old lime rubble, should be used sparingly at first, and gradually increased as the young roots appear on the surface. Melons should never be earthed above the seed leaves, but Cucumbers may

be so treated, as they will throw relays of fresh roots into every layer of compost; hence the advantage of planting rather low in the pit or pot and making up at a later period. Manure, I may repeat, should never be mixed with the soil, as it encourages worms and induces a rank growth at the outset, but once the plants come into bearing, weak liquid or guano water may be given with the greatest advantage, whilst an occasional syringing with clarified soot water, not too strong, will form an excellent stimulating insecticide.

Fruiting plants now showing signs of falling off in quantity or quality must be lightly cropped and kept clear of insects at any price. Thrips and red spider are most prevalent, but neither of these make much headway when soot water is used pretty often and light cropping is insisted upon. If cut over occasionally and top-dressed with rough turf and old lime rubble in the proportion of two-thirds of the first to one-third of the second and copiously fed with warm liquid, they will yield an abundance of useful fruit up to Christmas, when a clearance may be advisable. The season so far has been much against plants in manure frames, but a spell of bright warm weather combined with constant attention to the linings may yet restore them to a useful condition, as we often cut excellent fruit from frames down to the end of October.

The Orchard House.

Although the season has been unfavourable, all early forced trees, if not fit for turning out of doors, should now be sufficiently advanced to derive the greatest benefit from the fullest ventilation of which the house is capable. Should this course of treatment be decided upon, the hose must be very freely used after the sun has left the roof on fine evenings, otherwise spider will become troublesome, and many of the trees, especially those which have not been transferred to larger pots, will cast their best foliage prematurely. Pot trees, it must be borne in mind, should never feel the want of water, even when they have lost their leaves; hence the importance of getting them out of doors if possible, as no amount of attention in a dry, airy house will keep root moisture half so steady as full exposure to autumn rains and night dew, especially when the pots are snugly packed with litter to prevent evaporation. Figs in hot, dry seasons like the past may be placed in front of a south wall for a month or two, but, taking one year with another, they ripen and fruit best when thoroughly roasted under the glass roof of the orchard house. Figs, in all forms and situations, never bore better crops than they have produced this year, and all who understand their nature and requirements attribute this satisfactory result to the thorough roasting they underwent last season. Like the Peach, they are subject to scale and spider, but these pests can be kept in check by an occasional washing with soapsuds and soot water.

The general house.—As many of the best mid-season Peaches and Nectarines in houses which have barely been fired will now be ripening, the use of the syringe for a time must be partially, if not entirely, suspended, and pure water in moderation must be given to the roots. Should this fine weather continue, ventilation by night and day must be on a very liberal scale, otherwise the flavour will be flat and vapid, and colour, always pleasing, if not a sure test of quality, will be deficient. Later trees swelling their fruit may still be syringed and well fed with generous liquid, but once the change for ripening becomes perceptible, stimulants must be discontinued, and a few of the trees where too closely staged may be placed in the open air to prolong the succession. Wall Peaches being unusually late, and in many places a comparative failure, the private grower may tide over a period of scarcity by timely attention to retarding, always provided he commences early enough and places his trees where they can have full exposure to sun and air. I have seen houses heavily shaded and trees placed behind north walls to prolong the season, but this mode of commencing too late brings much trouble and vexation, which may be avoided by turning out a few of the trees before the fruit is ripe or even approaching that stage. W. C.

Orchids.

W. H. GOWER.

NOTES ON ORCHIDS.

Lælia amanda.—This is a supposed natural hybrid of Brazilian origin introduced by Mr. W. Bull a few years ago. In habit it resembles C. crispa and the flowers are about the same size, but more of the shape of those of Lælia purpurata; the sepals and petals are soft rosy purple, the lateral portion of the lip being of the same colour and rolled over the column; the front portion is soft amethyst-purple, throat yellow, streaked and lined with red. This elegant plant was recently flowering in Mr. Bull's nursery, and also in Mr. Tautz's establishment at Shepherd's Bush. The plant was named by Prof. Reichenbach in 1882.

Masdevallia Davisi.—When this plant first came to this country some fourteen years ago it was highly prized, for although yellow flowers are by no means rare amongst Orchids, yet the peculiar soft canary-yellow of the flowers of this Masdevallia is by no means common. This species is a native of Peru, the same country from which Pearce sent M. Veitchi, yet this successful collector did not find the yellow-flowered form. It has somewhat lacked size, which has led perhaps to its neglect, but in all probability if it were sent home in greater quantity larger flowered kinds would be found amongst them. A fine plant was recently blooming freely in Mr. Buchan's collection at Southampton.

Aerides expansum Leonis is now flowering profusely in Mr. Measures' collection at Camberwell, where these distichous-leaved Orchids are well grown, and in a lower temperature than is the case in most gardens. This system has the effect of giving them a rich deep green colour, and it also causes the various species and varieties to flower much later than usual. The variety in question is nearly allied to A. falcatum, and the leaves have somewhat the blue-green appearance of those of that species. They are, however, more distant, and the flowers are not set so closely together. The sepals and petals are creamy white, transversely striped with purple; lip open, similarly marked to the petals, and deep purple in front.

Cattleya Gaskelliana.—Some very fine forms of this useful Cattleya are now flowering in Mr. Tautz's collection, and also in Mr. W. Bull's nursery at Chelsea. I cannot, however, find the difference between the plant known to me for years as C. labiata pallida, or the summer-flowering labiata, and do not understand why it should have been rechristened. The plant blooms immediately after finishing its young growth, which brings it into flower at a good time, making a succession to the Mendeli section. Some forms flowering in the above collections have very richly coloured lips. It appears to be very variable in the depth of markings, and its flowers are not so long lived as those of some of the other forms.

Cattleya crispa Buchananiana.—This is a magnificent form named in compliment to a celebrated grower of Orchids in Edinburgh. It may well be considered the finest variation yet seen from this old species, which has now been in cultivation nearly sixty years, but which has somewhat lost popularity from the fact that in the poorer varieties the lip does not open well, and thus its beauty is hidden. In the present plant, however, this peculiarity is not seen. The sepals and petals are pure white, the lip rolled over the column at the base, white and recurved at the edges, the front portion being large, rich rosy crimson, reticulated with white near the edge, which is beautifully frilled; throat, bright yellow, feathered with lines of purplish crimson. A fine example of this plant is now blooming in the Studley House collection at Shepherd's Bush. This species and its varieties much resemble Lælia purpurata in habit of growth, and like that species begin to grow after flowering, continuing through the winter months. This fact is lost sight of by many cultivators, and the plants are rested during the winter, by which means the growths are checked, and consequently they do not bloom; thus C. crispa has acquired the reputation of a shy bloomer. It, however, flowers freely if properly managed, and the flowers appearing at a season when Orchid blooms are usually somewhat scarce, they become doubly valuable. It thrives under just the same conditions as Lælia purpurata. C. crispa purpurea, another fine form, is now in fine condition with Mr. Buchan at Southampton.

Anguloa Ruckeri alba. — This very fine variety is still flowering in Mr. Dorman's garden at Sydenham, and is, I believe, from an importation of Mr. Sanders, of St. Albans, who also has imported several masses of the beautiful form resembling the kind obtained from seed by the Messrs. Veitch and called by them intermedia, so that we may still hope to receive new forms of this genus from abroad. The white Ruckeri is a grand flower, fully as large as that of the typical plant and of the same shape. The sepals and petals are pure waxy white; the lip white on the outside, spotted with rose or rosy crimson. Unlike A. Clowesi, which yields a perfume resembling a medicine-chest or that of a chemist's shop, A. Ruckeri alba has a pleasant perfume. Anguloas should be grown in a temperature slightly warmer than that in which the Odontoglossums are kept, and well supplied with water when growing. When this is finished they enjoy a decided season of rest. The potting material should be rough fibrous peat.

Odontoglossum tripudians is a variable plant, but some of the very finest varieties I remember to have seen I recently noted flowering in the Wilton House collection, Southampton. It appears, like many other species of this genus, to have been first discovered by Warscewicz nearly forty years ago, but the early Orchid growers speedily killed the majority of these mountain Orchids by placing them in too great a heat. It is a plant widely scattered over New Grenada at elevations varying from 5000 feet to 9000 feet, and is said to be in flower nearly all the year round, and strong plants produce a fine effect. The spikes stand well out above the leaves, and bear a dozen or more flowers, each of which is over 2 inches across; the sepals and petals are bright brown, tipped and streaked with brown; lip white, spotted and blotched with crimson; crest much toothed.

SHORT NOTES.—ORCHIDS.

Trichocentrum albo-purpureum. — This pretty plant, to which I called attention a short time back, is now flowering in Mr. Bull's establishment.—W. H. G.

Cypripedium bellatulum roseum.—This form is now flowering in Mr. Bull's nursery. The flower is very large and the spotting profuse, the white ground colour suffused with bright rose.

Miltonia Petersiana.—This is a very pretty and, I fancy, a somewhat rare species, which I recently noted flowering in the Studley House collection. It has the habit of M. Regnelli, and the flowers are about the same size as those of that species, but they have the colour of M. Moreliana.—W. H. G.

Masdevallia racemosa.—This brilliantly flowered kind is now flowering in Mr. Dorman's collection, Laurie Park, Sydenham, but it still maintains the character of a shy bloomer. A fine plant of this species was also noted in Sir Trevor Lawrence's collection at Dorking, but it did not appear to have many flowers open at one time, although the plant was the strongest we have seen of this species. It evidently thrives best in a very low temperature.

Catasetum Bungerothi. — This plant created quite a sensation when first exhibited in this country some two years ago by M. Linden, of Brussels, and some doubts were expressed as to whether the numbers offered for sale would prove true, but I think these doubts are now dispelled. It appears to be a free grower and bloomer. I recently noted a good form of this plant flowering with Mr. Buchan, of Wilton House, Southampton, its massive ivory white lip rendering it very conspicuous. This plant will have much to do in restoring the genus to popularity.—W. H. G.

The Lizard Orchis (O. hircina).—For my first opportunity of seeing this rare and curious native Orchid I am indebted to the kindness of Mr. Odell, of

Pinner, who sent me a week ago an unusually fine specimen in full flower. The flower spike alone was fully 10 inches long, and had sixty fully developed blooms. That this rare, now perhaps extinct, Orchid is quite amenable to cultivation in our gardens, I am now fully convinced, the great point being to procure uninjured tubers. From France many bulbs of it are sent, but they are usually damaged by being lifted by inexperienced hands.—A. D. WEBSTER.

NOTES OF THE WEEK.

Carnation Guiding Star.—Of scarlet varieties this is one of the best, especially as a border plant, as it is very free flowering and the colour remarkably bright.—Y.

Rainfall at Eartham.—When calling at Eartham, near Chichester, a few days ago, Sir Pennison Millbanke informed us that during the month of July he registered the unprecedented amount of 6·82 inches of rain upon the lawn in front of the house.

Lateness of Carnations.—We have been waiting in the hope of being able to send you bunches of Carnation blooms, but very much fear there will be no bloom for another month. We only have stragglers yet, and even these are deformed. We never knew things so late.—HARKNESS AND SONS, *Bedale, Yorks.*

The Mulleins (Verbascum phlomoides) now are simply superb. In these cool, grey, rather foggy mornings they stand up like great ghosts (if a ghost could ever be dressed in pale yellow). In late summer they are for a good six weeks quite the most important plants in the garden.—G.

Goring Hall, the picturesque place of Major Lyon, was totally destroyed by a fire which broke out at midday on Sunday, August 5. When calling there a few days ago it was a sad spectacle to see the ruined walls and the Myrtles, Wistaria, and other creepers that once festooned the house all blackened and scorched.

Seedling Begonias.—I send you some flowers of my seedling Begonias. Will you kindly say what you think of them, particularly the Camellia-flowered one?—J. KEEHAN, *Clifton Gardens, Cork.*

*** A very nice gathering, the flowers being of good form and size, but not equal to those of many varieties now in cultivation.—ED.

Seedling Carnations.—I enclose a few blooms of seedling Carnations for your opinion. They are seedlings of this year, except Emma Lakin.—JOSEPH LAKIN, *Temple Cowley, Oxford.*

*** One very fine scarlet Carnation, named Scarlet Gem, comes among these. It is worthy of further trial and comparison with the best varieties. The other flowers were not fresh enough to judge of.—ED.

An early Peach.—Early Rivers Peach was noted doing well on the open wall at Goring Hall. The tree was carrying a fine crop of large, well coloured fruits, many of which were ripe. In an ordinary season this might be expected, but a Peach that will ripen up a good crop of fruit in the open air by the middle of August in such a season as this is a Peach of undoubted merit. Other kinds that were growing beside it were small, green and hard.

Carnation Paul Engleheart.—This promises to become a very popular Carnation; the free, vigorous habit of growth is a great recommendation; the short stout flower-stalks are just what are wanting in border Carnations. The flowers, too, are full and well formed, of good colour and very sweet scented, having the rich perfume of the old crimson Clove. If we could get a few other distinct colours of similar habit they would be a valuable addition to this beautiful class of plants. —Y.

Carnation Apricot.—I cannot say much in favour of the habit of this variety, but the flowers are so distinct in colour and moreover of such a pleasing tint, that it must be considered as a most welcome addition; the flowers, too, are large and full. This variety should become a favourite with florists, as it provides a beautiful and distinct colour which it would be difficult to find in any other flowers that are useful for cutting purposes. —H.

The Gardeners' Orphan Fund.—We learn that through the kindness of Mr. and Mrs. Hopwood, the gardens at Ketton Hall, Stamford, were opened to the public on Monday, August 20. The attendance was good, although the weather was rather unsettled. A sum of £3 17s. was taken at the gates and 2s. 8½d. in collecting boxes, this leaving a balance in favour of the fund of £2 7s. 8½d. after paying for printing and advertising.

Cereus procumbens.—A charming little Cactaceous plant bearing this name has flowered during the week at Kew, recalling the splendid Coloradan Cacti that Mr. Loder grew and flowered so finely some years ago. This little plant has a trailing growth, much like that of some of the Stapelias. The flowers, 4 inches across, of a perfectly funnel-like form, and of a pleasing carmine-magenta colour, do not last long, but while in perfection are exceedingly beautiful. It is grown at Kew under cool treatment, and, perhaps, would be hardy enough for frame culture.

Fuchsia dependens.—Graceful in growth and beautiful in flower, this Fuchsia is one of the best of all the species for adorning a greenhouse roof during several weeks in summer. It is one of the Chilian Fuchsias, having very long tubes to the flowers, which hang on long stems in dense clusters, opening a few at a time. Their colour is a kind of cherry crimson, the corolla, or inner part, being brighter than the outer. It is a strong grower, and reaches several feet up the rafter, and requires no special cultural treatment. It is prominent among the many beautiful climbers that now adorn the roof of the greenhouse (No. 4) at Kew, where it has been grown for years.

Duff's Ixora (I. macrothyrsa).—There is not a more splendid species than this among all the Ixoras, old or new, at present grown in gardens. Such probably would be the opinion of most people if they saw it as it is now in the Victoria Water Lily house at Kew. It is a bushy evergreen stove shrub well clothed with long and broad deep green leaves. The head of brilliant scarlet-crimson flowers measures from 6 inches to 9 inches across. The trusses do not exhibit such a smooth globular surface, neither are they so abundant as in the common smaller clustered Ixoras, but for all that it is a nobler plant in flower than any. We have not seen it grown into such a huge symmetrically-shaped specimen as the other Ixoras are at exhibitions, and probably it would not be so amenable to training in that way. It is an easily managed plant under ordinary stove treatment, and requires no more heat and moisture than do the others. It is a native of Sumatra, and was first known in this country about ten years ago under the name I. Duffi, having been named after Mr. Duff, of the Sydney Botanic Gardens, New South Wales, and is still known under that name in nurseries.

Aeranthes Curnowiana.—This rarity among Orchids may be seen in flower at the present time at Kew, and as it is known to so few orchidists, a descriptive note of it may be useful. It is one of the smallest of the species of Aeranthes, or Angræcum, the whole growth being not more than 3 inches high, with short, narrow, and stiff leaves. The flowers are borne singly from the leaf axils, and are about the size and form of those of Angræcum Scottianum, except that the spur is not so long. The sepals and petals are quite white, as is also the shell-like labellum. It is one of Messrs. Low's introductions through their collector, who has travelled in Africa and Madagascar.

Olearia Haasti is among the best flowering shrubs of the week. Many a garden is lit up by large bushes of it, which are dense masses of white, so abundant is the bloom. I heard it called the other day the Australian Daisy Bush, which I thought not a bad popular name, though as there are several species of Olearia and Eurybia now in gardens, each kind must be qualified, so why not Haast's Daisy Bush? The flowers are like Daisies, and the leaves are like those of the Balearic Box, but the profuse bloom quite hides the leaves just now. The shrub has proved hardy beyond a doubt, and being a quick grower, must be included in a select list of hardy shrubs. It seems to grow best in a good loam, rather stiff than light, and must always be exposed in order to flower freely. It is a good plan to plant among a mass of it in spring some bulbs of Gladiolus brenchleyensis, whose rich scarlet flowers contrast well with those of the Daisy Bush, and both invariably flower at the same time.

Crocosmia aurea in New South Wales.—I have sent you a photograph of a plant I have called the Golden Crocus (Crocosmia aurea) that was grown out of doors in the bulb bed in Hyde Park, Sydney, New South Wales. Nearly five years ago we imported six corms from London, four of which survived the carriage. The plant when in flower measured exactly 4 feet in diameter and a little over 3 feet in height, and had 300 flower-spikes, which bore upwards of 5000 flowers. The wonderful effect this plant made with its bright orange-coloured flowers can be more easily imagined than described. The plant is growing in a rather loose sandy soil, and the position is one fully exposed to our sub-tropical sun. The way I have managed to keep the stems close together is, that during the spring months when the plant is growing, I put the spade down as deeply as it will go about 1 foot outside the previous season's growth. This is done two or three times at intervals of three weeks or a month, which has the desired effect in preventing the stolons getting away. I thought a photograph and description of this plant would be interesting to your readers from the fact of its being always considered a rather shy flowerer at home. —FRED TURNER.

*** The photograph showed a plant of immense vigour and a mass of flowers. It would be a pleasure to see such specimens in our English parks. The photograph was, however, too indistinct to obtain a good engraving from it.—ED.

Bouvardia President Cleveland.—I send you blooms of this beautiful Bouvardia, as also those of a few other varieties. It will be seen that President Cleveland is far in advance of either elegans or Dazzler, which previously ranked as the best scarlet varieties. A great point in favour of President Cleveland is that it is of a free, vigorous habit of growth and very free-flowering. Of the white varieties we find Humboldti corymbiflora one of the most useful, and it blooms very freely through the autumn, but it does not continue flowering through the winter so well as the other sorts. Candidissima is another good variety; the flowers are pure white, with rather a short tube, and the plant is of a very dwarf, compact habit; it is a good variety for early spring flowering, cut-back plants coming into bloom with great freedom. Priory Beauty, the flesh-pink variety, is a very useful free-flowering sort. With the exception of Alfred Neuner and President Garfield, the double varieties have proved rather a disappointment, as they do not flower freely enough. Even those named above are not so popular as was anticipated that they would become when first introduced. The single-flowered sorts are, and should always remain among the most popular flowers for autumn and early winter blooming, and it is somewhat remarkable that hitherto so little advance has been made towards improving the varieties. — A. HEMSLEY, *Dyson's Lane Nursery, Upper Edmonton.*

Clianthus Dampieri marginata.—Flowers of this plant have been sent to us by Mr. J. G. Kirsten, who grows it outside in his garden at Tunbridge Wells, and who obtained it from the Continent under the name of the German Flag Clianthus. Although now very rarely seen or heard of (we had never seen living flowers before these came), yet this plant was included in Messrs. E. G. Henderson's seed catalogue for 1865, and coloured plates of it appeared in several magazines, notably the *Floral Magazine*, January, 1866. After this it appears to have been lost for a time, and then rediscovered by a German nurseryman about 1875, who claimed to have raised it and who named it "Deutsche Flagge." It differs from typical C. Dampieri in having flowers of three colours, viz., black, red, and white, which are those of the German flag. The upper part or standard of the flower is bright scarlet, the centre is glossy blue-black, and the keel pure white, with a clearly defined red margin on the lower side. The flowers are quite as large as those of the type. It is said to come true from seed, and to be best when treated as an annual. Mr. Kirsten states that his plant is grafted upon C. puniceus.

FERNS.

W. H. GOWER.

MOHRIA THURIFRAGA.

NOTWITHSTANDING that nearly half a century has elapsed since this plant was introduced to this country, it still remains one of the rarest, as well as one of the most beautiful of evergreen cool-house Ferns. It has to an ordinary observer the appearance of a Cheilanthes, whilst others have likened it to the North American deciduous Woodsia obtusa. The plant appears to have been first introduced to the Botanic Garden of Berlin, a garden singularly rich in the species and varieties of plants; from there it was sent to our own Botanic Gardens at Kew, and a few years ago could have been found in many collections throughout the country, but it is now to be reckoned with the rarest of our cultivated Ferns. Our illustration affords a good idea of the beauty of a small frond of this plant, which is the only species known. When the plants are well grown, the fronds attain a length of 2 feet, although they more frequently grow only about 12 inches, and when fertile the sori are very conspicuous, being thickly clustered upon the points of all the lobes. The fronds, which when bruised are very fragrant, hence its name, are erect, twice divided, and very equal in width throughout, the sterile ones being wider than the fertile; the pinnæ are deeply lobed, bright green, and smooth on the upper side, but beneath they are furnished with woolly ferrugineous hairs; the stem also is densely clothed with longer hairs of the same colour. In the kind called achilleæfolia the fronds are more prostrate, and the laciniations of the pinnæ are more delicate. That it is a variety only of the species has been proved by the fact that both forms have been obtained from spores saved from one plant. The plant is a native of the Cape and Natal, and various of the African Islands, in which, probably, there still lurk some more undiscovered species. It should not be overpotted, and for soil, a mixture of peat and light loam and about an equal part of nodules of sandstone. It enjoys a fair amount of water to the roots, but should not be watered overhead, and it thrives best in the temperature of a warm, dry greenhouse. This plant grew well and attained its maximum size under the above conditions in the Messrs. Rollisson's establishment at Tooting, the above illustration having been taken from one of the young plants grown there.

Lastrea Sieboldi (*D. MacP.*)—Your Fern is the hardy Japanese species, and a very distinct and effective plant it is, but it is quite distinct from Lastrea podophylla, although it was for some years considered the same; the latter species is a native of Hong Kong, but I cannot say if this is also hardy, having never either tried it myself or seen it tried by anyone else. Will any reader of THE GARDEN give their experience with L. podophylla in the open air in Britain or Ireland?—W. H. G.

Lomaria discolor bipinnatifida.—The Lomarias are nearly all extremely handsome plants, and this one in particular is worthy of all commendation. Like the typical plant, it rises upon a short, stout stem with age, producing numerous arching fronds some 18 inches to 2 feet in length. In the species the fronds are pinnate, but in this plant they are again divided; these are again divided into crisp lobes, the entire frond being of a bright cheerful green. I believe this plant was first introduced by Mr. Bull, in whose nursery I recently noted it in great beauty. It appears to enjoy intermediate heat, although a native of New Zealand.

Todea superba.—This lovely Ostrich-feather Filmy Fern is well and largely grown in Mr. Peacock's garden, at Hammersmith, without any artificial heat. The plants are in cold frames, and are growing as thickly and freely as the common Bracken. They are said to sometimes get frozen in winter, but Mr. Vickery says he does not like them to get touched by frost, as it turns them brown. I have seen them frozen in other gardens without this happening. Perhaps this, like many other Filmy Ferns, bears freezing with impunity when wet, but cannot withstand it when dry. At any rate, this is the finest lot of this Todea I have ever seen, and grown entirely cold.—W. H. G.

SLENDER-STEMMED TREE FERNS.

(HEMITELIAS.)

I HAVE been charged with overlooking or ignoring the merits of Tree Ferns, but this is an unfounded accusation, as I am a great lover of this section of the genus, and had abstained from writing about them because I feared they were ignored by plant growers. From various



Mohria thurifraga. Engraved for THE GARDEN.

requests I have had respecting them, however, I must acknowledge my error. The members of the present genus are all natives of tropical countries, and enjoy a fair amount of heat and abundance of moisture. They have never been common in English gardens, the reason for which I am at a loss to understand, but in German gardens of any pretensions I have usually seen the genus represented by one or two species. They have large, broad, and shining fronds, which are arching, and the divisions are bold, and the under side is prettily ornamented with a line of regular sori, which in most instances forms a continuous intramarginal band.

The Hemitelias, to which I here refer, are all natives of the Western Hemisphere, and are distinguished by the veins near the mid-rib being joined together or netted, and by their half cup-shaped indusium. These characters, however, are not very good, and the Hemitelias appear to be a connecting link between Alsophila and Cyathea, but their appearance alone is, in the majority of instances, sufficient to distinguish them in a growing state, and as stove ornaments they are extremely useful. As far as my experience goes with these plants they are not difficult to grow, but I have not found them to be readily obtained from spores. Some two or three kinds, however, I have obtained in this manner, and I have no doubt the others will be found equally amenable to cultivation if special care is bestowed upon them. In my opinion, want of care in raising seedlings has been to a great extent the cause of their rarity in collections, because as they make stems rather rapidly and produce large and massive heads of fronds, they will in a few years outgrow the accommodation generally provided for them. If a batch of young plants is always at hand to supply the place of the older ones, the regrets at discarding a fine specimen will be considerably lessened. Hemitelias should be grown in a mixture of peat, loam, leaf-mould, and sand in about equal parts, and they must not be over-potted, as in moderate-sized pots they are most easily managed, and to compensate for this give an occasional watering with liquid cow manure. The best known kinds in cultivation are the following:—

H. HORRIDA is a bold and handsome plant, producing fronds from 3 feet to 9 feet in length, the rachis and stipes being armed with long and stout spines. The pinnæ are from 1 foot to 2 feet in length and 6 inches broad. This appears to be the freest kind to grow from spores in this country. It is a somewhat common plant in several of the islands in the West Indian group.

H. KARSTENIANA.—This, again, is a beautiful species, producing ample pinnate fronds, the pinnæ upwards of a foot long, and of a uniform breadth of between 2 inches and 3 inches, saving at the tips. Of this species I, some years ago, obtained a few seedlings from spores obtained in the Royal Gardens at Hanover, but I have not found it grow freely in this way. This is much to be regretted, as it is one of the most majestic kinds. It comes from Venezuela.

H. KLOTZSCHI.—Of this plant I have not had much experience, having only seen it growing in several Continental gardens; its fronds are pinnate; the pinnæ some 6 inches or 7 inches long. It gives one the impression of being a miniature form of H. horrida. Native of Columbia.

H. SPECIOSA.—This is another species which I have obtained from spores in this country; its stem is clothed in the crown and on the base of the young fronds with numerous large chestnut-coloured chaffy scales; the fronds are ample and simply pinnate, the pinnæ being 1 foot or more in length. It comes from New Granada.

H. SPECTABILIS is another majestic species producing fronds from 12 feet to 18 feet long. The pinnæ are numerous, about 15 inches long by about 2½ inches wide, and taper upwards very gradually. This I imagine to be a very rare species, not having seen it in any other garden than that of Herrenhausen, in Hanover. It comes from Venezuela.

H. GRANDIFOLIA.—Perhaps one of the best known species in English gardens, but yet I could never obtain young plants from spores. Its fronds are some 7 feet or 8 feet long and 2 feet broad. It comes from the West Indian Islands.

The above are all distinct kinds when grown side by side, and all are exceedingly handsome. They produce fronds of full size when scarcely any caudex is developed, and therefore require considerable space for their proper accommodation. Anyone who grows them well will be compelled to acknowledge that they stand in the first rank for massive grandeur.

W. H. G.

Sowing Fern spores.—At Arundel Castle Mr. Busbury finds the best way to raise young Ferns is to

sow the spores upon pieces of Pullborough stone, which is a softer deposit of the great sandstone formation and consequently very absorbent. Upon these pieces of stone, which are placed beneath the stage, the Fern spores vegetate freely, and grow so well that the surface of the stone is entirely hidden.

KITCHEN GARDEN.

WINTER TOMATOES.

A good supply of Tomatoes can be had during the winter with the expenditure of less trouble and less heat than is necessary in the case of Cucumbers, and in many instances there is nothing to prevent their culture in preference to or in connection with the latter. Much depends upon a good early start being made, the aim being to set a heavy crop of fruit before short and perhaps sunless days are the rule. Young plants may be raised either from seed or well-matured cuttings, the latter being the most simple and the surest method of securing sturdy fruitful plants. Select medium-sized, healthy tops or firm, well-developed side shoots, and after duly cutting to a joint and trimming off the lower leaves, dibble them either singly into 3-inch pots, or in pairs into 4-inch pots; set them in gentle heat, shade lightly and water very carefully at first. If kept very close and moist the cuttings are liable to damp off, nor will they do well if very heavily shaded. If it is decided to raise the requisite number of plants from seed, this should be sown thinly in a pan or pot of fine sandy soil, be lightly covered, watered, and placed in heat to germinate. Directly the seedlings appear, thin them out if at all crowded, and then set the pan or pot near the glass and give plenty of air. When of good size and before they are much drawn, dibble them either singly into 4-inch pots, or else in pairs against the sides of 6-inch pots filled with light, loamy soil, sinking the plants into this up to the seed leaves. Water carefully, shade from bright sunshine, and keep rather close and warm till the plants have well recovered from the check given, after which they must receive plenty of light and air.

Having prepared a batch of sturdy, well-rooted plants, the next proceeding should be to get them established in fruiting pots before they become drawn and weakly. It is here that a mistake is often made, as plants that are kept too long in small pots become hard or stunted in growth, and do not subsequently make nearly such good progress as do those better treated. After various trials we find Tomatoes in pots set on a bed of rich soil into which they can root at leisure, the surest way of securing a good crop, those planted in beds or ridges of soil being liable to form a too strong growth, a poor set being the result. Any good loamy compost will grow Tomatoes, but they merit a mixture of two parts of the best light turfy loam procurable, to one of partially decayed horse droppings or Mushroom bed manure. Single plants may be grown in 11-inch pots, or pairs can be placed in 12-inch or rather larger sizes, these being clean and lightly drained. At first the pots need only be about three parts filled with firmly packed soil, thus allowing good space for subsequent top-dressings. The plants for a time should be grown in a light airy house or pit, and if all goes on well a cluster of fruit will be set on each plant before they are placed in a forcing house.

In most establishments the houses are usually crowded with a variety of flowering plants, this leaving but little room for Tomato culture. Fortunately, it is possible to obtain a few useful dishes of fruit without greatly interfering with ordinary plant culture, and this is what we, in common with many others, are obliged to do. The best sites for Tomato plants in the winter are the roofs of span-roofed or small lean-to houses which were devoted to Cucumber and Melon culture through the summer and early autumn months. Trained thinly up the roofs, or say not less than 2 feet apart, the bunches of flowers will receive plenty of light and air, without which they become weakly and fail to set; while if the foliage is somewhat restricted a variety of flowering plants will succeed underneath. If Tomatoes are the primary consideration, then they may be grown nearer together, though crowding must in all cases be avoided. The cordon or single stem system of training is the best, and which, briefly described, consists in rubbing or pinching out all side shoots as fast as they form, the main stems being encouraged to grow and form strong clusters of fruit at short intervals. Allowing strong side shoots to form only weakens the plants as well as the bloom, and if their early removal favours grossness, this can be checked by reducing some of the leaves to about half their natural size. The first top-dressing of loam and manure, in equal proportions, should be given as soon as the first fruit are set, and more of the same mixture may be added later on if need be. When, however, the pots are set on a ridge of soil previously occupied by Cucumbers or Melons the roots soon find their way into it, and in this case one top-dressing is ample. Nor do plants with such a supply of rich food accessible to the roots often require anything in the shape of liquid manure; but those with their roots confined to pots or boxes ought to receive occasional supplies, nothing being better than superphosphate of lime applied freely to the surface of the soil and washed in.

Plants in pots that have already perfected a supply of fruit in a greenhouse, or under glass of some description, may also be induced to produce a profitable second crop. Placed in gentle heat and the pots either set on a bed of rich soil, or else mounded over with good compost, the plants soon commence to grow both at the roots and from the stems. The young shoots should be freely thinned out, and those reserved will then flower strongly and set good crops of fruit. I prefer young plants, but have done very well with old ones. A high temperature is not needed for either old or young plants. Ours succeed best in a house where the night temperature ranges from 55° to 60°, with an increase in the daytime of from 5° to 10°. If much higher temperatures, with or without much moisture, are maintained, the flowers are weakened and fail to set, and I would rather the heat declined below the figures given than to exceed them with the help of much fire-heat. The first clusters of fruit ought to be freely thinned out, and all large ugly flowers removed early from the later bunches, or otherwise a good succession of fruit will seldom result. Artificial impregnation of the flowers is also necessary throughout the winter, and this can best be accomplished with the aid of a camel's-hair brush, or the flowers may be very gently rubbed together so as to lodge plenty of pollen on the pistils of each. Towards midday, or when the pollen is driest, is the proper time to attend to the impregnation of the flowers, and on no account should this be neglected, failure to set the crops being the principal or most frequent cause of failure. The plants ought never to become very dry at the roots, but little or no syringing ought to, or need be, resorted to, unless red spider becomes troublesome, in which case the leaves may be either freely syringed or else well coated with sulphur. The latter can best be applied when mixed with the syringing water, a large handful being squeezed through a muslin bag into a 3-gallon can of water. The small white fly known as Aleyrodes vaporariorum is seldom absent from any place where Tomatoes are grown, and can only be kept down with the aid of frequent gentle fumigations with tobacco paper.

I have been fairly successful in setting and maturing crops on plants of most of the best known varieties of Tomatoes, but on the whole find the ribbed varieties, notably Dwarf Orangefield and Large Red, the most profitable. Perfection, Acme, Dedham Favourite, Hackwood Park Prolific, and Hathaway's Excelsior may be made to perfect good crops of handsome, heavy and well-flavoured fruit, but as a rule they do not set nearly so freely as the two first named much-corrugated or ribbed varieties.

W. Iggulden.

KITCHEN GARDEN NOTES.

Late-sown Cauliflowers and Lettuces.

It often happens that either the proper time for sowing Cauliflowers and Lettuces in the open border is missed, or else that the seedlings are lost in some way. After the third week in August it is not advisable to sow Cauliflowers or Lettuces in the open, as in only the warmest districts is there any likelihood of the plants attaining a serviceable size before the winter sets in. In order, however, to secure the requisite number of autumn-raised plants, it is advisable to utilise a frame or frames for the purpose of both raising and protecting them in the winter, and in some respects this is a more simple and quite as effective a method as any other that can be tried. A shallow bed of spent hot-bed manure should be formed on a hard bottom and in a sunny position, on this setting the frames. More of the manure ought to be firmly packed inside the frame, so as to bring the soil, and eventually the plants, well up to the light. On this should be placed about 5 inches of light loamy soil, this being made quite level and fairly firm. If at all dry the soil ought to be gently watered, and soon after the seed can be sown thinly and broadcast, covering it with not less than one half inch of sifted soil. The seed soon germinates, and the seedlings must be preserved from slugs and other enemies. Plenty of air ought to be given both night and day whenever mild weather prevails, the aim being to keep the seedlings as sturdy as possible. For the same reason thinning out the crowded plants is necessary, and should be done early so as to leave them not less than 2 inches apart each way. A three-light frame sown with early main-crop and late varieties, or say with one of the small early forcing Cauliflowers, Dwarf Erfurt Mammoth, or Early London, Pearl or King of the Cauliflowers, Eclipse, and Autumn Giant may be the means of raising and wintering sufficient plants for stocking quite a large garden next spring. Much that has been advanced concerning Cauliflowers is also applicable to Lettuces, the varieties of which suitable for sowing in this case being Hick's Hardy, Paris White, and Brown Cos varieties, and Early Paris Market and Perfect Gem Cabbage Lettuces.

A Good Cauliflower.

Last March a sowing of Sutton's Magnum Bonum Cauliflower was made in gentle heat, the plants resulting being duly hardened off and pricked out on a warm border. Before they were far advanced a considerable number were transplanted to a well-manured strip of open ground where they quickly became well established. Without any further trouble all have done remarkably well, producing late in July and early in August fine close heads, beautifully white, and very delicately flavoured. It is not a rank grower, is quite distinct, and certainly merits a trial in most gardens. Seed of it will be sown this month, and I shall not be surprised if it produces still finer heads next season, our autumn-raised plants always doing better than those raised in the spring.

Cropping between Strawberry Plants.

Where space is limited every foot ought to be utilised to its fullest extent. In many instances a breadth of heavily manured, deeply dug ground is wholly given up to quite small Strawberry plants, but this is far from being necessary or economical. If strong, well-rooted runners were put out during the first week in August, the case would be very different, as these ought to grow to a large size; but, as it happens, the Strawberries are planted very much later, and, as a consequence, do not make much progress. There is no reason why a row of Tripoli Onions, Endive, Lettuce, or Spinach should not now be sown or planted midway between the lines of Strawberries, such sites often growing any or all of these exceptionally well. On the whole, however, Tripoli, or any other autumn-sown Onions are the most suitable for these positions, these being merely thinned out and allowed to form bulbs early where sown.

Tomatoes in the Open.

At last these have commenced to set freely and a useful lot of late fruit may yet be obtained. Not, however, if the plants are left to take their chance, as in this case they form a quantity of superfluous growth, which quite mars the prospects of a crop. It should be remembered that quite small or green fruit may be put to a good use, notably for making into hot pickles, and the plants ought, therefore, to be encouraged to swell as many as possible. Cut away all late-formed side shoots, lay in any that have a cluster of fruit set on them, and also take good care of the main branches. All should be stopped just beyond a newly set cluster of fruit, and if the foliage is very vigorous this ought to be shortened back, but not wholly removed, or the fruit will not swell so rapidly. Given plenty of light and air, the earliest set fruit may soon ripen, and many of the later ones will be sufficiently advanced to admit of their being cut off early in September, or before frosts intervene, and ripened under glass. Those planted in the open, or clear of a wall or fence, will not be of any service, and the ground they occupy might well be cropped with autumn Cauliflowers, early Broccoli, or salading.

Good Dull Weather Peas.

On all sides complaints are heard of Peas being very late and also of their filling badly. There are, however, a few noteworthy exceptions, among these being the early and generally excellent William I. This variety, from its tendency to sport or break away from its original character, is not always supplied true to name, but if a good strain is supplied it is yet the most profitable early variety. The very dwarf early varieties, such as Chelsea Gem, American Wonder, and Little Gem, all filled capitally, and were never more serviceable than they were this season. Telegraph and Telephone did not fill so well as usual, and these as well as the Duke of Albany, a late form of Telegraph, were the first to succumb to mildew. Criterion and early Ne Plus Ultra did remarkably well, following closely on the second sowing of William I. Anticipation grew strongly and the pods filled very satisfactorily. Wordsley Wonder, which grows to a height of about 30 inches, failed at first, but later sown rows improved surprisingly, and this is a good variety for small gardens in all weathers. Prince of Wales, a medium height variety, and a great favourite for market purposes in the western counties, grew well, and perfected a heavy crop of well-filled pods. The quality is fairly good, and as it is a most reliable sort should be largely grown. Ne Plus Ultra was available during the first week in August, and this popular variety seems uninjured by the long spell of wet weather. We never had it better. Autocrat does not seem very robust, and Sturdy made but little progress till warm weather set in. Gladiator, Veitch's Perfection, and Omega are failures, nor has Prodigy done very well with us. W. I. M.

Neal's Ne Plus Ultra Runner Bean.—The success which attends the patient labours borne in selecting any flower or vegetable with a view of reaching a higher type is shown in this very fine type of the Scarlet Runner Bean. It is represented by long, straight symmetrical pods of a singularly regular and handsome appearance. The credit of selecting it belongs to Mr. Neal, gardener to Mr. P. Southby, Bampton, Oxon, and the process of evolution from the ordinary Scarlet Runner to the fine type known as Ne Plus Ultra occupied a period of twenty years. During all this time Mr. Neal kept himself entirely to his own stock, slowly and scarcely perceptibly lengthening and improving the symmetry of the pod, until it has reached its present outcome. Beginning with a pod of five Beans, it lengthened to six, seven, and eight, and it is the opinion of Mr. Neal that every Bean in the pod represents 1 inch at least of solid flesh, and so fine have been some of the pods that they have reached 14 inches in length; it is also a very productive Bean. An experiment was made in the matter of productiveness, and it was found that thirty of the Ne Plus Ultra, planted 1½ feet from Bean to Bean, produced as good a crop as that obtained from a pint of ordinary Scarlet Runners, which in number would be about eight times thirty. If the ordinary gardener were advised to plant his Runner Beans 1½ feet apart, he would probably regard it as a wicked waste of ground, and yet Mr. Eckford has repeatedly shown at Boreatton what an extraordinary growth his new edible and Sweet Peas will make, and what crops they will produce when sown a foot or so apart. If anyone would grow this fine Runner Bean to perfection, let him dig out a trench as he would for Celery, doing this in the winter, and leaving the soil thrown up rough, then as planting time comes round forking in some manure at the bottom. Then plant out the Beans, which should be raised in pots one Bean in each. Treated in this way the plants will grow to be 14 feet in length, and be wonderfully productive. A favourite plan is to plant in rings, and train them up tall stakes that point inwards a little towards the top.—R. D.

Chrysanthemums.

E. Molyneux.

Seasonable Notes.

Plants, for whatever object they be grown, need at this time of the year much attention, as unless the necessary details are carried out at the proper time success cannot follow. Plants which are cultivated for large blooms have, as a rule, made strong growth this season, are inclined to be tall, and in some localities do not appear to be ripening well. Cultivators living in wet or low-lying districts will feel the effect of this more so than those who reside on higher and consequently drier parts. It is necessary that the wood be sufficiently ripe to produce the finest flowers. There is not much fear this season of premature ripening of the stems, thereby causing the tissues to be contracted, as was the case last year in many cases. The best means to have the wood as it should be this season is not to over-feed the plants with strong stimulants, but apply these moderately, so that the growth may be built up solidly as it proceeds. Never allow any surplus side shoots to remain longer than is necessary, but remove them at once. It is surprising how soon the plants appear to run wild if at all neglected, even for a few days. The continuous wet and cold weather at this time of the year is all against ripe wood; keep the shoots spread out thinly, tying them securely as growth proceeds, so that all parts may receive the benefit of whatever sun and dry air there may be. The selection of the buds will occupy much time at the present. Upon this being properly done much of the success depends when November comes round. Syringing the plants has been little needed this season, with the exception of a few times during May and early in June, when the final potting was done and when the weather was warmer. Our plants have not been syringed once. At the least in dry weather the plants should be examined twice each day. In showery weather it is impossible to know whether the soil be dry or not by external appearance only; sounding the pots with the knuckles is the readiest means of knowing accurately. The plants should have enough water; better really to keep the soil at times rather dry than in a soddened state; in the latter manner the wood cannot ripen so readily while the buds are forming, which can easily be ascertained by the pushing of growth shoots from all nodes below the apex. Stimulants should not be given which tend to excite the plants; withhold any support in this way until after the buds are formed and commence to swell, which they quickly do directly they are set. Any plants not yet arrived at the bud-formation stage, if thoroughly well rooted, should have an occasional change in the diet of stimulants, as previously advised, not forgetting to use soot water now and again, as this acts so quickly on the foliage of pale-looking plants. Sometimes the soil will become water-logged through defective drainage; so much so that the leaves turn sickly at the base and ultimately fall off. The best way to remedy this is by turning the plant out of the pot, removing the defective drainage, and replacing it by more, which should be perfectly clean. Oftentimes new drainage is awkward to place in the pot so that the ball of soil sits level on the bottom of the pot; if this is not so, the top part of the ball of soil is thrown out of the level, water cannot be given to the plant in sufficient quantity, as the top of the soil is above the pot; the surface being full of healthy roots, which are the feeders, therefore cannot be removed without causing a check to the plants. The best way to remedy defective drainage is to take the stem of the plant in one hand, lift the ball of soil out of the pot, keeping the plant upright, remove all the drainage from the roots, over the hole in the pot place a hollow crock, around this lay others, then fill the pot to the desired level with clean washed gravel, which can be raised to any height, and adjust the plant.

Plants growing at the foot of walls are making rapid growth, the foliage being particularly healthy and robust. If the growths are kept fastened to the wall the appearance of the plants is much imp oved. Many of the plants are now forming a natural break in growth, and as fast as this takes place all the additional shoots should be thinned out to the desired number; a good guide will be 4 inches space between the shoots. The plants this year have needed scarcely any water, but should the weather be fine and dry, a thorough soaking at the roots with liquid manure will be of service later on. Should large blooms be an object on the walls, the buds now forming should be retained, removing all growth shoots as fast as they are formed.

A sharp look out should be kept for mildew, which often attacks the plants at this time of the year on the under sides of the leaves, particularly during such weather as we have lately had. In stubborn cases, where dry sulphur fails to act, and it is not easily applied to the under side of the leaves, more severe measures must be brought to bear on the pest. Place 2 lbs. of sulphur and the same quantity of lime, which has not been slaked, in 10 quarts of water, and boil for twenty minutes. For syringing on the plants use two wineglassfuls of the mixture to four gallons of clean cold water. A syringe with the jet affixed causing a single stream is the best method of applying the liquid. By placing the forefinger over the orifice, the liquid can be directed upwards and spread over the plants where required. In stubborn

cases it may be necessary to lay the plants on their sides and thoroughly drench the leaves all over; this is troublesome when the plants are tall, necessitating the loosening and tying up again of the shoots; therefore, if the syringing be done early it may not be necessary to resort to such extreme measures as that of laying the plants on their sides.

Striking Chrysanthemum cuttings.—That such very diverse results happened in "T,'s" case as referred to by him at p. 80 in striking Chrysanthemum tops in the summer and my own is probably to be explained in this way: My cuttings were in a shallow pan which held fifty in number, and were placed in a house in which the atmosphere was then very dry. His cuttings appear to have been put into pots and were doubtless placed in a moist atmosphere. In my case the dry air absorbed moisture from the sides of the pan. In his case the pots absorbed moisture from the air, or at least lost none. When I potted up my cuttings the inside plants were twice as strong and tall as was the outer ring of plants, and they are being rapidly established in 4½-inch pots. In putting in cuttings in the autumn, pots are the best, as these retain less moisture in the centre of the soil, and damping off is less probable than would be the case in pans. —A. D.

Chrysanthemum segetum.—Large patches of this are a great feature in a flower garden when the plants have ample space in which to develop, and they afford a welcome supply of cut bloom. I was greatly pleased recently with some strong plants of this in one of the borders of mixed hardy plants that form such a pleasing feature in The Priory Gardens at Warwick. Garden culture is doing much to improve the form and size of the flower of this British plant. Two years ago I sent a pinch of seed to an old Lancashire botanist near Rochdale, and when he flowered the plants he raised from it he expressed his warm admiration of the types he obtained, commending them for their size and rich colouring. If a strain could be secured of a more compact habit of growth I think it would be found very acceptable generally.—R. D.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Robinia (False Acacia).—All the Robinias are very beautiful flowering trees for lawn or shrubbery, and the three species in cultivation and several of their varieties are all worth including in a select list. The common Acacia, or Locust tree (R. Pseudacacia), is both beautiful in foliage and flower, and is a valuable ornamental tree, being of quick growth, thriving almost anywhere, and very hardy. The ordinary form of it is too well known to need description, as its profuse crop of white pea-shaped blossom in full beauty about the end of July is familiar to everyone. Of the numerous varieties of it the following are the best: Decaisneana, differing from the type in having delicate pink flowers instead of white; semperflorens, remarkable for continuing in flower throughout the summer, the blossom being white and the foliage bright green; and Bessoniana, whose thornless branches form a dense globular head of deep green foliage, which is retained until very late in autumn, hence its great value as a town or street tree. There are many other forms of the False Acacia more or less distinct, such as fastigiata, of upright growth; crispa, with curled foliage; monophylla, with the leaves entire instead of pinnate; umbraculifera, with a spreading head; macrophylla with larger leaves than ordinary; sophoræfolia, with leaves like the Japanese Sophora; and inermis, with a small growing head of spineless branches.

The Clammy Locust (R. viscosa), known also as R. glutinosa, is of smaller growth than the ordinary False Acacia, and is elegant in foliage and beautiful in flower. It so much resembles R. Pseudacacia that the two can hardly be distinguished when out of flower, except by the clamminess of the bark on the young shoots of R. viscosa. The flowers resemble those of Decaisne's variety of the common Acacia, being of a pale pink colour, but the clusters are shorter and denser. It is a very beautiful lawn tree, and is particularly valuable because it flowers while the tree is still small. Fully grown, it is of a spreading picturesque habit, from 30 feet to 50 feet high. It thrives best in a deep, light soil in a sheltered spot.

The Rose Acacia (R. hispida), see illustration, is, like the other two Robinias, a native of North America. It is, unquestionably, one of the finest of all small trees or shrubs, and one that should never be omitted from even small gardens, as it requires but little room to develop itself, and is not at all fastidious as to soil. In growth it is naturally straggling, but by pruning, a symmetrical bush or tree may be formed. It grows from 5 feet to 15 feet high, rarely taller. The foliage is much larger than that of the other Robinias, and is less dense. The flowers, which are also much larger, are of a beautiful clear rose-pink, and produced most plentifully in June, but the plants often continue in bloom at intervals till autumn. A profusely flowered specimen of the Rose Acacia is a glorious sight, and as it appears when the first flush of spring bloom is past, it is the more enjoyable. There are several so-called varieties of the Rose Acacia, but they are hardly worth consideration, as none are more beautiful than the original. That named macrophylla (large leaved) is of stronger growth and has finer foliage and flowers, but those named in nurseries R. spectabilis, complexa, glabra, inermis, and Camuseti differ but slightly, if at all, from the type. The densely covered, short, rusty-coloured hairs which beset the young twigs of this Robinia are a character by which it may be known when not in leaf. As the branches of the Rose Acacia are so brittle, they are liable to become broken by high winds, and especially if the bush has been grafted high. It is, therefore, advisable to choose a spot where the tree may be sheltered from high winds, and if the branches become heavy, especially in flower time, they should be supported by stakes. Sometimes the Rose Acacia is grown as an espalier, like a fruit tree, which prevents it from injury by winds, and it may also be trained against a wall. Such a beautiful tree is worthy of the best attention.



Decaisne's Acacia (Robinia Pseudacacia var. Decaisneana); flowers pink.

RHODODENDRON PONTICUM, CUTTING AND LAYERING.

In an answer given to a correspondent on the above subject I notice that the writer advises that the operation should be performed in the early spring months. Having had a considerable amount of this work since 1880, I have come to the conclusion that preference should undoubtedly be given to the months of October and November, for not only do the plants break better under the influence of autumn and winter rains, but the young wood laid bare by the removal of big old stuff has time to harden before its exposure to a powerful sun, which is very destructive to young sappy growth that has been hitherto in a dense shade. I have seen brakes of the same so badly blistered after a spring layering as to present for two or three seasons a very unsightly appearance. I also gathered from the letter of the inquirer that he contemplated the entire removal of the old stuff, leaving the young growth that should come away below the cut and the layers to furnish the ground. Now this entire removal is neither advisable nor necessary, and no one who has had any experience in the renovation of old Rhododendron brakes would set to work in this manner. The old stumps are, as a rule, a considerable distance apart, and their entire removal to within say 3 feet of the ground brings into view a large breadth of bare soil which does not become covered for several seasons. I have before called attention to the best way of performing this work, but may venture to repeat the instructions for the benefit of the inquiring correspondent. Two men will be required for the work. Armed with a saw and spades, a start should be made at one end of the quarter and the old growth partially sawn through, the second man being necessary to ease the branches down gently to prevent splitting from the main stem, and also to direct them to any spaces they may be required to fill. The young growth coming away from the base of the old stem may be attended to at the same time, and layered as may be required; the knife should not be used until the end of the following summer. It will be often found where the old plants have been allowed to assume large proportions, and are, in fact, merely a fringe of growth at top and sides, that the undergrowth will be altogether wanting. The layering of the old branches is doubly advisable in such a case, as their entire removal leaves nothing whatever to furnish the ground. I have gone through a number of old brakes in the manner indicated during the autumn months, and have hardly lost a single branch; indeed, but for the fact that the quarter was only 4 feet high, instead of 15 feet, no one would know that the operation had been performed. A similar operation in the spring, however, has not been so successful, especially if a hot, dry summer followed close on its heels. In the latter case not only have numbers of the old branches died out, but, as I have before stated, the hot sun acting on the sappy undergrowth immediately after its exposure has so blistered and browned the young growth as to spoil the appearance of the quarter for two or three seasons.

E. Burrell.

NOTES FROM THE ARNOLD ARBORETUM.

The Labrador Tea (Ledum latifolium) is now covered with its handsome heads of white flowers. It is a dwarf evergreen shrub, which grows in cultivation to a height of 1 foot or 2 feet. An inhabitant of cold swamps, it is a peat-loving plant, and a good subject for the margins of Rhododendron beds. Although a plant from the far north, being found from Labrador to Puget Sound, like most broad-leaved Evergreens, it is better in this climate for a slight winter covering.

The Sand Myrtle (Leiophyllum buxifolium) is also in flower. It is a handsome dwarf evergreen shrub, only a few inches high, very common in sandy Pine barrens from New Jersey to Florida. It has minute, oblong, veinless leaves, and profuse white or rose coloured flowers in terminal umbel-like corymbs, made conspicuous by the brown or purple anthers. The variety (var. prostrata), which is found only on the summits of the Roan and other high Carolina mountains, where it forms dense wide carpets, flowers here nearly two weeks earlier. It is hardly more than an inch high, and has deeper green leaves than the New Jersey plant.

Among all the Mountain Ashes, American, European, and Japanese, none is so handsome as Pyrus sambucifolia, the most northern of the American species, and only just reaching the Eastern United States on the highest of the New England mountains and the shores of Lake Superior. It makes a fine tree in cultivation, especially far north; and in the gardens of Minnesota and Wisconsin, where it is often seen, and where it soon grows into fine large specimens, it is in autumn an object of surpassing beauty. It is rarely met with at the east, however, although well suited to the climate of New England and New York, and its more general cultivation is worth the attention of nurserymen. It is in every way superior to the European Mountain Ash, which is the species found in American nurseries.

Fendlera rupicola is an interesting plant of the Saxifrage family, related to Deutzia, and a native of our Texano-New Mexican region, being found growing sparingly in the rocky crevices of river bluffs from the Guadaloupe to New Mexico. It is a low shrub, 2 feet to 4 feet high, bearing large white, showy flowers with long, conspicuous stamens on the extremities of the stout lateral branches. Fendlera is perfectly hardy here, and an acquisition to the list of dwarf garden shrubs which can be grown in this climate.

Berberis sinensis, a native of Northern China, is one of the most ornamental of the whole genus, especially when the fruit is ripe. It is a graceful plant, 4 feet or 5 feet high, with long, slender, flexuose branches, quite loaded at this season of the year with slender racemes of small yellow flowers. The leaves are small, spathulate or linear, obovate and quite entire, or on young plants with scattered teeth; the fruit is the largest and most brilliant in colour produced by any Barberry in the collection, while, unlike B. vulgaris, the foliage turns in autumn to brilliant orange and scarlet.

B. emarginata is a Siberian species, and one of the latest to flower in the collection. It bears racemes of pale flowers. It is worth general cultivation for the beauty of its autumn foliage, which far exceeds that of any of the Barberries here in the brilliancy of its colouring. There is a very distinct variety of the common Barberry in the collection from Afghanistan, with stout erect branches and spathulate leaves 4 inches or 5 inches long, borne on long, slender petioles; and another from Hakodati, in Japan, with bright coriaceous leaves and pale flowers in semi-erect racemes.

B. umbellata, a native of the Himalayas, is a very distinct late blooming species, quite hardy here, and of no little ornamental value. The long, graceful, sparingly leaved branches are bright red, as are the slender three-parted spines, slender peduncles, and pedicles. The flowers are pale yellow. The upright, umbellate inflorescence is quite unlike that of any other Barberry in the collection.

B. cretica is still later in blooming. It is a species from Asia Minor and quite hardy here. The drooping racemes of pale yellow flowers are rather shorter than the oval, entire or somewhat serrated leaves. It has stout, erect stems, 3 feet or 4 feet high, armed with short 3 or 5-branched spines, and soon forms a dense compact mass of handsome, dark-green foliage. It is well worth general cultivation.

B. concinna, a beautiful and very distinct little species, is also in flower. It was discovered many years ago in the Lachen Valley of the Sikkim-Himalaya, at an elevation of 12,000 feet to 13,000 feet, by Sir Joseph Hooker, who introduced it into cultivation, and who published a description and figure (t. 4744) of it in the *Botanical Magazine*. It does not, however, seem very well known in gardens, and was not included by Lavallée in the catalogue of the plants in the "Arboretum Segrezianum," or by Mr. Nicholson in his excellent "Dictionary of Gardening." B. concinna is a small, low bush, with erect or spreading bright red branches, 1 foot or 2 feet high, armed with slender three-parted spines, and covered with small, spinulose-toothed leaves, one-half to three-quarters of an inch long, dark glossy green on the upper side, snowy white and glaucous below. The flowers are globose, pendent, and deep yellow in colour. The fruit, which is described as large, oblong, and bright scarlet, has not been produced here. Berberis concinna appears to be perfectly hardy here, a fact which would seem to indicate that many of the plants of the high Himalaya region may, with proper precautions in the way of protecting young speci-



The Rose Acacia (Robinia hispida).

mens until they are fully established, be made to contribute to the beauty and interest of American gardens. This little Barberry is certainly a gem among dwarf flowering shrubs, and for the beauty of its foliage alone it should find a place in every rock garden or on the borders of every shrubbery.

One of the most distinct and desirable of exotic Thorns is a North China and Mongolia species, Cratægus pinnatifida, common in the neighbourhood of Pekin and often cultivated by the Chinese. It is a variable plant, especially in the size and colour of the fruit and in the character and amount of the pubescence on the leaves and young shoots. Here it is a small bushy tree, with dark green, shining, deeply cut and serrate, oval leaves, 2 inches to 3 inches long by half as much wide, borne on long, slender petioles. This species is handsome at this season, when the pure white flowers make a beautiful contrast with the rich shining foliage; but it is even more showy in autumn when it is covered with its large, scarlet fruit. This Asiatic Thorn is perfectly hardy here, and like all the North China plants which have been tried in the Arboretum, it seems admirably suited to the climate of the Northern States.

Styrax americana is one of the most graceful of North American shrubs, and when the slender branches are covered with its drooping, pure white, bell-shaped flowers, borne in slender axillary racemes, few plants will compare with it in delicate beauty. It is rarely cultivated, however, and little known in gardens. Although a southern plant, not being found growing naturally north of Virginia, it is quite hardy here and blooms freely every year. It is a common plant along the margins of swamps and in low ground, where it reaches a height of from 4 feet to 8 feet.

Attention has been called in earlier issues of these notes to the value of Hudsonia ericoides as a dwarf rock garden plant. The second of our northern species, H. tomentosa, is equally attractive in the garden. It is a dwarf, hoary plant, only a few inches high, with narrow leaves, closely pressed and imbricated on the stems, very common on the seashore of the New England and Middle States and on the shores of the Great Lakes. Every morning during the blooming period of two or three weeks the plant is covered with a sheet of golden-yellow flowers, from which the petals fall by two o'clock in the afternoon, fresh flowers opening each day. This plant, like the other species, requires some care before it is thoroughly established in the garden, but once established, it will spread rapidly, and soon makes a broad, handsome carpet.

The Stagger-bush (Andromeda Mariana), a native shrub, found along the Atlantic seaboard south of Rhode Island, in low, sandy, wet situations, and very common and covering extensive tracts in some parts of Long Island, is now in flower. It is one of the handsomest of the Andromedas. It attains a height of 2 feet to 4 feet, and has deciduous, rather coriaceous, and shining oval leaves and large, pure white, bell-shaped, nodding flowers, in clusters, from axillary buds, crowded on the naked branches of the preceding year. The foliage of this plant is popularly supposed to poison browsing animals. It is easily cultivated, thriving best in deep loam mixed with peat, and is perfectly hardy. Its near ally, Leucothoe racemosa, a common plant, found near the coast in damp thickets from Massachusetts far south, is also in flower. Less showy than the last-named species, it makes in cultivation a neat, compact shrub, with erect, rather rigid branches, covered with oval-lanceolate, bright shining leaves and erect racemes of small, cylindrical, pure white flowers. It will flourish in peaty loam, and grows and spreads rapidly.

The great flame-coloured Azalea (Rhododendron calendulaceum) is in flower, rather later than most of the garden hybrids, in which its blood is mingled, and which do not surpass it in the splendour of its orange and flame-coloured, odourless flowers. It is a common shrub in the Alleghany forests from Pennsylvania southward, where it often grows in great masses, lighting up, at this season of the year, the lower slopes of the mountains with sheets of flame. It is quite hardy in cultivation here. No North American plant surpasses it in brilliancy of bloom, and few are better worth a conspicuous and permanent place in the garden where the soil is suited to its wants. Limestone is fatal to it, as it is to all Rhododendrons.

Lonicera oblongifolia is one of the dwarf Bush Honeysuckles of the Northern United States and is worthy of a place in the garden. It has slender, upright branches, 4 feet or 5 feet high, oblong leaves, and rather large pale yellow flowers, on long, slender peduncles, the corolla deeply two-lipped, and fully half an inch long. It is found in cold deep bogs from Northern New York to Wisconsin and far northward. It takes kindly to cultivation here, however, and thrives in ordinary garden soil.

Spiræa corymbosa is a dwarf species of the Alleghany Mountains, found from Pennsylvania to Virginia and Kentucky. It grows to a height of 1 foot or 2 feet, and has pale oval leaves, cut-toothed towards the apex, and large, handsome, terminal, compound corymbs of white flowers, which are now just expanding.—*Garden and Forest.*

Shrubby Meadow-sweet (Spiræa ariæfolia).—In making a selection, say, of half a dozen distinct kinds of shrubby Spiræas, this species must certainly be included, for it is widely different from any of the others, and when a specimen is laden with its beautiful plume-like blossoms it forms a most handsome object. The flowers are of a creamy white tint (not pure white, as I have seen it described) and feathery. To make the most of this Spiræa, it should be planted in a spot where it will not be dried up during the summer, and also where it will be somewhat shaded from the sun's rays, as when the blossoms are protected from the full heat of the sun they last a much longer time in perfection than where such is not the case. All the Spiræas, and this is no exception, well repay a little liberal treatment, and if a specimen of this be occasionally top-dressed with some good soil and a little of the old exhausted wood cut out, it flowers much more freely than would be the case if it were allowed to grow untouched.—H. P.

Spiræa crispifolia. — This little Japanese Spiræa, known also under the name of S. bullata, is quite a gem among dwarf shrubs, for at most it only reaches a height of a foot, yet it grows freely and soon forms quite a mass of sturdy shoots. The flowers, which are borne in small flattened clusters on the point of every shoot, are in the bud state of a crimson colour, but when fully expanded of a pretty carmine-pink. Such a little shrub as this is more fitted for planting on the sunny part of the rockwork, where its roots are kept moist, than in a border with other shrubs, as it is not sufficiently robust to hold its own with more vigorous growing subjects. Like most of its relatives, this Spiræa succeeds best where the soil is at least fairly moist during summer, but at the same time it must not be in a waterlogged condition. Where the soil is very dry I find that the foliage is liable to be attacked by red spider, which will cause many of the leaves to turn yellow and drop. In common with nearly all the Spiræas, the blossoms retain their beauty for a considerable time in water if gathered just as they are on the point of expanding. I have seen it grown very successfully as a pot plant, for it forms dense healthy masses that flower profusely. —H. P.

SHORT NOTES.—TREES AND SHRUBS.

Magnolia grandiflora.—This thrives well in the Isle of Wight, and it is strange that this and other species are not more widely planted in such favoured spots. I recently noted in the gardens of East Cowes Castle a standard of M. grandiflora with a large handsome head about 40 feet in height and a clear stem of some 8 feet or 9 feet.—W. H. G.

Venetian Sumach (Rhus Cotinus).—It is indeed surprising that such a beautiful shrub as this should be so much neglected, and it was an agreeable surprise to find several specimens at Dale Park. Some of them were isolated on the lawn, others were fringing the shrubbery, and in both positions they looked very graceful. It would be hard to name a shrub more elegant than this, and it has the additional merit of remaining an object of great beauty for many weeks through late summer and early autumn.

PROPAGATING.

Hydrangeas.—Where Hydrangeas are required as little dwarf plants carrying one enormous head of bloom, this is the best time of the year to put in the cuttings. As it is absolutely necessary to select as cuttings shoots that would be certain to flower if allowed to remain on the plant, it is evident that though they will root in less time than the stouter ones the weak side branches must not be chosen for the purpose, as they do not contain any embryo heads of flowers. A way to obtain good cuttings where there are no planted-out specimens is to plant out a few for the express purpose, taking care that they are in good soil, well supplied with moisture, and in a sunny spot, as if grown in the shade they will not flower so well. The cuttings should be taken off at a length of about 5 inches or 6 inches, and being cut at a joint and the bottom pair of leaves removed, they may be dibbled singly into small pots filled with sandy soil. If there is a partially spent hot-bed at hand it is a first-rate place to strike the cuttings, but if there is not one available they will root in an ordinary garden frame kept close and shaded, though they strike more quickly with a little bottom-heat.

Iris Kæmpferi.—This Iris, which by reason of its gorgeous blossoms attracts a considerable amount of attention at this season of the year, can, like all of its class, be propagated by division, and I find the best time of the year to carry this out is in the spring, just as the plants show the first indications of starting into growth. By splitting them up in the autumn and early winter I lost several plants; whereas if divided in the spring they grow away at once and root directly. After division they need no coddling whatever, as if planted in the open ground their growth is both sturdy and healthy compared with that which is produced where they are protected for a time after division.

Witsenia corymbosa. — This blue-flowered greenhouse plant is rarely seen, perhaps to some extent owing to the fact that it is by no means an easy subject to propagate, for many fail to increase it from cuttings, and this is the only course available for its propagation. A very good time of the year to take the cuttings is just as the season's growth is finished. Each cutting must be formed of one of the fan-shaped tufts of leaves with a heel of older wood at the base thereof. Generally the best cuttings are to be found at the extreme base of a plant, where quite a cluster of young shoots often occurs. The cuttings may be either put singly into small pots or a few around the edge of a larger one, but I prefer this last, as when around the edge of a pot the cutting can be made firm without burying it so deep as is necessary when putting it in the centre of a small pot. The best soil for the purpose is very sandy peat, with a thin layer of clean sand on the surface. In order to hold the cuttings firmly, and yet avoid the necessity of burying them too deeply, each may be secured in position by a small peg, and when watered they should be covered with a bell-glass. They must then be placed in a structure that is kept at about a greenhouse temperature, or at all events but slightly warm, till they callus, when a little additional heat will hasten the formation of roots.

Bedding plants.—The wet, cold summer we have experienced will render it a difficult matter to get cuttings of many bedding-out subjects, and in the case of such things as Pelargoniums the shoots that are available are coarse and succulent, and not at all suitable for propagation. In the case of cuttings such as these, whether they are struck under glass or in the open ground, the great consideration is not to overwater them, for it must be remembered that cuttings of bedding Pelargoniums will stand a considerable amount of drought without injury, and this, of course, doubly so when they are so soft. By some they are struck in the open ground and potted up for the winter in small pots; but where it is desired to economise space as far as possible

they may be struck in pans, boxes, or store pots and wintered therein. In this case they must be stood in a well-drained spot, clear of worms, for if these once get into a box of cuttings they often work sad havoc. Of such things as Heliotropes, Petunias, Fuchsias, Cupheas, and other subjects, a few good stock plants will in a gentle heat yield quite a crop of cuttings in the spring; while Coleus winter much better in the shape of young plants struck during July and August than from old specimens. Lobelias of the speciosa class may be struck from cuttings of the young growing shoots, and if a few old plants are wintered somewhere on a dry shelf, they will give plenty of cuttings in the spring. Calceolaria cuttings are best put in later than this; and where tuberous Begonias are needed for bedding, they will be quite large enough for the purpose if sown about the middle of January in a gentle heat, and pricked off and potted as they require it. T.

LAYERING CARNATIONS.

Carnations are blooming so late this year, that it will be impossible to get layering done at the usual time. Owing to the damp weather, which has had a prejudicial effect on the flowers, the plants have made a stronger growth than usual, and I would much rather be a fortnight late and have good robust shoots to operate on than weak ones at an earlier period. Roots are not only made more readily, but in greater abundance when the wood is full of sap and robust. Last year I did not layer Souvenir de la Malmaison until after the middle of August, and I never had a stronger lot of plants. They bloomed well, and from each plant I shall get from eight to a dozen good strong layers. As they were kept under glass they were ready for layering by the first week in this month. In the case of new kinds, or of any that it is wished to get a stock of as soon as possible, I counsel the removal of the flower-stems at an early date, as this will throw a stronger flow of sap into the shoots, and they will in consequence be better, and can be layered rather earlier than when they are allowed to bloom. Many suppose that the "grass" is not in a proper condition for layering until the flowers fade, but this is a mistake. As soon as the shoots are long enough they can be layered, and they will often make roots more quickly, as the wood has not become so hard and wiry, which it often does when the flowering period takes place in a hot dry time.

Having a plant or two each of some new kinds and the season being so late, I layered them just as the first buds were opening. This will give me much stronger plants, as they will have a fortnight longer to make roots in than if I had waited till the flowers faded. In a general way, no one would, of course, like to spoil the appearance of their plants by layering them when in bloom, but young plants bought in in spring are often too weak to produce much bloom, and it is better to sacrifice it for the sake of obtaining really good specimens for the following year. From various causes, too, certain kinds will get into a weakly condition, from which early layering will help to remove them. It was once considered the right thing to cut off the tips of the foliage in layering, and some may still practise what should be an obsolete method, for I cannot see that any good purpose is thereby served. On the contrary, common sense should tell us that it must lower the vitality of the young plants to mutilate the foliage. Trade growers do not do so now, although most of them did so a quarter of a century ago. Plants with some of the leaves partially clipped away would not give satisfaction at the present time. I find that there is nothing better for pegging the shoots into than the refuse of the potting bench. This is always well mixed with sand, and it would be difficult to prepare a compost that would better answer the purpose. Passed through a fine sieve when quite dry it will be in capital order, and roots are made very quickly in it. J. C. B.

Covering walls of damp houses.—The back walls of some of the glasshouses at Arundel, which by reason of the moisture become green and unsightly, have been beautifully and most effectually concealed by Mr. Busbury. Wire netting of ¾-inch mesh has been put up, leaving a space of about 1 inch between that and the wall, which was filled with small pieces of turfy loam and peat. Into this was pricked small plants of the commoner sorts of Maiden-hair Fern and various Pterises and the result is a wall of Fern fronds, pretty in itself, an ornament to the house, and a most useful resource for cutting from, thereby obviating the necessity of disfiguring good plants in pots.

STOVE AND GREENHOUSE.

HYDRANGEA HORTENSIS.

Can this be shown as a greenhouse plant? I think it can, for it must be admitted that it cannot be regarded as hardy is this country, except in favourable localities. I was at a flower show not long since, where two very fine specimens in pots were shown as greenhouse plants, and exception was taken to them as such. I could not agree to the objection, and I am fortified in that position by the procedure of Mr. Thomas Baines, who in his book on stove and greenhouse plants gives it a place and devotes a long article to its culture. However well grown and flowered, it is not a strong exhibition plant, but it comes in very useful late in the season to make up a collection of nine and twelve. The plants in question were covered with small trusses of flower. The fact was they were allowed to carry too many, and a judicious thinning out would have increased the size both of the trusses and individual blooms in the case of those allowed to remain. When grown in pots it should have a liberal treatment, and be well fed as it comes into flower.

In suitable localities and soils the Hydrangea is a very fine plant in the open. When in Ireland nearly twenty years ago I saw in a garden in the valley of the Blackwater, near to Lismore, some specimen Hydrangeas of enormous size, like a tall and huge clump of Rhododendrons, that must have been there many years, for the lady of the house said she had known them for the space of forty years, and the plants were very large then. What was most striking about them was the rich hue of blue seen in the blossoms, thus attesting to the presence of oxide in the soil. It was the case at Muckross, Killarney; there Hydrangeas blossom freely planted out, and there was scarcely one that did not produce blossoms of a blue tint.

It is in such favoured localities as the Isle of Wight and along the south coast that the Hydrangea does so well as a border plant. The plant does best on a south exposure. The soil should not be too moist, and it should be as far as possible sheltered from cutting winds. Strong young plants should be planted out in spring in order to form border specimens, or if done in autumn, as early as possible, so that the plants may become thoroughly established before the winter sets in. No autumn removal should be attempted before the plants begin to shed their leaves, as the wood is then pretty well ripened. A suitable compost for Hydrangeas in the open is good loam from a pasture, some burnt ashes or a little peat, and leaf-mould mixed together and trodden firmly about the roots. I know a case where some plants were put into such a compost with the result that they grew into very fine specimens indeed, and bloomed abundantly and finely.

But some management is necessary if the plants in the open are to become well-furnished bushes blooming in a satisfactory manner. The Hydrangea is one of those plants which will not thrive well or develop its flowers finely if left to itself. Some pruning is necessary. It is known to all who are familiar with the habit of the plant that the extremities of the shoots are feeble, often imperfectly swollen and immature, while these are the parts likely to be affected by cold. To prune back the shoots therefore to a point where they are stronger and more robust is a necessary operation, otherwise, as the weak points would first expand their buds, and the branches from these would be weakly, it is obvious that growth and flower alike would be very disappointing. Pruning back, therefore, so as to leave three strong basal buds, is the best direction that can be given, though the process of disbudding may be found necessary. Each shoot is commonly a flowering one, and unless the stem be very strong it is injudicious to allow it to produce more than one or two trusses, if good flowers are to be looked for.

Some mulching in hot dry weather will be found highly beneficial, and especially when the situation is an exposed one. It is a water-loving plant in time of drought, and it should be freely supplied when desired. R. D.

WORK IN PLANT HOUSES.

Greenhouse. — Solanums. — The berry-bearing Solanums, like most other things, have been affected by the cold sunless season, and have made less progress than usual, so that except where the stock was propagated about the beginning of the year and pushed on afterwards, the crop of berries will be late in colouring. Little or nothing can be done to hasten the ripening process, but careful cultivators will not fail to take note of the advantage there is in always being prepared for exceptional summers like the present by timely propagating such things as require a long season to bring them into condition. Manure water should be given freely; this will not only keep the foliage green and healthy, but enhance the value of the plants as long as the berries are attractive. Where the plants have been turned out in beds it will be well to cut their roots round in the usual way earlier than is necessary in drier seasons. Unless this is done more than once, a severe check will be given to the plants when taken up, except where larger pots are given than is desirable. If the weather should be dry and hot during the next three or four weeks, syringe freely in the afternoon, so as to keep down red spider, as if this gains a footing the foliage will suffer.

Heliotropes.—By many the perfume of Heliotrope is held in such estimation that a constant supply of flowers is required. When they are wanted in quantity during winter, large old specimens, either planted out or grown in pots, should be depended on. The plants will attain a very large size when their roots have the run of a good-sized bed of well-prepared soil, either in the form of standards or trained on a back wall, but in the latter case unless the house is light and the plants are not shaded by other things, the flowers come deficient in both size and quantity. With enough root room and annual repotting Heliotropes will last for many years and keep on increasing in size and in the quantity of flowers they yield. The latter to a very great extent depends on the vigour that is kept up, and to assist this give manure water every other time the soil requires moisture all through the autumn. The flowers should be pinched out as soon as they appear; this is necessary to husband the strength for a time when they will be required to bloom. Where small examples of Heliotropes are grown they come in for the decoration of warm conservatories and living-rooms during the latter part of the autumn. In their case also it is requisite to get as much vigour stored up as possible by keeping the blooms pinched out and by a free use of manure water. The plants should be placed in the open where they will get plenty of light and air so as to secure as much substance and solidity in the growth as possible. This is the more necessary with soft quick-growing things, such as Heliotropes, as on the firm mature character of the growth depends the blooming.

Stove.—Achimenes.—Plants that flowered early in the season will now be preparing for their season of rest by ceasing to make growth. Let them have a light position in an airy house or pit where there is a moderate amount of heat, giving less water than was necessary earlier or when active growth was in progress. The soil must, however, not be allowed to get so dry as to cause the leaves to flag. If this happens it will prevent the tubers attaining the mature condition which is indispensable to enable them to come safely through the resting period. Much of the decay that takes place

during winter in the roots of Achimenes is owing to the insufficient ripening of the tubers, which is usually brought about by neglect in giving the plants reasonable attention after they have flowered. Proof of this can easily be had by examining the tubers of plants that have been allowed to die off prematurely in cold quarters after they have bloomed and comparing them with others that have had a chance of ripening off properly. In the latter case the tubers will be stout and plump, whilst in the former they will be thin and in a half withered state.

Gloxinias.—Plants that were started early will now have done blooming. If they have been placed in cool quarters whilst in flower they should at once be moved to a house or pit where there is a little heat. This is requisite to help the tubers to ripen off.

Gloxinias, late-flowering.—The plants intended for blooming during the autumn that have been raised from seed sown in winter or early spring will now be pushing up their flowers. They should not be kept too hot, as under a high temperature the flowering season is more quickly over and the flowers are less enduring. Intermediate warmth suits them best. In this, if the plants are kept close to the glass with no more shade than necessary to preserve the foliage from getting discoloured with the sun, they will continue to bloom much longer, and the flowers will keep fresh longer when cut, for which purpose Gloxinias are better adapted than many stove subjects, provided the plants have been well managed.

Ixoras.—Where Ixoras are properly treated they are amongst the freest growing of stove plants, so that if not cut in freely once a year the specimens become too large. It is well to do this about this time, as it gives them a chance of making fresh growth before winter. This admits of their blooming much earlier in spring than if the cutting back is deferred until they are about to move. Where the growth is free the branches may be shortened back so as to reduce them to about two-thirds of their length, thinning out any weak shoots that may exist, as it is the strong growths only that carry large trusses of bloom. After cutting in, the plants should be immediately well syringed with insecticide, as they are almost sure to be more or less affected with brown scale or other troublesome insects; and when all the young, partially matured foliage is removed, as it will be by cutting in, it gives an opportunity for using the insecticide in a stronger state, without danger of injuring the foliage, than would be safe at other times. They should be kept in a brisk heat through the autumn, so as to encourage them to make new growth. Ixoras should be placed together at the warmest end of the stove, with little or no shade, unless it is found that there are lenses in the glass that burn the leaves. Syringe freely overhead in the afternoons at the time the lights are closed. If the house affords plenty of light and the plants are kept well up to the glass, there is no necessity for giving nearly so much air as is often supposed to be necessary. The admission of a large amount of air has the effect of drying up the atmosphere too much to allow many things, including Ixoras, to make the progress they are capable of; hence the indifferent condition that these and some others of our finest stove subjects are too often seen in. When the plants have broken into growth, any that require a shift should be turned out of the pots and have as much of the old soil removed as can be done without disturbing the roots much. Ixoras like plenty of pot-room, and also as much of the soil removing annually as can be done without interfering with the roots in a way to give the plants a check. There must never be any attempt to shake them out, as small examples do not require it, and large specimens would be so much affected by it that they would not be likely to make much progress afterwards for some time.

Dipladenias.—As long as there is enough warmth kept up in the house these plants occupy and the general treatment is such as will keep them growing freely, they will go on flowering when the roots are healthy and active. Dipladenias are free growers, and to have them in good order they must have a high temperature. Under favourable conditions the shoots extend to a great length in the course of a season, and to support this the soil becomes impoverished before the end of summer, to make up for which manure water must be given from this time until the plants cease flowering. Assistance in this way is more necessary than in the case of plants that are potted in soil which has a good deal of manure mixed with it, and which most of the successful growers of Dipladenias use very sparingly or not at all. Where a stock of Dipladenias is required the present is a good time to propagate, as when the cuttings are struck now and kept growing all through the autumn and winter they get much further advanced than plants that are raised in the spring. Cuttings made of one or two joints of the half-ripened wood will root, but if there happens to be any stout young shoots produced from the old wood in the way that strong specimens often push them, these should be taken off with a heel. Cuttings of this description root quickly and grow away quickly afterwards. Where it is desirable to raise plants that will flower in the least possible time, Dipladenias can be propagated from layers. Any strong branches will do either when the wood is fully matured or in a half-ripened state. A notch should be made at a joint and the shoots pegged firmly down in 7-inch or 8-inch pots, which must be drained and filled with a mixture of good turfy peat and some sand. The peat should have a portion of the earthy matter removed in the way that is practised in preparing peat for potting Dipladenias in the ordinary way. The shoots beyond the place where they are layered must be kept in an erect position, or nearly so, as these plants have the greatest dislike to their tops hanging down. Roots will be formed in a few weeks, but it is better not to then separate the layered plants from the parent specimens, as whilst attached they will make much more progress. Later on in autumn when separation is effected, it is well to partially sever the layers and then allow two or three weeks to elapse before completing it, as in this way the check will be less felt. If the layers can have warm stove treatment through the winter, such, for instance, as kept up where Gardenias are required to bloom during the dull season, they will make a good deal of progress before spring, at which time they should be moved into larger pots. So managed they will bloom fairly next summer. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Blue Throatwort.—I send you a few trusses of Trachelium cæruleum, which we grow in 3-inch and 4-inch pots. Plants carrying trusses like the enclosed are useful for decoration. I grow specimens of this plant also with eighty trusses. The spikes of Celsia arcturus I send are from seedling plants in 4-inch pots.—E. Molyneux, *Scrantmore Park, Bishop's Waltham.*

Campanula Vidalli.—This is a shrubby species, and we occasionally meet with a specimen in a pot, neglected and perhaps half-starved, under which conditions it manages to throw up several spikes of large waxy-white tubular flowers, which are slightly compressed towards the middle of the tube. It is so distinct from all the other members of this great family, that it seems a pity to neglect it. Has it been tried out of doors, and if so, does it prove hardy?—X.

The Rush-leaved Strelitzia (S. juncea).—This is rather a rare Strelitzia which has been flowering in the Botanic Garden at Oxford. The leaves are Rush-like, and in reality not leaves at all, but merely petioles elongated to a length of 3 feet or 4 feet, the leaf proper being just visible in a young state when first the leaf stalk is thrown up. It is only about 1 inch long and very narrow. A good figure of this species appears in the *Botanical Magazine*. The flower is somewhat similar to that of S. regina, but the lower lip portion is richer and darker.

Fuchsias at Kew.—There is just now a beautiful show of Fuchsias in the greenhouse at Kew, the plants being old specimens trained up the roof on the inside, and loaded with flowers that hang down in a most graceful manner. The sight of these suggested that such an effect might be repeated in many greenhouses, as there is very little trouble in growing the Fuchsia and little cost in the first place. It would make quite a change from the usual run of things that greet us in greenhouses. The varieties at Kew used for this purpose are gracilis variegata, a beautifully variegated kind, the leaves white and green, and the slender red and purple flowers hang down in profusion; it is exceptionally free and elegant. Of the variety Alexandria there are several plants, and the red and white flowers make a fine show owing to their great profusion. Monarch has the largest blooms of any, the sepals broad and red, and the corolla purple; it is as free as the others. Venus de Medici is exceptionally pretty, besides being remarkably free; the sepals are pinky and corolla purple-violet. Dependens produces large drooping clusters of slender flowers, the colour of the richest crimson, and quite distinct from those with more globular-shaped blooms. Macrostemma variegata is very much like gracilis variegata.

Littonia modesta is such an extremely graceful and pretty greenhouse climber, that one would expect to see it oftener in private gardens. It looks like its commoner relative, the old Gloriosa, in growth, the stems being slender and supple, and the leaves ending in tendrils that enable the plant to climb to a height of 6 feet or 8 feet. From each leaf axil is produced a large bell-shaped flower, which is of a bright orange colour, and lasts a long time in perfection. Being a native of South Africa, it is quite a cool-house plant, and may be grown well in a pot, with its shoots trained against a pillar, in a light position. It may be seen in bloom at the present time in the Cape house at Kew.

Garden Flora.

PLATE 663.

CYCLAMEN-FLOWERED DAFFODILS.

(WITH A COLOURED PLATE OF N. TRIANDRUS VAR. AND N. CYCLAMINEUS.*)

The Narcissi referred to in the coloured plate, details of which will be found below, are certainly amongst the most curious of this highly interesting and popular genus. The triandrus section especially is so readily procured from seed, and in itself so variable, that only a short time must elapse before it will be plentiful in our gardens; and as we have found some of the forms of collected bulbs do well in the open against a wall, our own seedlings may prove of a hardier nature, and we may hope yet to be able to grow them along with the other members of the genus. Since the introduction of N. cyclamineus another new and interesting Daffodil (N. Johnstoni) has been found. This Prof. Henriques thinks possible may be a hybrid between calathinus and Pseudo-Narcissus. It is also perfectly hardy and a decided acquisition.

The Cyclamen-flowered Daffodil (N. cyclamineus), which may be seen on the left hand of the coloured plate, is perhaps the most curious and novel of this large and important family introduced to gardens in our day, and presents a most striking example of the fallacy too often indulged of supposing a plant not to be in cultivation, or even in existence, simply because we do not happen to know it. Dean Herbert, whose acquaintance with bulbs of all kinds was very great, disposes of this plant in his "Amaryllideæ," p. 306, "as an another absurdity which will never be found to exist. I have no hesitation in rejecting it as a nonentity." And yet what is undoubtedly the identical plant has been rediscovered, and is now in the hands of growers after having been lost sight of for nearly 250 years. The first trace of this Daffodil appears in the shape of a rude figure, under the name of Narcissus hispanicus minor amplo calice, foliis reflexus (tab. 47), in a very interesting old book called "Jardin du Roy" (Pierre Vallet), published in Paris in 1623. Fourteen years later (1637) a much better figure appeared at plate 20 in the "Theatrum Floræ," also published

* Drawn for The Garden by H. G. Moon in the Royal Gardens, Kew, April 19, 1888. Lithographed and printed by Guillaume Severeyns.



CYCLAMEN-FLOWERED DAFFODILS

NARCISSUS TRIANDRUS VARS ALBUS AND CYCLAMINEUS

at Paris. Afterwards (1640) we find it in Parkinson's "Theatrum Botanicum;" and then Haworth in his monograph, 1838, named it Narcissus minor cyclamineus. Here it was lost sight of until rediscovered by Mr. Edwin Johnston in the neighbourhood of Oporto, flowering early in March. It has also been collected by Mr. Tait and Mr. Barr in the same locality. The frontispiece on Barr's Daffodil catalogue, 1887, reproduced from a photograph of the home of this interesting bulb, will give those who may have the facilities an idea of the treatment it requires. Care, however, should be taken not to plant it too near the water, and no fear need be entertained as to its hardiness, as it has withstood the last trying winter without the slightest hurt. In a wild state it seems to be variable not only in the height of the plant, but also in the size of the flowers and leaves, and this may in a measure account for some of the forms not exactly fitting the old drawings. As a Daffodil flower it is certainly unique with its reflexed Cyclamen-like flowers, and is well worthy of a place in every garden. As it appears to ripen seed freely, it will doubtless soon be as common as it deserves to be. In its native habitat it is found growing in sandy loam on the banks of streams, &c., at an altitude of 300 feet above sea level. It is figured in the *Botanical Magazine* (t. 6950). N. Henriquesi hort. is a synonym.

Angels' Tears, Cyclamen-flowered Daffodils (N. triandrus vars.).—Although the varieties of this superb species have greatly increased within the last few years, both from collected bulbs and home-grown seed, and although we have now many intermediate forms with long and short, broad and narrow trumpets, yet we can still distinguish many of the old types described by Haworth, Salisbury, and others. Amongst the most notable of these are concolor, pulchellus, nutans, cernuus, pallidulus, &c. All these forms are natives of the Spanish Peninsula, only one, viz., N. calathinus, being found outside, its native habitat being the Isle of Glenans, Brittany. These forms, amongst the most beautiful of our small-flowered Narcissi, seem to have been very much neglected in our gardens until very recently, although we find little difficulty in cultivating them in the open air when given the kindly shelter of a wall or hedge. Wherever the forms of Corbularia will do we have found no difficulty in growing these, some of the stronger growing of which have shed their seeds, and have become quite a pest within a couple of yards of the original clumps. Our success with them in the open along with the other Daffodils has not been all that could be desired, but this may be owing to the severity of the last three or four winters. However this may be, these varieties of N. triandrus with their pretty flowers and graceful habit of growth should be given a fair trial in every garden; at first with a little protection until established, after which they may be tried in more exposed positions. We have found them amenable to a gentle heat in early spring, and find them extremely useful for the greenhouse and conservatory, as they continue in flower for such a long time. Following Mr. Baker's monograph of the Narcissi, N. triandrus is taken as the type, the colour of the flowers of which is given as pure white. This is the form represented in our coloured plate.

N. T. VAR. CONCOLOR has self-coloured pale yellow flowers, and is a very pretty and distinct form.

N. T. VAR. PALLIDULUS, figured in the *Botanical Magazine*, 6473a, has primrose-yellow flowers.

N. T. VAR. PULCHELLUS (*Botanical Magazine*, t. 1262, and Sweet's Brit. Fl. Gard., ser. 2, t. 99) has a pure white trumpet with yellow segments. Salisbury, in the "Transactions of the Royal Hort. Soc," vol. i., p. 354, tells us that this variety was for many years confined to the gardens about Halifax, Yorks, where he helped to propagate it when at school in that neighbourhood, and was flogged in the Whitsuntide holidays of 1769 for running out of bounds to know the name of it at North Bierly. Again, he says that Mr. George Anderson, with the assistance of some London nurserymen, has pretty well cleared the north of it, and if they will make it plentiful in the south I shall rejoice. The surest method of doing this is to plant the bulbs in a border of pure loam rather moist than dry about once in four or five years. As soon as the leaves are decayed the bulbs should be taken up and transplanted.

N. T. NUTANS (trilobus, Bot. Mag., t. 945) has a crenulated corona and segments of a paler yellow. We seem to be indebted to the Dutch florists for preserving this variety, as it was from thence our nurserymen drew their stocks. It was cultivated by Parkinson, and should be treated in the same way as the above.

N. T. CERNUUS (figured Bot. Mag., t. 48) has flowers much the colour of nutans, but is more robust and blooms more freely. It was introduced by E. Whitaker Gray, M.D., 1777, from about Oporto, and Salisbury says he grew it in the open air at Chapel Allerton, and even procured ripe seed in abundance.

Sub-species N. calathinus. — This, says Salisbury, flowered in the garden of Mr. Maddock, florist, at Walworth, about 1800, the bulbs being imported from Holland. The crown is larger than in triandrus, nearly as long as the segments, pale sulphur-yellow. Isle of Glenans. D. K.

Flower Garden.

HERBACEOUS AND ALPINE PLANTS.

In continuing my notes on these plants (see p. 599, last volume), it will be borne in mind that my comments are from small experience, that is, where many persons grow hundreds of plants I only grow a dozen, and where they grow a dozen I grow but one, and if exception is taken to my remarks on this account, I can only plead guilty, but at the same time I may say that the observations thus made may be equally sound and perhaps as useful. My object in this, as in the former paper, is to see what have been the effects of a hot summer and cold winter on these plants, and what help for the future we may gather from the experience of the past.

Lilies.—The behaviour of these beautiful bulbs has been of a very peculiar character. If I take the commonest and hardiest, I find that the clumps of davuricum, testaceum, and candidum have both grown and flowered weakly in comparison with what they have done in former years; they have not grown half so high as usual, nor have the flowering stems here anything like the normal height. The latter (candidum) has behaved in its usual capricious manner; my clumps have bloomed, it is true, but then neither the strength of the flowering stem nor the number or size of the flowers have been anything like what they ought to have been, yet when I try to give a reason for it I am nonplussed. I am inclined to think it must have been the great heat of last summer that caused it, but as I go through my parish I see it in some places similarly dwarfed, while in another, in a hot sandy soil and planted in a position right in the sun, it is quite equal to what it usually is, with stems 4 feet to 5 feet high, and with an abundance of fine blooms. If I am inclined to attribute it to the severe winter then I find it flourishing in a low and damp situation, where it must have felt the influence of frost more than on my somewhat elevated and dry position. Happily, I have been free from the disease which seems to have done so much damage. I heard of one grower who usually sent quantities of its pure white flowers to market that he had not one flowering stem uninjured; the disease seemed to attack them about half-way up the blooming stalk, and then to travel both upwards and downwards, but the oddest thing of all that I have experienced with Lilies is the (in one case complete, and in the other nearly) disappearance of two large clumps of Lilium aurantiacum, the common orange Lily. What is the cause of the failure of this most common of all hardy Lilies, I am at a loss to conjecture, but I must have an examination by and by and try to trace it. But while these very hardy Lilies have failed some others have done well; thus Browni, I think the most perfect of all white Lilies, with its stout leathery petals, has bloomed capitally; so also has L. Szovitzianum. The white Martagon, on the other hand, has not flowered at all and looks very spindly. Superbum, too, is a failure. This I am not surprised at, for my situation is dry, and in such a season as that of 1887, a swamp Lily could hardly be expected to do well. I find Lilium speciosum is sadly interfered with by earthworms, and is not a very great success.

Amaryllids.—Here again the seasons have been against the few that I grow of Souchet's seedlings of vittata, which are perfectly hardy, and concerning which I have often expressed my surprise that I so seldom see them. Some which are planted in a warm border in the front of my greenhouse have been there these eight or nine years, and have withstood some severe winters during that time; they have again flowered this year, but with diminished vigour, as if they had not received as much nourishment as they required. I think that if growers of bulbous plants were to try these beautiful seedlings, they would not hesitate to regard them with favour as showy plants for such a situation.

Eucomis punctata, another very showy bulb which continues a long while in bloom, has done well, and forms a vigorous clump with large leaves and a flower-stem about 2 feet in height. The waxy-looking little flowers are set very closely together, and it is, moreover, fragrant—one of those things which are not so often seen as they ought to be.

Heuchera sanguinea.—I quite agree with all I have read with regard to the value of this beautiful herbaceous plant. Its foliage and flowers are alike pretty, and in the only damp place that I can put it, it has done very well.

Centaurea macrocephala.—A very strong growing and distinct looking plant with large yellow flowers disposed somewhat in the way of those of the common Artichoke, only yellow instead of blue. It seems to be a plant which is indifferent as to what soil or situation it is placed in, but it is more suitable for the back row of a herbaceous border or for a shrubbery.

Alpine Pinks.—I had had some little difficulty with these, but following out the directions by M. Henri Correvon in his "Plantes des Alpes," I have succeeded, very much to my own satisfaction. I made a small plantation of some plants I obtained from him, and also from Dickson's, of Chester, namely, D. alpinus, glacialis, neglectus, and cæsius, for I was anxious to see what was their difference, as I fancied there had been a good deal of confusion about them, and I hope by-and-by to look into the matter a little further. At present I see no difference between glacialis and alpinus, but neglectus is very different in habit. There is another, D. Atkinsoni; this bears on a stem about 9 inches high flowers of a most brilliant scarlet colour, and is considered by some as a hybrid and the parent of many of our border Pinks, such as Napoleon III. It is very brilliant and well worthy of cultivation, and, notwithstanding the trying character of the spring for such flowers, they look now very healthy and promise well for another year. I see it mentioned by Mr. Wolley Dod in a recent number of The Garden, who writes highly of it.

ARNEBIA ECHIOIDES is another plant that has passed safely through the double ordeal of a dry summer and severe winter. There is not, I believe, any difficulty in growing it. It is a pretty and singular flower; the fading away of the spots as the flowers grow older is very curious, while their contrast with the bright golden-yellow of the petals makes it very attractive. I find that it is now throwing up some second blooms. I suppose the wet season has started it off into growth again.

DORONICUM PLANTAGINEUM EXCELSUM (or Harpur Crewe's Doronicum).—It is hardly possible to say too much for this plant, it is so early-flowering, the colour so bright and rich, and the plant itself so vigorous that everyone ought to grow it; while if cut down after flowering, it very often, especially in a season like the present, will throw up a second crop of flowers.

CYPRIPEDIUM SPECTABILE.—This moisture-loving Orchid felt the dry season very much, and although my clump of it flowered freely, yet it had not the vigour of former years, nor were the flowers so fine; the wet time we have lately experienced will be, however, useful to it, and I hope it will recover its vigour. People are sometimes frightened by the idea of this being an Orchid from attempting to grow it. This is a mistake; it will do well in many places, and in fact better than many of our native species, which seem very impatient of garden culture, while the North American species makes itself perfectly at home.

ORCHIS FOLIOSA is, I hope, at last making itself at home. I have tried for a long time to get it to do so, having once been greatly struck with it in Messrs. Backhouse's nursery at York, but it is not until now that my hopes have been realised. This may seem strange to many growers of herbaceous plants, but then it must be recollected that I have a great difficulty in obtaining either shade or moisture in my garden.

I am aware that I have been writing of common things, not like my friend Mr. Ewbank, who makes one's mouth water at the beauties he dilates upon; but then it is not given to everyone to reach Corinth, *i.e.*, to live in the Isle of Wight, and I know full well what a treasure house the garden at St. John's Vicarage is, but then if we have our joints, we must also have our "taters." Let me have the humble, but perhaps useful task of supplying them for Mr. Ewbank's appetising joint. DELTA.

The Wild Spaniard of New Zealand (Aciphylla squarrosa).—I was much pleased to see this fine plant thriving well in the open air in Mr. Bull's nursery; it will assuredly form a fine dot plant upon Grass. The genus belongs to the Umbelliferæ, and contains some four or five species, natives of considerable elevations in the islands of New Zealand. The present species is common in the Middle Island, and also in the southern portion of the Northern Island, and forms a stout unbranched plant about 5 feet in height, but which sometimes attains to nearly 9 feet; the stem is clothed with leaves 1 foot or more long; these are divided several times with long spinous leaflets which are glaucous or grey, and which would afford a striking contrast with the green lawn. The plant is said to form a dense impenetrable thicket and contains an aromatic gum. It has been introduced by Mr. Bull, and its distinct appearance should bring it into favour.—W. H. G.

Laced Polyanthuses.—These choice spring-flowering plants usually do badly in the south of England, but the present wet and exceptionally cold summer has suited them admirably. The old variety George IV. has grown with greater vigour than I ever saw it in the north or south. The red spider has been waiting for a favourable opportunity evidently, for I can see its marks on the leaves during the last few days of dry warm weather. Those who intend to cultivate their plants in pots should now dig them up, and this affords an excellent opportunity to dip the leaves in a solution of soft-soapy water to which has been added some Tobacco liquor. Soft soap of the strength of two ounces of soap to a gallon of water will kill green fly, but red spider does not mind it unless some Tobacco liquor is added to it. This troublesome pest cannot stand a mixture of both. The crowns ought to be parted out carefully by hand, and each separate plant should be potted in a 4½-inch pot. The plants succeed well in soil prepared as for Auriculas—loam four parts, leaf-mould one part, decayed manure one part.—J. DOUGLAS.

NARCISSUS TRIANDRUS SUB-SPECIES CALATHINUS.

I QUITE agree with Mr. C. W. Dod in THE GARDEN, August 11 (p. 119), that the figure of N. calathinus from Mr. A. Rawson at p. 90 of THE GARDEN, July 28, really represents a form of the Portuguese N. triandrus, and not the sub-species N. calathinus of the Isle Drénec. In speaking of N. calathinus of Redouté, we should always remember that two distinct varieties are figured in his magnificent "Liliacées," and unless the particular figure is specified confusion may ensue. The figure of N. calathinus (Red. Lil., vol. vii., plate 410) represents the white, or nearly white-flowered plant we now have in cultivation from the above-named island off the coast of Brittany. Plate 177 in vol. iii. of the same work represents a pale yellow, or sulphur-flowered plant, not now known in gardens, but closely resembling some of the sulphur-coloured hybrids between N. Bulbocodium and N. triandrus vars., now occasionally found in Portugal, and Mr. T. G. Baker in his "Review of the Genus Narcissus," written in 1869, says he has "seen wild specimens only from the Isle of Glenans, in Brittany, gathered by Gay and others, and from Portugal gathered by Baron Paiva." Mr. Baker, in his new work "Amaryllideæ," places N. calathinus as a sub-species (not as a variety) under N. triandrus, and he therein refers to Redouté's figure 177 as representing typical N. calathinus, and he further observes that the figure at 410 (misprinted t. 40) is synonymous with the N. reflexus of Brotero, which connects it with the typical N. triandrus.

I believe the plant figured at plate 177 of Redouté's work will eventually prove to be a hybrid of N. Bulbocodium and N. triandrus, or possibly N. pseudo-Narcissus. Its colour, sub-erect flowers, and other features strongly resemble a hybrid variety from Portugal grown by Mr. Dod, and figured in *Gardeners' Chronicle*, 1877, fig. 78, p. 390. In his latest work, Mr. Baker places N rupicola as a sub-species under N. juncifolius; thus he has really accorded to that variety and also to N. calathinus the relative positions Mr. Dod believes they should occupy.

If any lover of Narcissi will take the trouble to refer to Redouté's "Liliacées" (there is a copy in the Linnean Society's Library in Piccadilly), they will find t. 177, which Mr. Baker now regards as typical N. calathinus, is quite as different from what we cultivate as the N. calathinus of Isle Drénec (t. 410); quite as distinct indeed, even if not more so, than the latter is from the N. triandrus albus of Portugal, now so common in our gardens. F. W. BURBIDGE.

Yellow Carnations.—Of the small collection I have grown this season, five varieties are well worthy of cultivation, viz., Edith, Florence, Pride of Penshurst, Will Threlfall and Germania. I have put them in the order in which they stand in my estimation, placing Germania as the highest. Edith and Florence have proved a little delicate grown in pots; probably the compost did not exactly suit them, and then the incessant rains have sorely tried all the more delicate members of the tribe. Edith is yellow; Florence has a pleasing shade of buff; the former has made but little grass; the latter will give me a few layers. Pride of Penshurst is a vigorous grower, but in this respect has to give place to Will Threlfall and Germania. The two last resemble each other in a few points, but as far as my experience goes Germania has rather more rounded petals and a slightly deeper shade of colour. Both are fine additions to this interesting class. I think it is likely they are both seedlings from Pride of Penshurst, as they partake much of its character. The two new yellow varieties are robust growers and make grass freely, and they will be also very fine border varieties. Nor do they appear to split their pods, which is a decided advantage. I can strongly recommend Will Threlfall and Germania as well worth growing for cutting purposes.—R. D.

NOTES ON LILIES.

FOR the last month we have been gay with the different varieties of L. umbellatum or davuricum, but they are now past, while several forms of L. elegans or Thunbergianum, which succeeded them, are on the wane, though there are some varieties still in bloom. There are, however, many beautiful Lilies now at their best, and included among their number is that popular favourite the Madonna Lily (L. candidum), which is certainly one of the finest and most commonly grown of all Lilies. In growing the Madonna Lily the great point is not to disturb the bulbs unless absolutely necessary, for if once planted and allowed to remain untouched they increase in strength year by year. Should, however, it be intended to remove any established clumps, or in purchasing any bulbs for planting, it must be borne in mind that the sooner this can be done after the flower stems decay the better, and while I have seen dormant bulbs of this Lily offered for sale up to Christmas, I should prefer to see them planted in their permanent quarters quite by the end of August, as the bulbs by then again commence to root. There are a few varieties of the Madonna Lily, none of which are, however, equal in beauty to the type. The principal are: variegatum, in which the young leaves are marked with bright yellow, which is especially noticeable during the autumn and winter months. In striatum the flowers are marked with purple, while a very singular form is monstrosum, in which the flowers are abortive and replaced by white petaloid bracts. A Lily which is by some regarded as a hybrid between L. candidum and the scarlet-flowered L. chalcedonicum is now in bloom. It is the nankeen-coloured L. testaceum, or excelsum, as it is sometimes called, and whatever its origin (concerning which there seems a good deal of doubt) it is a remarkably distinct Lily. L. chalcedonicum is not yet in flower, but is rapidly approaching that stage. The bright sealing-wax-like blossoms of this kind render it an extremely showy Lily. It is also very impatient of removal; indeed, I can never induce it to bloom in a satisfactory manner the first season after being disturbed. Most of the Martagon section are now in bloom, and while several shades of colour are to be found among different plants of the ordinary form the two extreme types are represented by the varieties album and dalmaticum; the last is characterised by very dark, almost blackish purple blossoms. There is a wide difference in the colour of the blossoms of those sold as dalmaticum, the very best type being somewhat difficult to obtain. We have now L. Krameri in bloom, both from newly imported bulbs and also from those that have been in the ground one and two years. With me, not far from London, on an open well-drained soil and in a sunny position, this suffers greatly. Indeed it is in all respects a delicate Lily, as may be seen by the imported specimens sent from Japan to this country covered with an air-tight coating of clay, for L. Krameri suffers more from the journey than any of the others. It is, indeed, a very distinct Lily, varying in colour from white to a sort of purplish pink.

The Himalayan L. polyphyllum is now in bloom, and, though it is certainly not a showy Lily, it is very distinct and possesses a quiet beauty. The flower is generally of a creamy-white tint, dotted more or less profusely with purple. The shape of the flower is a good deal like that of L. monadelphum, the flowering season of which has been past for some weeks. This Lily (L. polyphyllum) has a

very distinct bulb, which has a peculiarly elongated form, the nearest approach to it in shape being that of the Siberian L. tenuifolium. Of the North American Lilies the least particular in its cultural requirements is the Panther Lily (L. pardalinum), one variety of which (Bourgæi), a fine, bright coloured form, is earlier in expanding its blossoms than any of the others, at least with me. If planted properly, this Lily will push out at first its creeping rhizome-like bulbs in all directions and increase quickly in size. Though Humboldt's Lily (L. Humboldti) is so beautiful when in a thriving condition, it is far more often met with in an unsatisfactory state, while L. Washingtonianum is even more particular in its requirements. Besides these we have L. canadense in bloom, and a very beautiful Lily it is, doing well in a cool, slightly shaded spot in a soil principally composed of vegetable matter. L. parvum, which is by some considered to be a variety of L. canadense, is a remarkably free-flowering Lily, the ground colour being orange-yellow, while the interior of the flower is more or less spotted. As far as individual blooms are concerned, L. columbianum is very much like the last, except that the interior of the flower is much more densely spotted, while the bulb is altogether different, for in L. columbianum it is nearly round, and in L. parvum of a creeping rhizome-like character. The large heart-shaped leaves of L. giganteum stamp it as very dissimilar from all other Lilies, except the smaller but allied L. cordifolium, which, as far as I have seen, is only a curiosity. L. giganteum, on the other hand, forms a grand object when well grown and flowered, either in the open ground or grown in large pots and allowed to expand its blossoms under glass. Treated in this way it retains its beauty for a considerable time if the blossoms are not allowed to get wet. Though nearly all the forms of L. elegans or Thunbergianum are past, there is one, venustum, which has not yet one single bloom expanded. This variety is of a beautiful apricot colour without spots of any kind. Except that it is dwarfer, this Lily bears a marked resemblance in foliage and flower to L. Batemanniæ. Bulbs of this last are now imported in considerable numbers from Japan during the winter months, so that it should before long be more commonly grown than it is, for the fact that it does not bloom till the end of July is all in its favour, as the flowering season of so many Lilies is by that time past. H. P.

Some good Spiræas.—A new Spiræa which comes from France is one called S. gigantea. As yet it is but little known, but it is said to grow to an enormous height, and this statement is borne out by the great progress made in one season by the plants at Broxbourne. A large plant was received which was divided into very small pieces, all of which were planted in a moist situation, where they have grown very strongly, and some have sent up flower-spikes 4 feet high. The flowers are white, and borne in large heads; the foliage is of the palmata type, but larger and more vigorous. It is as yet hardly possible to form a true opinion of the character and capabilities of this new kind, but it certainly seems very promising. S. astilboides is somewhat new, very hardy and even dwarfer than the old japonica. The flowers are pure white and densely crowded upon the spikes, which are also freely produced. This is undoubtedly a vigorous and hardy Meadow-sweet of exceptional merit, and should be freely planted by all lovers of good hardy flowers. S. venusta has been very truly called the Queen of the Prairie. In moist situations it grows from 4 feet to 6 feet high, the shoots terminating in large dense heads of rosy pink flowers which are sometimes as much as a foot across. A moist or swampy situation suits this plant best. S. ballota is a dense dwarf-habited species that does not grow much more than 1 foot high and produces a mass of dark crimson flowers.

Gladiolus-flowered Cannas.—This very expressive name has been given to a new class of Cannas conspicuous for the beauty of their flowers, which much resemble those of a Gladiolus in form and size. Hitherto with a few exceptions the Cannas have been grown more for the beauty of their foliage, which imparts to them a very dignified aspect, and is, moreover, quite distinct. Usually, plants which are grown for beauty of foliage alone do not produce very striking flowers, and it has been so for many years with the Cannas, but these new varieties which are of French origin show evidence of a rapid and marked improvement, which probably will continue, and we may shortly look for something quite startling in this direction. We recently noted some in flower at Tottenham, especially good being Victor Hugo, a variety with dark leaves and large bright red flowers equal in size to those of Canna Ehmanni, and Edouard André, with flowers of a deeper red, but quite as large; Queen Victoria, with spotted yellow flowers, was also good. The Cannas do not receive half the attention they deserve. Where their culture is practicable, they are most effective in the open air in summer, and serve an admirable purpose by carrying the eye gradually upwards from the dwarfer subjects usually employed in the embellishment of the flower garden to the taller forms of tree and shrub life. They will also be found very useful when grown as specimens in pots for conservatory decoration, and by reason of the hardiness and texture of the foliage their beauty and freshness last a long time. We owe all the best of our Cannas to the French, and it is to be hoped they will continue in their good work of improvement, and give us some varieties that for beauty of flower will eclipse anything previously seen. The varieties above referred to amply show the capability of improvement.

SUPPORTING HARDY PERENNIALS.

The means of affording the needful support to hardy perennials is a question which often troubles the cultivator of these plants. To those well versed in their requirements it is always an operation occupying a considerable amount of time, besides calling for a knowledge of the habit of the plants and a display of tact and judgment, so that they may not be rendered unsightly objects in the garden. In The Garden of August 4 (p. 103), Jocelyn H. W. Thomas seems to have adopted the worst method of tying his plants, and has suffered considerably in consequence. I do not know of anything in the shape of supports more objectionable to the eye than that of binding a large plant in between three or four stakes by means of passing string or bast round the outside, the whole resembling a faggot. Not only are the natural habit and grace of the plant destroyed, but the shoots being crowded so closely together, the leaves soon turn yellow and the centre of the plant becomes bare. Again, as a means of support it is not safe, as if the fastenings give way at any place the whole collapses.

A plant that requires no tying is always more pleasing to look upon than one for which several stakes must be used, if we would preserve it from being broken and spoilt by storms of wind and rain. Anemone japonica and Rudbeckia Newmanni no doubt owe some of their popularity to their independence of any artificial means of support, and I must confess to a great partiality for plants which will grow and bloom without the assistance of stakes. However, the number of good things for which some kind of support is needful is so great, that we cannot afford to dispense with them, and a plant well tied certainly looks much better than one which has been left to fall about into a shapeless mass.

The stakes for the purpose should always have the bark left on, and be stout enough to support the shoots without looking clumsy. For the strongest growing species, such as Delphiniums, Helianthuses, and tall Asters, &c., stakes about 1½ inches in diameter at the base and from 5 feet to 6 feet long will be suitable. For a strong stool of Delphinium with say five shoots, three stakes should be sufficient, the strongest spike having one, to which it must be neatly secured with bast in about three places. The other spikes may be tied two to each stake. Plants of a more bushy habit, such as Asters, Rudbeckias, Chrysanthemums, &c., may have three or more shoots fastened to one stake, but only the main stems should be tied, all the small side shoots being left loose. The stakes must be firmly inserted in the ground, and the ties, without binding the stems too tightly, must be strong and secure.

The time to commence tying varies with different plants. Timely attention, however, is always preferable to delaying the operation until the shoots are beaten down, when they do not often recover their former position, always having a twisted appearance, and if required as cut flowers can with difficulty be arranged to look well. Many plants which do not grow more than 18 inches or 2 feet high can be kept up with twiggy branches, a few inserted on the outside of the plant, and one or two amongst the shoots. Branches of Spruce Fir from which the leaves have fallen are very suitable for the purpose, or the tops of Pea sticks answer very well. Clumps of Œnotheras, Heleniums, Achilleas supported in this manner are proof against wind and rain and have a pleasing appearance. Where the position is much exposed to wind, a few branches inserted round the outside of tall plants is a good protection to them.

Hindlip. A. Barker.

RUSKIN ON FLOWER GARDENS.

In Loudon's "Architectural Magazine" of nearly fifty years ago there is a series of interesting articles on "The Poetry of Architecture," by one "Kata Phusin," whose name cannot conceal him from any intelligent reader of Ruskin. The passages quoted below occur in one of them, and forcibly express conclusions to which a very limited experience in gardening had led me just when I first saw them.

A flower garden is an ugly thing, even when best managed; it is an assembly of unfortunate beings, pampered and bloated above their natural size, stewed and heated into diseased growth; corrupted by evil communication into speckled and inharmonious colours; torn from the soil which they loved, and of which they were the spirit and the glory, to glare away their term of tormented life among the mixed and incongruous essences of each other, in earth that they know not and in air that is poison to them. The florist may delight in this: the true lover of flowers never will. He who has taken lessons from Nature, who has observed the real purpose and operation of flowers; how they flush forth from the brightness of the earth's being, as the melody rises up from among the moved strings of the instrument; how the wildness of their pale colours passes over her, like the evidence of a various emotion; how the quick fire of their life and their delight glows along the green banks, where the dew falls the thickest and the low mists of incense pass slowly through the twilight of the leaves and the intertwined roots make the earth tremble with strange joy at the feeling of their motion; he who has watched this will never take away the beauty of their being to mix (it) into meretricious glare or to feed (it) into an existence of disease. And the flower garden is as ugly in effect as it is unnatural in feeling: it never will harmonise with anything, and, if people will have it, should be kept out of sight until they get into it. But in laying out the garden which is to assist the effect of the building, we must observe and exclusively use the natural combination of flowers. Now, as far as I am aware, bluish purple is the only flower colour which Nature ever uses in masses of distant effect; this, however, she does in the case of most Heathers, with the Rhododendron ferrugineum, and less extensively with the colder colour of the Wood Hyacinth. Accordingly, the large Rhododendron may be used to almost any extent in masses; the pale varieties of the Rose more sparingly; and on the turf the wild Violet and Pansy should be sown by chance, so that they may grow in undulations of colour, and should be relieved by a few Primroses. All Dahlias, Tulips, and

Ranunculi, and in general what are called florists' flowers should be avoided like Garlic.—(Dated) Oxford, October, 1838.

Enfield. W. Simmons.

LILIES AT TWICKENHAM.

The magnificent weather that burst upon us after the coldness and wet of July will give the Lilies of the auratum class a chance of making the gorgeous display they are well capable of. The wet spoiled the blooms of the earlier species and varieties, and spotted the ivory whiteness of the lovely L. longiflorum, but if the weather keeps bright and fine we shall be able to enjoy L. auratum, L. speciosum, &c., in all their beauty and freshness. We know many places where Lilies are well grown, but few in which they do so well, yet receive very little attention comparatively, as in the nursery of Messrs. Gordon, of Twickenham. A few weeks ago L. umbellatum was a mass of colour, and when each Lily has a long bed devoted to it, with the bulbs packed as closely as it is safe to do, the result is a display of great richness; and this is the way they are treated at Twickenham. There are great patches of, for instance, Lilium auratum, the foliage in the rudest health, and the plants showing a profusion of bloom. No special culture is followed. The bulbs, which are imported from Japan, are simply planted in the autumn, and sometimes in the spring, the soil being loam, with which is mixed the dust out of the Orchid peat. There is always a good stock of this, as Messrs. Gordon, besides being specialists in Lilies, make a feature of Orchids. It is astonishing how L. auratum has come to the front during the past few years. At first it was decried as tender, but opinions have changed since then. We have no finer Lily for the garden during the latter part of August and through the early autumn months, and it succeeds particularly well amongst Rhododendrons, in which it is grown at Kew. The growth of the Rhododendrons gives just that protection necessary in spring to prevent the young rising shoots of the Lilies suffering from early frosts. At Kew L. longiflorum is also blooming in some beds, the groundwork of which is filled with Rhododendron ferrugineum. At Twickenham there are large beds of L. longiflorum, and in an open field there is one of considerable width planted with it. When we see a mass of it like this an excellent idea can be obtained of its real worth for the garden. The habit is quite dwarf, and some of the stems bore five blooms each, many with three and four, and some again with only two. They are much in demand in the market, as their purity, bold trumpet shape, and striking character fit them for decorations of many kinds. In a wet season, of course, white Lilies like this have rather a hard time, as the blooms soon become disfigured by the rain, and in some cases they split. Messrs. Gordon also had plants of it in pots, and the glorious L. Harrisi, or the Bermuda Lily, a Lily of the greatest purity, very free-flowering, neat, and lasting a long time. It is an excellent kind for forcing. A bed of the variegated L. longiflorum was most striking; it is dwarf, the leaves glaucous, margined with white, a foliage plant of great beauty. Besides L. auratum, there are large beds of several forms of it, namely, platyphyllum, a mass of which was edged with the dwarf L. elegans sanguineum, a splendid flower for colour, this being very dark crimson, shaded with a hue approaching to black. L. auratum pictum, a. virginale, a. rubrum vittatum, and a. macranthum are varieties of the Golden-rayed Lily of Japan very much thought of. Virginale is, as its name suggests, white, with yellow bands, the segments broad, not quite so much as in the variety macranthum, which is very broad and full of substance; the petals massive, and thrown well back so as to show their breadth and colour, this being white, or nearly so, with dark spots and yellow central longitudinal bands. In many gardens we find magnificent clumps of L. auratum, some of the spikes carrying a great number of the striking flowers, but we might see more of it even than we do, as the bulbs cost but comparatively little. At Twickenham are two or three new forms of L. auratum which have not yet bloomed, but good things are expected.



The Canada Lily (Lilium canadense).

Another Lily that will soon be in full perfection is L. speciosum, one of the finest of all the later blooming kinds. Messrs. Gordon have a large stock of the beautiful s. album Krætzeri, which has a flower of the purest white, the centre of the reflexed petals studded with thick points that give them an additional distinctness. Such a lovely Lily is in demand everywhere. No one could be proof against the beauty of L. Krætzeri. In this nursery an almost constant succession of it is maintained by forwarding and retarding batches, and in the winter a good price is obtained for the flowers. We advise those who require a beautiful white Lily to make a note of this one, and they will not have made a bad purchase. Its natural season of blooming is September, and there will be a good display of it in the open ground; also of such varieties as L. rubrum, roseum, and rubrum cruentum, which has darker foliage, stems, and flowers than in the case of the ordinary rubrum, and is a beautiful Lily. There were large beds of these, and their healthy growth, abundant foliage, and profuse display of flower buds showed that they like the simple culture given. In one corner was a batch of L. Batemanniæ, of which a coloured plate was given in The Garden for May 17, 1879. It is of slender growth, and has long leaves that arch downwards, the flowers being half cup-shaped, segments spreading, and of a rich apricot tint somewhat hard to describe, and without spots. It is as yet very rare, although not a new Lily, and is a good grower, unlike the beautiful L. Leichtlini, of which a coloured plate appeared in The Garden for April 8, 1882. Mr. Frank Miles, describing this Lily in The Garden, says: "I found it would grow well in light, open soil, with a great quantity of drainage and partial protection from the morning sun." In a similar way it is grown at Twickenham, and it has done better this year than it has done before in this nursery. The colour is yellow, spotted with crimson, the segments folded back, and making a graceful bloom. It was flowering well at the time of our visit. Another beautiful Lily not very often seen is L. Krameri, and there was also a good group of this doing comparatively well, although in many places this is a troublesome Lily to cultivate with any great success. It is very slender in growth, the flowers delicately beautiful, the colour soft pink—a charming Lily when seen in anything like condition, but the wet has this season spoilt the beauty of the blooms.

The Tiger Lily will soon assert itself in the garden, as a week's sunshine will bring out the flowers. The type is well known; it has quite black stems, sparsely covered with a woolly down, and is dwarf compared with the variety splendens, besides being more slender. Of this there was a fine bed planted last March, the stems quite woolly and very robust, rising to quite 4 feet. There was also the old double-flowered kind and Fortunei, which makes a luxuriant leafy growth, and has rich orange-scarlet flowers spotted with crimson. Other excellent Lilies we noted were L. elegans, or Thunbergianum, as it is sometimes called; L. e. sanguineum, crimson and tawny yellow, very brilliant; L. e. atro-sanguineum, blood crimson with black spots, only growing about 18 inches; and L. e. Prince of Orange, which scarcely rises more than 1 foot, and has pale orange-coloured flowers of the cup-shape characteristic of this type of Lily. Nearly all these Lilies have been represented by coloured plates in The Garden, also L. canadense, of which a plate appeared in The Garden May 8, 1886, and we here give an illustration of this beautiful Canadian Lily. We need scarcely refer to it at any length in the present instance, as a most interesting account of it was given in The Garden July 28, 1888 (p. 88).

SHORT NOTES.—FLOWER.

Diseased Hollyhocks are plentiful again this year. A fine lot at Arundel were so badly affected that they had to be cut down.

Potato disease in the flower garden.—At Coate's Castle there was a fine bed of foliage produced by Castor-oil Plants, Maize, Solanums, Cineraria, and coloured Beet, but

the disease has seized the Solanums and totally destroyed them, leaving a sad blank.

Tufted Pansy Countess of Hopetoun.—I send you herewith a few blooms of the finest of white tufted Pansies, Countess of Hopetoun. This variety is of robust, short-jointed growth, and does not run weedy in hot summers, and the stalk is so stout that it always holds the flower erect.—W. H. Blair.

The Fruit Crops.

SOUTHERN DIVISION.

St. Dunstan's, Regent's Park, London.—Apples are a poor crop, the Codlins, usually plentiful, being thin. Blenheim Orange is plentiful; this is our best dessert Apple, and is in season from October until the end of January; the trees of this variety are much exposed to wind. Plums we have none of, and they are scarce in the neighbourhood. There was an abundant bloom on the Pears, but we have only a thin crop. Currants have been plentiful, but spoiled with wet. Strawberries were a good crop, but most of the fruits were poor in flavour, and many rotted on the ground. Raspberries were a good crop, and they ripened fairly well, but the flavour was very poor.—R. Butler.

Cambridge House, Twickenham. — The Apple crop in our gardens is much below the average, some of the trees a complete failure. With reference to the Apple as regards its quality as a dessert fruit, we find Cox's Orange, King of the Pippins, Ribston Pippin, and Golden Pippin best. Pears are a very favourable crop, small as yet. Plums are a partial crop. Cherries not very plentiful; Morellos are in great abundance. Peaches on walls not good; Nectarines are plentiful, but small; Apricots, poor crop and rotting on the trees before they are ripe; Strawberries, plentiful, colourless, and tasteless. Bush fruits plentiful, but small and clean.—John Munro.

Greenlands, Henley-on-Thames. — Bush fruits and Raspberries are very good, Strawberries plentiful, Cherries abundant, Apricots very few, and most varieties of Plums scarce. Pears are not abundant, but good on walls. Apples very poor, except Cox's Orange Pippin, Blenheim Orange, Cox's Pomona, Mère de Ménage, Alfriston, and Frogmore Prolific; these varieties on the Paradise are bearing good crops, other varieties very thinly, and some have no fruit at all. As regards quality as dessert fruit, the sorts I find the best are Cox's Orange Pippin, which is in season from October to February. It is very sweet, and the most certain bearer we have. Irish Peach best in August, Kerry Pippin in September and October; King of the Pippins is good, best flavour in November and December. Adam's Pearmain is a good sound keeping Apple and good bearer, in season from November to March; Fearn's Pippin in season the same months. Blenheim Orange is excellent either for dessert or kitchen use.—H. Perkins.

Lythe Hill, Haslemere, Surrey. — In this neighbourhood the crop of Apples is very late, as well as shy. I have planted 172 varieties which may be well reduced to 100 sorts, and of this number quite a third more may be taken out as useless. The following varieties do best here. Dessert: Cox's Orange Pippin, Cockle Pippin, King of the Pippins, Winter Quoining, Blenheim Orange, Court Pendu Plat, Irish Peach, Fearn's Pippin, Kerry Pippin, Court of Wick, Boston Russet, Margil, Beauty of Kent, Reinette du Canada, Gravenstein, Lord Burghley, Mannington's Pearmain, Ribston Pippin, Duchess of Oldenburg, Worcester Pearmain. Cooking: Lord Suffield, Cellini, Warner's King, Dumelow's Seedling, Echlinville Seedling, Hawthornden, Keswick Codlin, Emperor Alexander, Tower of Glamis, Waltham Abbey Seedling, Besspool, Duchess of Oldenburg, Rymer, French Crab, Dutch Mignonne, Lord Derby, Lady Henniker, Lane's Prince Albert, Peasgood's Nonsuch, Norfolk Beaufin. Cox's Orange Pippin is far ahead of all dessert varieties. Blenheim Orange I class as dessert, because with me it colours so well, and is above its average quality in flavour. I consider several of the varieties of dessert Apples too small for use, namely, Downton Pippin, Sam Young, Golden Harvey, Guernsey Pippin, and several others, now that there are so many good ones equal in flavour, free cropping, and finer in appearance. Of Pears, I note Seckle, Beurré Clairgeau, Williams' Bon Chrétien, Hessle, Passe Colmar, Huyshe's Prince of Wales, Gratioli, Madame Treyve, Conseiller de la Cour, and General Todtleben. Plums have not suffered so much, and are likely to be of good quality if we get some warm weather to ripen them. Peaches and Nectarines have suffered much from blister this season, and owing to want of sun are swelling very slowly. Strawberries are plentiful and very fine, but lacking flavour what are ripe, while the bulk of them are rotting wholesale before there is the least sign of colour. Raspberries are an abundant crop, and the same remark applies to these as well as to all other fruit—want of sun. The individual fruit is very fine. Currants, Red, White, and Black, are abundant and good. Gooseberries the same, and the trees are free from caterpillars. Scarcely any of these pests have shown themselves this season.

Potatoes.—The earliest varieties are turning out well, the tubers being fine and plentiful. Successions and late varieties are looking well, the haulm being very strong, and more than of average height. They appear to be making tubers freely. At present there is no spot or disease. I am afraid on rich and stiff soils the tubers will be sacrificed at the expense of the tops. I may note that with me the Scotch Champion the past season was not worth the trouble of cooking, owing, I think, to the past hot summer. This variety seems to want a cool summer or a retentive soil to bring out its best qualities. Chiswick Favourite was just the reverse, being fine in size, and the best flavoured Potato I ever tasted late in the spring.—A. Evans.

Brookwood Asylum, Woking.—The Apple crop is very light, not more than a tenth of what we had last year, and the leaves are very much eaten by caterpillars. Last year the crop in these grounds was a very heavy one, this and the very dry season being no doubt the cause of the scant crop this year. Pears are a very good crop, and I am a little surprised at this considering the enormous weight of fruit the trees bore last year and the very dry season. Plums with us are very heavy. We are obliged to prop the trees to keep the branches from breaking down, especially Victorias. Gages are a heavy crop, but not so much as last year; Black Diamond has a fair crop. Last year the crops of this sort were something marvellous; it is a fine kitchen Plum. Apricots are only about half a crop, but the trees are very healthy. Peaches and Nectarines are thin, but they bore heavily last year, and this with the dry weather checked them very much. Bush fruits very heavy, Black Currants particularly so. We gathered about 6 cwt. from 17 poles. Most of the bush fruit we have is grown under the standard fruit trees. Cherries were a very good crop. Damsons on young trees very heavy; thin on old trees. Of Strawberries, there was a fine bloom and plenty of fruit, but owing to the continuous wet weather much of it rotted before coming to maturity. I never knew Strawberries to have less flavour. We have some sixty or seventy sorts of Apples, but being bought at sales many of them are unnamed. Juneating is the earliest we have, but I have never had it ripe till the end of July here; it is a nice flavoured Apple if caught right, and should only be gathered a few at a time as they become fit. The Irish Peach Apple is a delicious fruit when gathered at the right time. It ripens in the end of August and beginning of September. I could always secure first prize for a dish of this sort in its season wherever I exhibited it when I was in Warwickshire; it bears freely on the ends of the shoots. We used to call it the Shooting Apple, as the gentlemen liked to take a supply with them in September. Yellow Ingestrie is a pretty little Apple, and is very refreshing when eaten at its best, but becomes mealy if kept too long. Devonshire Quarrenden is a very beautiful fruit when properly ripe in September. I never think of this sort without remembering an incident which occurred here when we had but few Apples, showing how absorbent of odours ripening fruit is. I placed a few dozens on a shelf in a large cupboard in the bottom of which was a jar (corked) containing carbolic acid. I sent these in for dessert without tasting them myself, but no one could eat them, and I was asked if I had saturated them with tar. I have been very careful ever since in storing fruit not to have anything about them which would be detrimental to their flavour. Kerry Pippin is an excellent Apple, not large, but beautifully coloured, crisp, and juicy, and of good flavour. It comes into use in September and October, and will keep good for several weeks. Cox's Orange Pippin is the finest flavoured Apple we have, and if I was tied to one sort only, this is the one I should prefer. Ribston Pippin is nowhere by the side of it on this soil; in fact, it will not thrive, and cankers badly, while Cox's Orange Pippin grows well and fruits freely. It is an excellent keeper. We have it in good condition from October to March; this sort cannot be too extensively grown, as it must always fetch a good price. King of the Pippins, or Golden Pearmain, is a very handsome, free-bearing sort, but is only second-rate as regards flavour when at its best. It will always be sure to hold its place as a market Apple, owing to its appearance and freedom in cropping. Blenheim Pippin is, perhaps, the most handsome Apple we have. The flavour is very good, and like no other sort in this respect. There are two varieties of it here, one very much smaller than the other, but the flavour is the same in both. This may be owing to the stock. This sort and Orange Pippin are always well to the front at the autumn shows. We have two or three kinds of Golden Pippins, brisk, crisp, and juicy. I find Court Pendu Plat a very useful dessert Apple, good in flavour and colour, and keeps well; this sort often has a crop, owing to its late blooming qualities, when others fail. Cornish Gilliflower is a very good dessert Apple, but it is too shy bearing ever to be of much use. It has a good deal of the Ribston flavour about it. We have several sorts of Russets, but the best, to my mind, for dessert is Brownlee's; it is a handsome fruit, though not large, keeps well, and has a nice brisk flavour; it is also firm in the flesh.—R. Lloyd.

Chevening, Sevenoaks.—The best dessert Apples are Cox's Orange Pippin, Ribston and Sturmer Pippins. We rely wholly on these three sorts, to which may be added Irish Peach and Summer Golden Pippin, for early use. The best kitchen sorts are Warner's King, Echlinville, Stirling Castle, Duchess of Oldenburg, Lane's Prince Albert, Cox's Pomona, Winter Hawthornden, and Blenheim. The crops of Apples are moderately good.—R. Gray.

Holmewood Park, Tunbridge Wells.—We had a fine show of bloom, on the Apple trees in particular, but both flowers and leaves were destroyed by the caterpillars. In good seasons I find Cox's Orange Pippin the best of all the dessert Apples. Irish Peach and Astrachan colour up well and are of good flavour. Ribston Pippin is no exception to the rule or character it bears; in some seasons we have it as good as anyone could wish. The following varieties are generally very good: King Pippin, Cornish Aromatic, Cornish Gilliflower, Court of Wick, Court Pendu Plat, Fearn's, Kerry, and Lemon Pippins; Golden, Rosemary, Royal, and Sykehouse Russets do well here. Blenheim Orange is uncertain, but grand when we get it. Lord Suffield, Cox's Pomona, Cellini, very seldom fail, and this season are carrying a fair crop, though under the average; other varieties are more uncertain with us. Pears are under the average; Plums the same. Cherries, both on walls and bushes, are abundant. Strawberries, Raspberries, Currants, and Gooseberries are quite up to the average, though much damaged by the heavy rains we have had.—S. Pope.

Wierton House, near Maidstone.—Apricots have all fallen off since setting, from the wet and cold. Plums and Damsons are a light crop in general, but in a few favoured spots there is a good supply. Cherries were very plentiful, but spoiled by heavy rains and want of sun. Peaches and Nectarines are a light crop, and small trees unhealthy through curl and mildew. Figs a heavy crop, but rotting and falling off. Apples are a thin, poor crop generally, having suffered so much from maggot and cold winds, the best crops being where the

trees are most sheltered. They were healthy until the maggot appeared, when scarcely a green leaf could be found; fruit small. Pears are a light crop, trees healthy, fruit small, wanting in sun. Strawberries a very heavy crop and good, and many of the fruits spoiled by the wet and want of sun. Raspberries a good crop and fine. Gooseberries of all kinds good and the crop large, but wanting in flavour. Currants, Red and White, very fine and a heavy crop; Black are thinner, but large. Nuts, Filberts and Cobs must be a thin crop everywhere, as the trees are nearly eaten up with maggot. Walnuts a full crop, rather small. The best dessert kinds I have found for flavour are Ribston Pippin, Margil, King of Pippins, Cellini Pippin (when fresh gathered), Cox's Pomona, Summer Golden Pippin, Worcester Pearmain, and Cornish Gilliflower, always good, but a shy bearer.—W. Divers.

Mereworth Castle, Kent.—I can give only a very unfavourable report of the Apple crop in this neighbourhood. In some large fruit orchards, which are fairly well sheltered, there is a very fair sprinkling of fruit. We were favoured with fine strong flowers, and the trees bloomed very late, but the bitterly cold wind we experienced throughout that important period proved too much for them, consequently the flowers dropped wholesale. In many instances the trees also suffered terribly from grub, which completely crippled them. As regards flavour, our favourite sorts are Blenheim Orange, Cox's Orange Pippin, Ribston Pippin, King of the Pippins, Claygate Pearmain, and Cornish Gilliflower. The last mentioned variety is only a very shy cropper here, but, notwithstanding, is grand for flavour, and is highly esteemed on that account, and as an early sort Devonshire Quarrenden is highly thought of. Of Pears we have a capital crop, some sorts bearing well, and especially is this so with Marie Louise on a western aspect. We have a very poor crop of Apricots, but Peaches and Nectarines are very good. Hale's Early and Early York always crop well. Early and midseason varieties we find the best, as very late Peaches scarcely ever ripen satisfactorily, and will in time be done away with. Strawberries have been heavily cropped, but the fruits were wanting in flavour, while Red, White, and Black Currants are especially fine. Raspberries, too, are good, but lack flavour. Gooseberries of sorts are heavily cropped, and the same remarks apply to Cherries, which are of fine size. Rivers' Early has proved here an excellent early sort, and crops constantly. Plums of sorts are only thin. Nuts at one time promised well, but were seriously crippled with the grub, and have resulted in a thin crop. Walnuts are very good.—Herbert Markham.

Somerley, Ringwood, Hants.—Apricots and Plums are a very good crop; Cherries and Strawberries good. Apples and Nuts average, and Peaches and Pears under the average. Bush fruits were very plentiful. The best all-round dessert Apple we have here is Cox's Orange Pippin; it is of splendid flavour and melting flesh. Our best dessert varieties, including the above, are Devonshire Quarrenden, Kerry Pippin, Cox's Orange Pippin, Claygate Pearmain, Old Golden Pippin, Northern Spy, Cockle Pippin, and Sturmer Pippin. This is not a good district for Apple growing, the soil being particularly shallow and generally light, and the atmosphere very damp, which promotes the rapid growth of Lichen on the branches of the trees, which can only be kept clean and healthy by considerable trouble and labour.—G. H. Richards.

Leigh Park Gardens, Havant, Hants.—This season's fruit crop is not up to the average. No doubt the severe drought last summer was much against the trees making sufficient wood to enable them to carry a crop of fruit, and the very ungenial spring following caused the trees to bear limited supplies. However, some Peach and Nectarine trees are bearing fairly good crops. Plums are thin, with the exception of Victorias, which are very prolific and a most reliable sort to plant for a crop. Morello Cherries are ripening off a fair crop of very fine berries. Apples—the best sorts for the season are Mère de Ménage, Keswick Codlin, Lord Suffield, Beauty of Kent, Ribston Pippin, Kerry Pippin, King of the Pippins, Blenheim Orange, Cockle Pippin, and Sturmer Pippin. Pears are thin, but trees healthy and vigorous. Currants are fairly good, and the same may be said of Gooseberries. Strawberries promised a fine crop, but the heavy rains have quite rotted the fruits on the ground.—C. Penfold.

Hackwood Park, Basingstoke.—The fruit crops in this district are much under the average. Apples almost a failure; the following are the best: Lord Suffield, Peasgood's Nonsuch, Hambledon Deux Ans, Irish Peach, Court Pendu Plat, Ribston and King of Pippins. Pears: Marie Louise, Beurré Diel, Pitmaston Duchess, and Catillac are the only sorts on walls that have fruit on them. Peaches are very thin and trees badly blistered; the best are Hale's Early, Royal George, and Alexandra Noblesse. Apricots about half a crop. Cherries under the average. Plums scarce, except Victorias and Pond's Seedling, which are an average crop. Strawberries very good, but a great many rotted owing to the heavy rains, of which we registered 7·59 inches during the month. Gooseberries and Currants above the average. Raspberries the heaviest crop for several years. Walnuts good; Filberts a failure.—J. Bowerman.

Elvetham Park, Winchfield.—The fruit crop, especially of Apples and Pears, in this neighbourhood is the worst we have had for years. Owing to the ravages of the caterpillar, some trees were entirely denuded of foliage and fruit, and the fruit remaining will be much deformed. The following dessert sorts of Apples are to be relied on for quality, viz, Cox's Orange Pippin, grand quality, Ribston Pippin, Cockle Pippin, Margil, Court of Wick. Of other sorts we have Devonshire Quarrenden, Fearn's Pippin, Summer Golden Pippin, King of the Pippins, Court Pendu Plat, bearing light crops. Of kitchen varieties the following are bearing a few fruits: Hawthornden, Dumelow's Seedling, Dutch Codlin, Keswick Codlin, other sorts being a failure. Pears on walls of the following are only thin, viz., Forelle, Jargonelle, Glou Morceau, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess; on bush trees a failure. Apricots a failure, Peaches under the average, Plums under the average; Cherries—Bigarreau Napoleon, grand quality, May Duke, Elton, Governor Wood, Morello good crop and fine fruit. Strawberries poor, Raspberries and bush fruit very good; Filbert Nuts under average.

Potatoes are a good crop, but only second rate in quality, and showing signs of the blight.—Thos. Jones.

Dogmersfield Gardens, Winchfield.—The fruit crops in general in this locality (excepting small fruits) are below the average. Apples are almost a failure. The trees bloomed well, but the leaves later on were almost entirely destroyed by caterpillars, and indeed in some gardens the trees looked as if they could not recover. Our best cooking varieties, taking them as they come into use, are Frogmore Prolific, Lord Derby, Golden Noble, Blenheim Orange, and Belle Bonne. The last-mentioned is a variety very little grown. We find it most useful, coming into use when other good varieties are over, and it is of excellent quality here. Our best dessert varieties are Mr. Gladstone, King of the Pippins, Cox's Orange Pippin, Blenheim Orange, Ribston Pippin, and Court Pendu Plat. Pears of some varieties in this garden are a good crop, viz., Seckle, Marie Louise, Pitmaston Duchess, and Easter Beurré, and promise to be good in size and quality. Other varieties are below the average. Peaches and Nectarines with us are also not an average crop, owing probably to an insufficient supply of water last summer. The trees bloomed well, but the flowers appeared weak and incapable of setting. Apricots we have scarcely any, which I undoubtedly attribute to a heavy crop and an insufficient supply of water during the hot, dry weather of last summer. Cherries are an excellent crop, above the average, and of first-rate size and quality. They are all grown on a north wall. Figs on a south-east wall are an excellent crop, but I fear will not ripen this season unless we soon get more sun. Plums of all kinds are thin, especially dessert varieties. Strawberries have been an enormous crop and very large. A good many were spoilt by the rain, but all the best were propped clear of the ground with forked sticks. The new late variety Loxford Hall Seedling we have grown this season for the first time, and it is, I think, a grand acquisition. Owing, however, to its dwarf-growing habit, it requires planting much closer together than most varieties. The fruit is large, of good shape and colour, and of excellent flavour. Raspberries are also abundant here, the fruit very large in size, but deficient in flavour. Gooseberries, Red Currants and Black Currants are all bearing very heavily and of large size, the heavy rains on our light, well-manured soil having swelled the fruit to the largest size. Nuts and Walnuts are about an average crop.—G. Trinder.

Farnborough Grange, Hants.—Apples are a very thin crop, many trees fruitless and the foliage destroyed by maggot very early. Pears under average, very small, a few kinds bearing a heavy crop on walls and pyramidal trees. Plums are a heavy crop, some trees being loaded, especially those that were thin last year. Peaches are not much grown here; the few we grow are good, though very small and late. Apricots are a thin crop, Moorpark, Hemskirk and Shipley being, however, good. Cherries, especially the Morello, are over the average, the fruits large and the trees very clean. Strawberries were a poor crop, old plants barren, young plants fruitful. Gooseberries carry a very heavy crop, and the trees are clean and the berries very large. Currant trees are loaded. Nuts are poor, almost every leaf on Filberts and Cobs being destroyed by maggot. Figs are not much grown, but there is an average crop where trees are well situated. Many trees promised well and now are fruitless, but the maggots swept away both fruit and leaves in many cases. A large Pear on a south wall bloomed finely, the fruit attaining the size of large marbles and the attack of maggot has only left us about one dozen fruits instead of three bushels, which we usually get from it. Many trees both of Apples and Pears have fared no better. Many thought the hot summer last year would certainly give us a grand crop this year owing to the well ripening of buds and wood, but I observed many trees had no bloom. The conclusion I came to was that the trees suffered on our high soil from lack of moisture in autumn. A few Pear trees bear good crops, namely: Louise Bonne of Jersey, Beurré Superfin, Josephine de Malines, Conseiller de la Cour, Olivier de Serres, Zephirin Gregoire, and Beurré d'Esperen. Apples are the same, viz., Dutch Mignonne, Royal Russet, Wellington, Echlinville Seedling, Adam's Pearmain, Margil, Sturmer Pippin and Alfriston. The fruits of Apricots dropped considerably when stoning, and many trees died off with canker, &c. Plums are the crop of the season here. Many trees are loaded and must be supported; Victoria, Orleans, Prince Englebert, Dymond, Golden Drop, Denniston's Superb and Bryanston Gage varieties are excellent, but many of the finest types of Gages carry a light crop. Peaches, I fear, will not ripen unless we get a dry, warm autumn. Strawberries were thinly bloomed, and the fruit was soft and tasteless; even the variety Dr. Hogg was poor. Many rotted on the plants even when propped up by twiggy sticks. Currants and Gooseberries are very good. It is the worst summer we have had here for eleven years.

The Potato disease is making sad havoc in this neighbourhood. Many kinds are leafless already. Beauty of Hebron, the Ashleafs, and even the White Elephant varieties are not strong enough to stand its effects. Many of the newer kinds are equally as bad. Miss Fowler, M.P., Queen of the Valley, and Abundance are all affected, and unless there soon comes a change in the weather we shall have a large quantity of useless Potatoes. For the last six or seven weeks we have had scarcely a day without rain.—John Crook.

Cowdray Park, Midhurst, Sussex—Apples with us are a good half crop; Pears, half crop or less. Plums are thin, with the exception of Victoria and Damsons, which are bearing very heavy crops. Cherries are a heavy crop, both sweet and Morello

varieties. Peaches very thin; the trees have suffered very much from cold weather. Apricots none, as the bloom was spoiled. Walnuts and Nuts plentiful; also bush fruits. Strawberries are a good crop, but the fruit has been damaged with wet.

Potatoes are becoming badly diseased.—F. Geeson.

Normanhurst Court, Battle, Sussex.—Our fruit crops, with the exception of Apples, are a very good average; Pears are good and clean, and Peaches, Plums, and Nectarines are good, but require a lot of attention to keep them free from blight. Dessert Cherries are poor, but Morellos are plentiful and good; bush fruits also plentiful. Strawberries were a good crop, but, owing to so much wet, the fruit was of poor quality. Apples bloomed and set well, but suffered to a great extent from maggot; the best dessert kinds with us in various seasons are White Juneating, Red Astrachan, Irish Peach, Devonshire Quarrenden, Cox's Orange Pippin, King of the Pippins, Adam's Pearmain, Cockle Pippin, and Sturmer Pippin. The best kitchen sorts are Keswick Codlin, Mère de Ménage, Cox's Pomona, Striped Beaufin, and Waltham Abbey Seedling. Lord Suffield, Hawthornden, and Cellini Pippin will not do here, as the trees canker badly the first year of planting. We are very much exposed to east winds.—W. Allen.

Handcross Park, Crawley.—The fruit crops here and in the neighbourhood are much under the average, and, excepting in sheltered situations, Apples are a complete failure. Pears are thin, but clean and promising. Plums are very scarce. Cherries plentiful, but small. Bush fruit is good, and Strawberries abundant, but they suffered much from the excessive rain. As we are so exposed to wind, Apples are grown here chiefly in bush form, but we have found the following varieties very productive and best flavoured for table use, of which some good samples are frequently grown: *Early varieties*—Irish Peach, Devonshire Quarrenden, Kerry Pippin. *Oct. and Nov.*—King of the Pippins, Mabbot's Pearmain, and Ribston. *Nov. and Jan*—Fearn's Pippin, Cox's Orange Pippin, Cornish Gilliflower, Blenheim Orange, Court Pendu Plat, Adam's Pearmain, Golden Harvey. *Jan. and March*—Sturmer Pippin, Claygate Pearmain, Scarlet Nonpareil, Golden Knob, Cockle Pippin, Besspool, and Warwick Pippin. The trees have suffered much from the caterpillar in spring.—A. Offer.

Folkington Manor, Polegate, Sussex.—I have visited three different parishes and have made inquiries from those living at a distance with the following result: Apricots none. Currants, Gooseberries, and Raspberries are a full crop. Figs on standard trees a failure, but trees on walls are bearing fair crops. Pears on standards a blank, but on walls good crops of such varieties as Jargonelle, Passe Colmar, Glou Morceau, Beurré de Capiaumont, Louise Bonne of Jersey, Marie Louise, Winter Nelis, Knight's Monarch, Ne Plus Meuris, and Josephine de Malines. Cherries are a moderate crop of May Duke, Bigarreaux, and Elton, but Morellos are very poor, and do not thrive on this chalky soil. With regard to Apples, old trees that have rooted down into the chalk have not a third of a crop; espaliers and pyramids are better. Of kitchen sorts that have a good crop are Cellini Pippin, Lord Suffield, Northern Greening, Hawthornden, Manks Codlin, and Alfriston. Dessert kinds have only a moderate crop on any tree; these are King of Pippins, Scarlet Nonpareil, Kerry Pippin, Old Nonpareil, Blenheim Orange, and a sort called Golden Knob. This is a very late keeping variety, and gets very sweet towards spring. Out of the above sorts the best flavoured one is Scarlet Nonpareil; next, King Pippin, Blenheim Pippin, and Golden Knob in the order named.—Thomas Record.

Addington Manor, Winslow, Bucks.—We have not many varieties of Apples, and this year they are bearing a poor crop; even Lord Suffield, which I never saw without a good crop, is a failure. On most of the trees there was very little blossom. Pears and Plums are both short crops. Bush fruits of all kinds are plentiful. Raspberries are particularly fine. Strawberries were plentiful, but of little use, as the continuous wet weather damaged the fruit which had no colour and no flavour; indeed, a great portion of the fruit rotted before it even became ripe.—John Mathison.

Hughenden Manor, Bucks.—The fruit crop in this neighbourhood is far from satisfactory, although there was a fine show in the spring. Apples and Pears are scarce, not bearing half a crop. Of Plums and Cherries there is a fair sprinkling on some trees, Morellos being a good crop. Apricots and Peaches are very poor. Currants, Gooseberries, and Raspberries very good. Strawberries are excellent as regards the size of the fruit, but only a light crop, as many plants were blind. Figs are under the average, and Nuts very scarce.—W. Head.

North Mimms Park, Hatfield, Herts.—The fruit crops in these gardens are excellent and most abundant, but owing to the unprecedented wet weather and very cold low temperature, which have been the rule all this summer, both Raspberries and Strawberries have been very deficient in flavour. By protecting the Peach trees when in flower on the open walls with tiffany I saved a very large crop of fruit, and had I not protected the trees in that manner all the bloom would have been completely destroyed by cold east winds and severe frosts, which occurred night after night until the fruit was set. Both Pears and Plums are a very heavy crop. I never met with a larger crop of Plums; I have found it necessary to thin the fruit very much. Cherries are a good crop, and the fruit is of fine size, especially the Morello. The Apple trees were very late coming into flower, and did not bloom so profusely as usual. There is a good crop of fruit here. For some reason, I am quite unable to explain how it is the trees escaped the ravages of caterpillars, which caused so much destruction in all the gardens and orchards in this neighbourhood, in many places completely destroying the Apple crop. Here, Apples both for dessert and cooking have been in great demand. For dessert the earliest and most attractive looking is Duchess of Oldenburg. The very best Apple for good flavour, free constant cropping, and good keeping qualities is Cox's Orange Pippin, and in my estimation it is the very best dessert Apple grown. Next in order of merit rank Ribston Pippin, King of the Pippins, Fearn's Pippin, Kerry Pippin, Gravenstein, and Sturmer Pippin. The best cooking Apples for giving a constant supply of fruit are Keswick Codlin, Lord Suffield, Warner's King, Blenheim Orange, Northern Greening, and Dumelow's Seedling.—Jno. McNicol.

Digswell, Welwyn, Herts.—Apples here are a good average crop. Our trees are large and old, and have their roots buried deep in the subsoil. Smaller and younger trees that have few or no deep roots have little or nothing on them. Most of them flowered profusely, but, lacking the necessary strength through, I presume, the great drought of last summer, most of them have dropped off. The following sorts are doing best with us: King of the Pippins, New Hawthornden, Worcester Pearmain, Blenheim Orange, Cox's Orange Pippin, Keswick Codlin, Yorkshire Greening, Beaufin, Ribston Pippin, Echlinville Seedling, Dumelow's Seedling, Court Pendu Plat. Plums good on walls. Standards have a few fruits. The trees are very clean through the late rains, and are making considerable growth, which we should like to see well ripened. The following sorts are best with us: Denniston's Superb, Orleans, Purple Gage, Pond's Seedling, Coe's Golden Drop, Cox's Emperor, Victoria, Kirk's. Peaches and Nectarines we grow chiefly under glass; those under cultivation outside are carrying satisfactory crops. Pears may be pronounced good; on the whole, many of our trees trained to walls are bearing good crops, particularly Marie Louise, Louise Bonne of Jersey, Pitmaston Duchess, Bon Chrétien. Apricots none. Cherries have been fairly plentiful, but very badly cracked. This and the constant wet weather we have experienced for the last six weeks have caused a great number to rot. Bigarreau, May Duke, and Morello are the best with us. Trees clean, and the wood vigorous. Gooseberries very fine and very plentiful. Black Currants very fine; Reds average. Raspberries have been and are still very fine and plentiful, but are deficient in flavour. Strawberries are a fairly good average, but the constant rains washed out the flavour very much. The plants most fruitful with us this year are those planted sixteen months on well-manured, deeply dug ground, the older beds producing the greatest number of blind plants.—John Anning.

Knebworth Gardens, Herts.—The fruit crops in this district vary very much, and perhaps the Apple crop most of all. In some orchards and gardens I have looked through there is a fair average crop, while in others the crop is very thin or none at all. In our 3-acre orchard we have a good average crop. Such kinds as Ribston and Sturmer Pippins, Irish Peach, Juneating, Court of Wick, Duchess of Oldenburg, Brownlow's Russet, and the little Golden Harvey among the dessert kinds, and Beaufins, Keswick and Dutch Codlins, the old Nonsuch and Majetin of kitchen sorts, are carrying very heavy crops. Wellington, which gave such promise in the blossom, is only a third of a crop; while several varieties of the Pearmains which we can usually depend on for a crop have not a single fruit on them. On our uncongenial soil—a diluvial drift resting on a cold clay subsoil of some 10 feet to 15 feet in depth, and thickly impregnated with iron oxide—it is almost impossible for us to have fine quality and good-flavoured dessert Apples, and our best efforts have, during our twenty years' charge here, been directed to finding out not only which is the best flavoured, but which are the best and hardiest kinds most suited to the soil and locality. The following varieties we have found to be the best for our position, and also the best flavoured in their respective seasons, viz., Irish Peach, Court of Wick, Herefordshire Pearmain, Cox's Orange Pippin (rather shy bearer), Ribston Pippin (very liable to canker), Fearn's Pippin, Sturmer Pippin, King of the Pippins, Court Pendu Plat, and Brownlow's Russet. The three last named are our best latest kinds, the last variety being our very latest best. Of stone fruits, Apricots are a failure; they blossomed freely, and most of the bloom was imperfect. Cherries are abundant and good. Plums on the walls with us are a fair average, and generally so on north walls. Standards are very thin of fruit to none at all. Peaches a fair average, late, and likely to be small. Pears not up to the average, especially on walls. We have standards of Louise Bonne, Beurré de Capiaumont, Ne Plus Meuris, Williams', Autumn Bergamot, Vicar of Winkfield, Chaptal, and Bezi d'Heri borne down with fruit. Bush fruits are much over the average and good. Red Currants are exceptionally fine. Raspberries are the best and heaviest crop of fruit we have had for several years past, Baumforth's and Semper Fidelis being the best. The Strawberry crop is a very unequal one, in some gardens none; especially is this the case where for lack of supply no water could be given to the plantations last summer. In our own case we had a very heavy and fine crop of fruit, but sadly damaged with rain. Our plantations received copious supplies of water last year, and the only blind plants we had are a few in a row of the variety Sir Charles Napier.—J. Kipling.

Tring Park, Tring.—Apples and Pears with us are a very poor crop. Apricots under the average. Plums are only a partial crop. Cherries, especially Morellos, are plentiful and fine. Bush fruits are most abundant and good. Strawberries a heavy crop and fruit fine, but much injured by rain. Nuts a light crop, and Walnuts fair.—E. Hill.

Bedfordshire (North).—Apples one-third crop only. Fruit small, specked, and late. The following dessert sorts generally do well on the warm sandy soil of Bedfordshire, and are of good quality as early and second early varieties, viz.: Early Red Juneating, not fruiting 1888; Mr. Gladstone, a fair crop, but not yet ripe; Schoolmaster, a good crop, but smaller than usual; Williams' Favourite, Early Strawberry, Hall Door, Tetoffsky, and Peasgood's Nonsuch have little fruit and appear to be smaller and later than usual. The Blenheim Orange succeeds well on the cooler lands on trees of some years' growth and where not affected by spring frosts, but

is a partial failure this season. The Ribston Pippin is not often seen in perfection in this district. Cox's Orange Pippin does not come up to the fine samples produced in Kent, and King of the Pippins is poor and unimportant. Pears an average crop, but very late. Doyenné d'Ete not yet ripe on the Quince. The most reliable good quality Pear is Louise Bonne of Jersey. Conseiller de la Cour, Beurré Superfin, and Mme. Treyve are mostly reliable and good, and are cropping fairly well this season. Plum crop average, but great numbers have dropped in stoning. Cherries, full crop; the Duke class are very good. Governor Wood has generally proved a reliable and excellent fruit, but this year is smaller and the fruit much split by wet. Peaches, half crop; Nectarines, ditto; Apricots, ditto, small and late; Strawberries, a good average crop as a whole, but many varieties, including notably Sir C. Napier and Eleanor, have scarcely borne any fruit. King of the Earlies has proved itself a continuous bearer and of very fine quality. Noble has been especially fine; President, a full crop and good; Sir J. Paxton, half crop. Varieties of the British Queen type have not ripened their fruit thoroughly, and the quality of all is below the average. J. Veitch and Trollope's Victoria have cropped enormously, but the fruit is almost uneatable. Raspberries, very full crop and fine, but quality generally inferior. Baumforth's Seedling has the largest fruited seed and flavour good. Hornet (American) and several other older varieties, however, appear indistinguishable from Baumforth's. The finest flavoured berry is Brinklow's Orange. Gooseberries an average crop, except those of the Champagne type. Whinham's Industry, Crown Bob, and Rumbullion are bearing heavily, but fruit small, late, and inferior. Currants are generally small and flavour wanting in sweetness; the Red Versaillaise quite sour. Nuts, a very thin crop: Walnuts, a heavy crop, and even young trees are laden.—THOMAS LAXTON.

Highclere Castle, Newbury.—Apples are a poor crop, and also very disappointing in quality; we had an excellent show of bloom, but it fell off very quickly. A plague of grubs and caterpillars completed the mischief by riddling the young shoots and leaves. Altogether it is the worst Apple year I have known for a long time. The following dessert varieties are the best here for flavour: Juneating, Margaret, Early Harvest, Irish Peach; these should be eaten as soon as gathered ripe from the tree in July and August. Devonshire Quarrenden, King of the Pippins, Summer Golden Pippin, Kerry Pippin, Cox's Orange Pippin, Margil, Ribston Pippin, Claygate Pearmain, Scarlet Nonpareil, Cornish Gilliflower, Court Pendu Plat are also good. Pears are about an average crop, the fruit being fairly clean and promising. Peaches, Nectarines, Plums, and Apricots are all short crops, but, excepting Peaches and Nectarines, the trees are making plenty of clean healthy growth, and, given a fine autumn, promise well for another season. Cherries have been very good, setting an abundance of fruit generally. Strawberries have been very abundant and very fine, but the long spell of damp, sunless weather and frequent rains caused much of the fruit of the softer varieties to rot on the ground, President being the worst offender. Currants, Gooseberries and Raspberries have been plentiful and very good.—WM. POPE.

Bray Court, Maidenhead.—The Apple crop in the orchards in this neighbourhood is about the worst I remember. There was very little blossom and the trees are fruitless. We have fairly good crops on pyramid trees grafted on the Paradise stock. There is a good crop of Pears and Plums both on walls and standards. All kinds of bush fruits plentiful and good.—JAMES MOORE.

Goodwood, Chichester.—Apple crops in this locality are a general failure, as there are only a few to be seen in favoured positions. As regards flavour, we find the best are Cox's Orange Pippin, Ribston Pippin, Cockle Pippin, a most esteemed Apple in Sussex, being a good keeper and of excellent flavour generally; it is a good cropper, but there are few to be seen this season; Adam's Pearmain, Margil, Nanny, Worcester Pearmain, Melon Apple, and Old Nonpareil. These varieties we find the best in flavour. Apricots and Plums are a very thin crop. Peaches and Nectarines an average crop with us, but not generally so in this locality. Strawberries have been an excellent crop, the fruit large and fine and of fairly good flavour. Bush fruits are generally good, with the exception of Red Currants, which are a little under the average crop. Filberts and Cobs are under the average.

POTATO crops badly diseased in this district.—F. RUTLAND.

Waresley Park, St. Neots.—The fruit crops in this district are a fair average, although very late. Apples are rather thin, but some sorts, notably Keswick Codlin and some of the Pippins, are a good crop. Pears are very abundant, some varieties having required thinning. Beurré d'Amanlis, amongst a good many sorts, is one of the best, the fruit when ripe being very luscious and refreshing. Plums are very scarce, but Cherries are plentiful. Apricots are a very good crop, the fruit being excellent. Peaches and Nectarines outside are very scarce, but the trees are healthy and making good wood. Strawberries have been a fair crop, but deficient in flavour, owing to the excess of rain. All sorts of bush fruits have been abundant and of good quality. Walnuts are plentiful, but other sorts of Nuts are scarce.

Vegetables of all sorts are abundant, but on good land there is a danger of them being too large. Potatoes at the present time are very fine, and if the weather now would continue dry they will be an immense crop.—R. CARTER.

Pendell Court, Bletchingley.—Speaking generally, this is an unsatisfactory fruit year, and this, too, through causes over which the cultivator has practically no control, viz., unpropitious weather at critical periods, but more particularly has this been the case with orchards, or trees growing in the open breaks. With wall trees, or where protection was afforded, matters are not quite so bad. Both Pears and Apples flowered fairly well, but the trees were attacked with maggot, which made short work of the embryo fruits, crippling and thinning them so much that there is not half a crop of either left. Cherries, however, were an average crop and of good quality, and the fruits of the Morello variety are swelling out well. Currants and Gooseberries were a fairly good crop and of capital quality, while Raspberries and Strawberries were extra fine both in size and quality, but some of the sorts of Strawberries did not stand the wet weather very well. Especially was this the case with the finer flavoured sorts, like Sir C. Napier; while, on the other hand, the showy, but insipid, Sir Joseph Paxton stood the weather well. The most useful Strawberry we had this season was Vicomtesse Héricart de Thury. It cropped heavily, was of good flavour, and not much affected by the wet weather. Raspberries have also made splendid canes for next year. Plums, except Victorias and such like sorts, are almost a failure, while Peaches and Nectarines are very thin, and likely to be late in ripening. Filberts are a complete failure, hardly a tree with what might be called a sprinkling on it. As before mentioned, Apples are a very meagre crop, and will with us be missed quite as much as any of the fruit crops, as first-class samples of home-grown fruit are much appreciated for dessert. The sorts we find best suited for this purpose are, for August and September, the Duchess of Oldenburg, a free-fruiting, nicely coloured, briskly acid flavoured Apple of good size; then Irish Peach, also of good size and flavour; Devonshire Quarrenden is useful, but rather small. Our next most reliable sort is King of the Pippins, with its characteristic flavour; Yellow Ingestrie is also much liked; it is small, but has a nice shape, colour and flavour, and is generally a heavy cropper. Cox's Orange Pippin is the best of its season, but it is not so sure a cropper as either Blenheim Orange or Ribston Pippin, both of which do well. As a cropper Margil is difficult to beat; the same may be said of Claygate Pearmain. Of the very late sorts Sturmer Pippin holds its own, and Calville Blanche is only at its prime in April and May. This is a characteristic and showy Apple, a good bearer, and has beautiful white flesh, which is very tender and sweet.

POTATOES.—The disease has again shown itself in a most virulent form. The earlier sorts are, however, sufficiently advanced to be out of harm's way, but all the mid-season sorts are in a sad plight, while later sorts do not seem to be so easily affected with us. Magnum Bonums are not much touched as yet, and, should the weather continue to hold fairly dry, I think it is probable they will give a good yield.—FRANK ROSS.

WESTERN DIVISION.

Westonbirt, Tetbury, Gloucestershire.—Apricots good. Plums average. Cherries good, especially Morellos. Peaches and Nectarines average. Pears good. Strawberries heavy crop, but damaged by rain and slugs. Nuts under the average and late. Small fruits plentiful and good. The Apple trees early in the season were infested with maggot. Manks Codlin, Hawthornden, and Lord Suffield are the three sorts principally grown in this neighbourhood for cooking, and are bearing well. Ashmead's Kernel, Blenheim Orange, Warwick Pippin, Ribston Pippin, Cox's Orange Pippin are the best for dessert. Other sorts we have tried, but not having a good Apple soil the fruits are deficient in flavour and size; Cox's Orange Pippin is the best flavoured of the dessert kinds. None of these are bearing large crops this year.—A. CHAPMAN.

Brentry House, Westbury-on-Trym.—Apples and Pears are about an average. Stone fruits are very much below the average, except Plums, of which I have a fair crop here, but in the neighbourhood they are very scarce. Of Strawberries, Raspberries, and Currants in variety I have had an abundance. The principal dessert Apples I have are King of the Pippins, which I find of excellent flavour, very crisp, juicy, and will keep well till the end of January. Kerry Pippin is excellent as a dessert Apple, flesh firm, sweet, and delicately flavoured. It comes in for use at the end of September. Irish Peach and Devonshire Quarrenden are also very good, coming in season during August and September. There is a good crop of Apples and Pears in the neighbourhood. Stone fruits are scarce everywhere.—W. COATES.

Highnam Court, Gloucestershire.—The fruit crops in this neighbourhood are irregular, but on the whole better than was first anticipated owing to the late spring frosts. Plums are an entire failure in this locality; they are grown very extensively for marketing, the growers depending chiefly on the Plum crops for their rents, &c. Peaches and Nectarines good average crops. Apricots under average, but fruit good. The bush fruits very good, particularly Gooseberries, Raspberries, and Black Currants. Strawberries were a good crop, but the fruit lacked colour and flavour owing to the heavy rains. Apples not a full crop, except a few kitchen sorts, such as Keswick Codlin, Lord Suffield, Echlinville Seedling, Emperor Alexander, Nelson's Glory, Blenheim Orange, Yorkshire Greening, Dumelow's Seedling, Mère de Ménage, and two local kinds, good croppers, viz., the Severn Bank and Corset Hill; the latter will keep good longer than any other kind that we grow in this neighbourhood. The dessert sorts grown here are very poor this year, such as Scarlet Pearmain, Worcester Pearmain, Cox's Orange Pippin, Ribston Pippin, Adam's Pearmain, Margil, Ashmead's Kernel, King of the Pippins, Sykehouse Russet, and the old Nonpareil. For dessert I find Scarlet Pearmain, King of the Pippins, Ribston Pippin, Ashmead's Kernel, and Cox's Orange Pippin are the best with us. Pears very much under average, and some varieties very much damaged with the grub or maggot.—JOHN SOURAY.

Badminton Gardens, Gloucester.—The fruit crop in this neighbourhood is, generally speaking, not a satisfactory one, and the cold, wet, and sunless weather has not improved matters. Apricots are with us a fair crop, but much of the fruit is dropping prematurely and ripening proceeds slowly. Peaches and Nectarines are a very thin crop, and will require a fine autumn to ripen properly. Pears are a fair crop, but seem to increase in size very slowly. Plums on some kinds are a thin crop

others are fairly covered with fruit; Victoria, Prince of Wales, Magnum Bonum, and other cooking kinds, including Damsons, are among the best with good crops. Cherries have a fair crop generally, especially Morellos and May Dukes. Bush fruits are abundant and good. Strawberries were very numerous, but suffered from dull, wet weather and slugs. We have more Figs than for many years past. Apples are a fair crop; the kinds mostly relied on here are, first, and decidedly best, Cox's Orange Pippin, which I consider the best dessert Apple grown for use in autumn and winter. Of course, the Irish Peach is the first to ripen with us, and is most useful, Kerry Pippin succeeding it, followed by Worcester Pearmain, handsome and well flavoured. Ribston Pippin does not succeed well here, and is being replaced by Cox's Orange Pippin. King of the Pippins is also a showy and prolific Apple, succeeding well here, but the flavour is not equal to that of Cox's Orange. Margil and Reinette du Canada are good dessert fruits and much liked. Claygate Pearmain and Court Pendu Plat are most excellent for dessert after Christmas, and both kinds bear abundantly. Other dessert kinds are grown, but those mentioned above are the best.—WILLIAM NASH.

Tortworth Court, Falfield.—The Apple crop in this district is very much under the average, and the little fruit we have is very small and much of it is falling off. Unless we have a very fine autumn, the crop as it is will go from bad to worse. Very many of the cider orchards are entirely without fruit. Pears on standards are very scarce; those trained on the walls are a little better, but still the crop is a poor one. Peaches and Nectarines about half a crop, and very small. Cherries fairly good, Morellos abundant. Strawberries and Raspberries were abundant, but the fruit was very much damaged by the heavy rains. Bush fruit is very abundant and good. Nuts are very promising. Quinces and Medlars an average crop. Plums a fair average crop.—THOMAS SHINGLES.

Goodrich Court, Ross, Herefordshire.—Apricots are an average crop, Plums under the average. Cherries an average crop, Morellos good. Peaches and Nectarines under the average, the trees being blistered very much in spring. Apples an average crop. There was never a better promise for a good crop this season until the caterpillars came and destroyed almost the whole of the leaves. Pears average crop and good. Small fruits generally are over the average and good. Strawberries were under the average. Keen's Seedling has been a total failure here this season. Nuts are a good crop.—F. SPENCER.

Holme Lacy Gardens, Hereford.—Apples are this year a very thin crop, with the exception of two or three sorts, such as Devonshire Quarrenden, Mère de Ménage, and Seek-no-Further. Pears are an average crop of clean fruit. Plums (except some trees on walls), Apricots, and Peaches are under the average. All small fruits have been an exceptionally heavy crop. Walnuts and Filberts are a full crop. Here we find the following are the best of the dessert Apples for this district selected from a large number of sorts grown here: Early Apples—Duchess of Oldenburg, American Mother, Gravenstein, Devonshire Quarrenden, Irish Peach, Yellow Ingestrie. Midseason to February—Melon, Red Ingestrie, Pine Golden Pippin, Cox's Orange, Court of Wick, Ribston Pippin, Margil, Adam's Pearmain, Syke House Russet. February onwards—Duke of Devonshire, Lamb Abbey Pearmain, Claygate Pearmain, Scarlet Nonpareil, Cornish Gilliflower, Court Pendu Plat.—CHARLES DENNING.

Glewston Court, Hereford.—The Apple crop in this part is very partial. In some favoured situations a few trees are carrying good crops, but in the majority of orchards the crop is very poor. The trees bloomed well generally, but owing to the ravages of the caterpillars at the time of blooming only a few Apples were left, and in many cases none. What fruit remains is of an indifferent character, except on a few varieties, such as Echlinville Seedling, White Transparent, Stirling Castle, and Cox's Orange Pippin. The majority of other varieties are more or less cracked or covered with black spots. The same remarks apply to the Pear crop grown in the open. Trees on walls are producing a nice crop generally. Plums here in our fruit plantation are a satisfactory crop, but poor in the neighbourhood. Damsons are not much grown in this locality, but may be considered an average crop. Bush fruits of all kinds are a heavy crop. Strawberries formed a great quantity of berries, but the wet season rotted the bulk of the fruit. Cherries are an average crop. Peaches and Nectarines out of doors the same. Apricots below the average. Grapes are doing well, more particularly the Black Alicante variety. Gros Colmar and Lady Downe's Muscats did not set very well, owing to cold, sunless weather at blooming time. Soil has, no doubt, a great influence on the flavour of fruit, and especially on Apples. The soil and climate here seem to bring out the best qualities of the Apple. Varieties that are usually very sour lose a great deal of their acidity, and are comparatively sweet. Cox's Orange Pippin is the first for quality with us, closely followed by Ribston Pippin, King of the Pippins, Margil, and the Mother Apple. This last variety is not liked by some for its extreme sweetness. Besspool is an excellent Apple after Christmas, equally good for dessert or cooking. White Transparent is our earliest Apple, being fit for use in ordinary seasons about the end of July; it is of excellent quality for either dessert or kitchen use, and fetches a high price when put in the market. Blenheim Orange is only of second-rate flavour here. The soil, I think, is too shallow and light for it. Echlinville Seedling, Yorkshire Beauty, Stirling Castle, Golden Spire, Maltster, and Lord Suffield are all free bearing and good cooking kinds. We have a number of sorts, but those enumerated are decidedly the best with us.—S. T. WRIGHT.

Stoke Edith Gardens, Hereford.—Our fruit crops here are, with the exception of Peaches, Nectarines and Plums, very good. The above-named flowered very well, but the low temperature and cold winds which prevailed at the time prevented them setting anything like heavy crops of fruit. Apricots always do well here, and the present season is no exception to the rule, and the crop is again a good one. The trees blossomed early and they escaped the cold weather which prevented Peaches, &c., from setting. Cherries of all kinds have and are carrying heavy crops, Kentish and Morellos being especially fine. Currants of sorts, Gooseberries and also Raspberries are fine crops. Strawberries bloomed very freely, and have borne heavy crops of good quality, and the flavour excellent of those fruits gathered from well-drained borders. Apple and Pear trees were late in coming into flower, but I never remember a finer show of bloom. Unfortunately, the caterpillars put in an appearance and worked great havoc by eating the flowers, fruit, and foliage. The Pear trees suffered the worst, but still some of the trees are bearing good crops, and the fruit promises to be of large size. Apples are, taking everything into consideration, a very good crop, some of the cider kinds in orchards being heavily laden with fruit. In the gardens Stirling Castle is carrying the heaviest crop. The following kinds are always good croppers here, well flavoured, and can be highly recommended for dessert: Red Astrachan, Kerry Pippin, Summer Golden Pippin, Red Ingestrie, Ribston Pippin, Cox's Pomona, Cox's Orange Pippin, Pine-apple Russet, Blenheim Orange, Sturmer Pippin, London Pippin, and Lamb Abbey Pearmain.—A. WARD.

Down House, Blandford, Dorset.—Apples will be much below the average. Irish Peach is very good and a first-rate early dessert variety; Kerry Pippin, Cox's Orange Pippin, the best of all Apples; Golden Reinette, Margil, King of the Pippins, which is of inferior quality, probably owing to our chalky soil; Striped Beaufin and Gravenstein, which is also a very good all-round Apple, one of the best for all purposes, are the most promising this season, besides a few other sorts. Pears—Autumn Nelis, Beurré Diel, Beurré Rance, Forelle, Glou Morceau, Thompson's, and Marie Louise are the best on walls. The last-mentioned has the heaviest crop of all. Catillac is the best for stewing; pyramids are a failure. Plums are very scarce, except Golden Drop and Magnum Bonum and a few Gages. Cherries are very good, especially May Duke and Morello. Apricots are a fair average under glass coping. Strawberries very good, but owing to so much wet a great quantity of the fruit was spoilt. Too much cannot be said in favour of King of Earlies as an early sort; the fruit is of good size and colour and fair in flavour, and it is ripe a fortnight before other sorts. Raspberries, Gooseberries, and Currants are bearing heavy crops. Figs fair. Filberts and wood Nuts we have an abundance of.—THOS. DENNY.

Canford Gardens, Dorset.—Apples are under the average, but some sorts are carrying a fair crop. For kitchen use, the best this season are Keswick Codlin, Lord Suffield, New Hawthornden, Mère de Ménage, Norfolk Beaufin; and for table use King of the Pippins, Mannington's Pearmain, Kerry Pippin, Court Pendu Plat. Pears, both on walls and standards, are under the average, but Williams' Bon Chrétien, Jargonelle, and a few others are carrying full crops. Morello Cherries are very good. Strawberries were plentiful. Gooseberries a moderate crop. Raspberries plentiful and fine. Both Black and Red Currants are a heavy crop and extra fine. Plums are a fair crop.—D. WILLIAMS.

Clevelands, Lyme Regis, Dorset.—The Apple crop in this locality is much below an average. On some trees, however, there is a fair crop, but, generally speaking, there is a deficiency, many of the young fruits being destroyed by insects. The ordinary dessert Apples are generally good, especially such sorts as Ribston Pippin, Cox's Orange Pippin, Cornish Gilliflower. The Pear crop is also deficient. Wall fruit generally is a short crop, with the exception of Cherries, which are plentiful. Plums, too, are scarce. Bush fruits are plentiful and large in size, but somewhat deficient in flavour. Strawberries are abundant and fully a fortnight later than usual, and the fruit is much eaten by slugs and insects. If the season had been warmer and with less rain the fruit crops generally would, I think, have been remarkably good.

The excessive cold rain has affected Potatoes considerably.—H. MUNRO.

Sherborne Castle, Dorset.—The fruit crops in this neighbourhood have suffered from cold nights and continued rain, both trees and fruit being affected with mildew. This applies to Pears which have dwindled down to a fifth of our ordinary crop. Plums did not set except Pond's Seedling, which always does well here. Peaches and Nectarines are scarce and backward. Apricots a failure. Morello Cherries, the only variety that does well here, are good. Strawberries only fair, but bush fruits, with the exception of Gooseberries, are all very plentiful. Nuts are only a partial crop. Apples bloomed and set well, but owing to maggots and want of sun are only a very partial crop. We grow a collection here of something like 130 varieties. About 150 of our trees are trained as cordons, 200 as bush and pyramids, and about sixty as standards. I consider the following to be the best eighteen varieties of dessert Apples for this district: Juneating, Early Harvest, Irish Peach, Benoni, Devonshire Quarrenden, Kerry Pippin, American Mother, Lucombe's Pine-apple, Cornish Aromatic, Cox's Orange Pippin, Ribston Pippin, Adam's Pearmain, Lord Burghley, Claygate Pearmain, Scarlet Nonpareil, Brickley Seedling, and Sturmer Pippin. I should like to call the attention of your readers to the variety Benoni as one that should be much better known. It comes into use the last week in August and the first week in September, and always takes the first prize at our local shows.—W. G. PRAGNELL.

Heytesbury, Wilts.—In the gardens here and surrounding district the fruit crops are not so good as at one time they promised to be. The greatest falling off is amongst Apples, Pears, Plums, and Strawberries. On the other hand, I have known them much worse in years gone by. Other kinds of fruit may be recorded as follows: Cherries and Figs over average; Apricots, Peaches, and Nectarines average; Gooseberries, Currants, and Raspberries average. In regard to Peach and Nectarine trees

I regret to say gumming has been prevalent; indeed, we have had the worst attack experienced during the last ten years. With reference to Apples—the most important of all—I may say never was there better promise of an abundant crop than when the trees were in blossom, and rarely indeed has it been so short as at present. It is difficult to say what is the cause of this comparative failure, but in our case it cannot certainly be attributed to late frosts or the plague of maggot, as in some districts. I think it is due in a great measure to the abnormally dry weather experienced in the winter months. The following are the best twelve varieties to grow in this locality, viz., dessert—Irish Peach, Cox's Orange Pippin, King of the Pippins, Kerry Pippin, Early Margaret, Beauty of Bath; kitchen—Lord Suffield, Annie Elizabeth, Blenheim Orange, Keswick Codlin, Peasgood's Nonsuch, and Cox's Pomona. —J. HORSEFIELD.

Clarendon Park Gardens, Wilts.—The fruit crop in this locality is variable, and more especially is this the case with regard to Apples, for some kinds that usually do not bear so freely are this year carrying excellent crops, notably Blenheim Pippin, an excellent table or dessert fruit when clean and free from spot; King of the Pippins is also carrying a heavy crop, and there is also a good sprinkling in places of fruit on Cox's Orange Pippin. When a good supply of the above three named sorts can be had they meet our almost entire wants for dessert, though Beauty of Bath is an excellent early kind, and Irish Peach forms a good succession; the last-mentioned kind is bearing heavy crops wherever we have seen it. The trees in some positions have suffered greatly from the ravages of caterpillars, in some cases every leaf being stripped off. Where this is the case it is not to be wondered at that there is no fruit. Pears are almost as variable as Apples. We have no fruit on any of the espalier trees in the open, but fair crops of some kinds on west walls, viz., Jargonelle, Knight's Monarch, Glou Morceau, Beurré Bosc, Seckle, and Marie Louise. Of Plums that are bearing good crops may be mentioned Green Gage and Late Gage, Kirk's and Reine Claude de Bavay. Cherries are a good crop and trees very clean. May Duke, Kentish Bigarreau, and Morellos are especially good. Strawberries were a fair crop, but suffered much from incessant rains; the sorts we grow principally are Vicomtesse Héricart de Thury and Sir Joseph Paxton. Raspberries have been very abundant, as also Gooseberries and Currants; the last three are above the average. Filberts and Cobs are thin, but Walnuts are a heavy crop. I never saw Figs show so much fruit; even the shy-fruiting variety Castle Kennedy is showing fruit abundantly, but it will want a lot of fine weather to bring them to maturity.—C. WARDEN.

Longford Castle, Salisbury.—Although the prospects of this being a good all-round year of fruit was very promising when the trees were in flower last spring, taken on the whole, the fruit crops for the year 1888 must be considered below the average. The cause of this is not far to seek. During the whole time the trees were in flower, with but few exceptions, there were from 2° to 10° of frost every night, with a uniformly low day temperature and a sunless sky. However, taking it altogether, the crops are fairly good, excepting the Apple crop, which is almost a complete failure, although a few trees of Keswick Codlin, Mère de Ménage, Cox's Orange Pippin, and Claygate Pearmain are bearing good crops. Juneating, Red Astrachan, Red Quarrenden, Pine-apple Russet, Ribston Pippin, Early Nonpareil, Early Red Margaret, Kerry Pippin, Cox's Orange Pippin, Irish Peach, Worcester Pearmain, Court of Wick, Margil, Golden Reinette, Cockle Pippin, and Sturmer Pippin are our best dessert varieties, whilst Keswick Codlin, Hawthornden, Lord Suffield, Alexander, Golden Noble, Cellini, Peasgood's Nonsuch, Warner's King, Yorkshire Greening, Blenheim Orange, Northern Greening, Bedfordshire Foundling, Dumelow's Seedling, Annie Elizabeth, and Norfolk Beaufin are about our best kitchen Apples, the different varieties coming into use pretty much in the order in which their names appear. Of Peaches the following varieties are carrying fairly good crops: Alexandra Noblesse, Barrington, Dr. Hogg, Chancellor, Bellegarde, Violette Hâtive, Gosbawk, Prince of Wales, Exquisite, and Sea Eagle. Plums: Green Gage, Orleans, Coe's Golden Drop, Early Favourite and Early Prolific, both heavily cropped; Mitchelson's, Jefferson's, Reine Claude de Bavay, Kirk's, Prince Englebert, Pond's Seedling and Victoria are all bearing good crops of excellent fruit. Pears: Josephine de Malines, Passe Colmar, Jargonelle, Williams' Bon Chrétien, Marie Louise, Nelis Hiver, Althorp Crassane, Glou Morceau, Zephirin Grégoire, Van Mons Leon Leclerc, Uvedale's St. Germain, and Catillac are satisfactory. Apricots are a fairly good crop, the varieties Large Early and Moorpark doing very well this season. I should have said in noting the Peaches that Pine-apple, Balgowan, Elruge, and Lord Napier Nectarines are bearing good crops, and the trees, like those of the Peach and Plum, are in good condition. Mulberries are plentiful, as also are Cherries Black Tartarian, Bigarreau, Cleveland, May Duke, and Morellos, the crop of the latter being very good. Bush fruits are all plentiful and good. The general crop of Strawberries was rather light, but late varieties—Oxonian and Elton Pine—in a north border, having had better weather for the setting of the blossoms and the ripening of the fruits, are therefore both plentiful and good.—H. W. WARD.

Witley Court, Worcestershire.—The Apple and Pear crops are much under the average, and both have suffered to a very great extent from the depredations of the caterpillar and maggot. Of Apples our best and surest bearers are: Echlinville Seedling, Keswick Codlin, Cox's Pomona, Stirling Castle, Tom Putt, Yorkshire Beauty, Hawthornden, Tower of Glamis, and Peasgood's Nonsuch. Of dessert kinds, first and foremost amongst good and constant bearers are King of the Pippins, Prince's Pippin, Mannington's Pearmain, Kerry Pippin, Sturmer and Cockle Pippins and Duke of Devonshire. Peaches and Nectarines are good crops, but are extremely late, and the fruit small for this time of year; the new Peach Alexander I consider a great acquisition to our early kinds, having gathered this variety on August the 1st, whilst, as a comparison, Royal George will not be fit for quite another month. Apricots generally are good, the produce promising to be fine, trees healthy, clean and vigorous. Moorpark is still our most regular and constant bearer. Cherries were a fairly good average crop, but much cracked and damaged by wet. Plums are under the average, but the trees are clean, vigorous, and the produce fine. Bush fruits of all kinds are plentiful, as also are Strawberries, but they are much damaged by wet and the want of sunshine.—JOHN AUSTEN.

The Gardens, Hindlip, Worcester.—Apples promise to be a fair average crop in this neighbourhood. Considerable injury has been done to the trees in some cases by caterpillars, which will have the effect of reducing the size of the fruit. Warm weather is greatly needed to help the swelling and ripening. Of the kinds which are grown in quantity for market, Lord Suffield, Duchess of Oldenburg, Pott's Seedling, Wellington, Besspool, and Echlinville Seedling are carrying heavy crops. Blenheim Orange is also bearing well; this kind is largely grown and highly valued. There appears to be several varieties of this fine Apple growing in this neighbourhood. Samples from different localities, although all possessing the distinctive characteristics of the typical kind, vary greatly in size and colour, and sometimes in shape. American Mother is an Apple of excellent flavour; this variety, Kerry Pippin, and Quarrenden are three of the best early kinds. Cox's Orange Pippin I consider the best flavoured Apple, but it is not bearing very well this year. I think it requires a rather light soil and a warm locality. Cox's Pomona was raised, I believe, from a pip of the same Apple as Orange Pippin, but it is very dissimilar, being larger and not so sweet, but some like its sharp flavour; it is very hardy and a constant bearer. Bedfordshire Foundling is bearing well and is a good flavoured kind, excellent for baking, when it can be eaten without the addition of sugar. The same may be said of Besspool, one of our latest Apples, and a kind which seldom misses a crop: this year the trees are loaded. Ribston Pippin is seldom met with doing well; on whatever stock it is grafted, canker invariably sets in, soon ruining the trees. Margil has a flavour similar to it, and if grafted on a strong-growing stock produces fair sized fruit and is very prolific. Stone's, or Loddington, a fine Apple, also requires a more robust-growing stock. Reinette Grise is highly valued for its fine flavour, but this year the crop is thin, and we shall not be able to gather many bushels from over a hundred trees. King of the Pippins is very heavily cropped; it is not a first-class flavoured Apple, nevertheless it possesses so many good points that it will always find a place in the orchard. Two of our latest and best flavoured Apples are Sturmer Pippin and Boston Russet; both preserve their excellent flavour late into the spring. Other good kinds having good crops are Melon, Wyken Pippin, Tower of Glamis, and Waltham Abbey Seedling. Pears generally are doing well, but the fruits are only half the size they were at the same time last year owing to the unseasonable weather. Standard trees of Marie Louise are this year full of fruit; so also is the popular Bon Chrétien, Autumn Bergamot, and other commoner kinds. Most of the best Pears on walls are well fruited, and have required considerable thinning. Amongst the best are Glou Morceau, Marie Louise, Josephine de Malines, Winter Nelis, Passe Colmar, and Jargonelle. On pyramids the fruit is not so even, but many are carrying good crops, such as Fondante d'Automne, Thompson's, Pitmaston Duchess, Louise Bonne of Jersey, and Beurré Hardy. Plums are a very heavy crop; many of the trees are breaking down with the weight of fruit; but Damsons are scarce; the trees seemed to suffer very much from the drought of last summer. Apricots are thin; the trees bloomed profusely enough, but the weather at the time was very cold and dull, causing most of the flowers to drop off. Peaches and Nectarines are plentiful, but the trees as well as the fruit require sunshine. Cherries are a fair crop. All the smaller fruits are very abundant except Strawberries, which are scarce. In some places the plants bloomed well and set a good crop, but the continual downpour of rain ruined them; but fairly good gatherings have been secured from young plantations where the berries have been well supported.—A. BARKER.

Whittlebury, Towcester.—The Apple crop here is a good one. Some of the best dessert sorts that do well here are Irish Peach, Kerry Pippin, Cox's Orange Pippin, and Duke of Devonshire. Pears are a fair crop. Cherries good, but there are very few Plums. Strawberries very light crop. All bush fruits are very good.—W. S. MILLER.

Killerton, Exeter.—Peaches and Nectarines are about the worst crop here we ever had. The trees were very much injured by the cold late spring, the first leaves being almost destroyed. They are, however, very healthy now. Apricots are a fair crop. Cherries have been very good, but the early fruit suffered when ripe from the incessant rains. Morellos good. Plums are fairly good both on walls and standards. Among the best cropping kinds are Victoria, Pond's Seedling, and Prince Englebert, the last-named being an enormous cropper and of good quality. Pears are a good crop, although some of the fruits are spotted and cracked by the coldness of the season. Apples in this neighbourhood are generally scarce. The foliage of many of the orchards was eaten by maggots, and therefore many of the usually reliable sorts are very scarce. Among the best this year are King of the Pippins, Tom Putt, Dumelow's Seedling, Cox's Pomona, Lord Suffield, Lady Henniker, The Queen, Pott's Seedling, and Frogmore Prolific. Our supply of dessert Apples consists chiefly of Cox's Orange Pippin, grown in the orchards so as to have sufficient fruits as long as possible, as I think if any sort equals, none surpass it in quality. It is preceded by Stubbards, Summer Golden Pippin, Pine-apple Russet, and American Mother; and succeeded by Ribston Pippin, Adam's Pearmain, Cornish Gilliflower, Wyken Pippin, and Sturmer Pippin. The above are among our best quality dessert Apples, the last-named being chiefly valued for its late keeping qualities. Strawberries were a very good crop, but much damaged by so much rain. Red, White, and Black Currants, Gooseberries and Raspberries

were good crops, and the fruit fine. Filberts very plentiful. Walnuts are a fair crop. All green crops are excellent.

Potatoes, early and second early sorts, have their haulm killed by disease and the tubers badly affected. Scotch Champion is at present unaffected by disease.—John Garland.

Books.

THE TUBEROUS BEGONIA.*

Nothing in the whole history of flower culture has been more remarkable than the success of the hybridist and cultivator with the tuberous-rooted Begonias. Eighteen years ago we had only the half dozen or so species of this section of Begonia, which had been introduced chiefly by the Messrs. Veitch from South America. The best of these were B. boliviensis, B. Veitchi, and B. rosæflora, which were then as little known to horticulturists generally as some of the last introductions among "botanical" Begonias are now. But Mr. Seden saw in these plants a possible race of useful garden Begonias, and the work of crossing the several kinds with each other which he commenced then proved so wonderfully productive of good results that others joined in the work of Begonia breeding. The plants seem to have been specially designed for the work, and wonderful improvements in size, form, substance, colour, and habit have been brought about in an astonishingly short time.

Tuberous Begonias are now in every garden; they are as easily grown as Pelargoniums, of which plants indeed they may not unreasonably be termed the rivals. They may be grown as greenhouse plants, or they may be planted in beds or borders out of doors in summer, and in both cases they succeed well if treated properly.

The proprietors of the *Gardening World* have just published a handbook on the history and cultivation of these plants, which is likely to contribute considerably to their increased popularity. The subject is dealt with fully, beginning with the botany of Begonias generally and ending with detailed instructions on cultivation, cross-breeding, exhibiting, &c. Any work which pretends to give the history of the tuberous Begonias must necessarily contain a great deal about Mr. John Laing, who has done more than anyone else to improve and popularise them, and whose fame as a grower of Begonias is world-wide. Mr. Cannell, the Messrs. Sutton, Louis Van Houtte, Mons. Lemoine, and Mons. Felix Crousse are others to whose labours we are indebted for the present grand race of garden Begonias. The book also contains descriptions of the species from which the race has been obtained and lists of the principal among the first of the crosses. It was in 1878 that Mr. Laing astonished the horticultural world by exhibiting at South Kensington the results of three years' careful cross-breeding among Begonias, and every year since then he has shown plants of still more astonishing character than anything seen before. We have ceased to marvel at improvements in these plants, although we have now got to flowers 5 inches across, flowers like Hollyhocks, like Camellias, like Carnations, and so forth. The details of cultivation given in the book under notice begin with seed-sowing, and continue on through the various stages till the exhibition tent is reached. If the book has any fault it is that of slight padding and repetition here and there, apparently with the object of swelling its size. A list of selected kinds is given, and instructions for cross-breeding are also included.

The race of Begonias which has been obtained by crossing the tuberous kinds with B. socotrana, which was introduced by and flowered at Kew for the first time about eight years ago, is very properly spoken highly of in the book. B. socotrana is a winter-blooming plant, and its progeny have partly inherited this character, so that we are likely to obtain ultimately a race of beautiful Begonias for winter decoration. The best of these so far is John Heal, which is named after Messrs. Veitch's foreman, to whom we owe this new race. It has the character—unusual in Begonias—of retaining its flowers till they shrivel on the plant, and as they last a long time (three weeks or more, it is said) they are likely to be very useful when cut. Mr. Wynne is to be congratulated on the excellent character of the book he has edited, and we may hope that the series of handbooks, of which this is the first, will be as practically useful to horticulturists generally as we believe this will be. B.

* "The Tuberous Begonia: its History and Cultivation." *Gardening World* Office, Catherine Street, London, W.C.

Societies and Exhibitions.

NATIONAL CO-OPERATIVE SHOW.

This exhibition, held at the Crystal Palace on Saturday last, was the largest of its kind that has ever taken place, and must have convinced everyone that an immense interest and heartiness had been thrown into the work. There were exhibits of all kinds, but all we can deal with here are the flowers, fruit, and vegetables, which filled one of the transepts. From a large display of garden produce as here presented and coming from all parts of England, a very good idea can be obtained of the leading varieties in the several classes. There was a great competition, especially in the classes for vegetables, which were on the whole extremely good, but no better than we might expect considering the favourable weather we have had for these. Singularly enough, the Potatoes were generally of great excellence, smooth, of good size, and showing no trace of disease, although doubtless they had been lifted before disease had a chance of attacking them. Woodstock Kidney, Reading Russet, Vicar of Laleham, Chancellor, Schoolmaster, White Elephant, Snowdrop, and Mr. Bresee were especially noticeable, and the last of the number we have seldom seen in finer condition; it is an exceptionally handsome red kidney. The Turnips, especially the varieties Snowball and Early Stone, were quite up to the average, and this is not surprising, as it has been a most favourable year for root crops of all kinds. Carrots were also noteworthy, and French Beans, of which the favourite variety is Canadian Wonder. In selecting this variety one of the best is chosen, as it is very delicate in flavour and free-bearing; splendid examples of it were to be seen. The Broad Windsor Bean and the Vegetable Marrows made quite a show, owing to the large number of exhibits. In the fruit division the finest show was made by the Red, Black, and White Currants, and we have very seldom seen better produce, especially that of the first and second prize-winners. There was a great falling off in Apples and Pears, but Gooseberries were plentiful, and it seems to be the rule for the cottager to grow the big, fat, tasteless varieties that have only size to recommend them. We scarcely noticed a dish of such delicately flavoured kinds as Red Warrington or of the Whitesmith class. As regards flowers there is little to say, as they were generally very inferior, a few monstrosities in the shape of huge globe-like African Marigolds being amongst the number. In the growing of pot plants the humble exhibitor has much yet to learn, judging from those shown; but while we could praise and condemn on every hand, there is not the slightest doubt that exhibitions such as these must have a value in promoting a love for gardening, thrift, and self-help.

CARNATIONS AND PICOTEES AT OXFORD.

The annual exhibition of the Oxford Carnation and Picotee Union took place in the gardens of Mr. E. S. Dodwell's residence in the Stanley Road on Aug. 14, and was the means of bringing together a large and extremely interesting representation of this popular flower. Mr. Dodwell wisely confined his schedule of prizes to six leading classes, viz, for twelve and six blooms of Carnations, for the same of Picotees, and the same numbers of selfs, fancies, or yellow grounds. Eight prizes are offered in the large, and nine in the small classes, and there are, in addition, eight classes for single blooms of Carnations and six classes for single blooms of Picotees. There were, in all, thirty-seven exhibitors, and it is computed that over 1000 flowers were staged in competition. In addition, Mr. Dodwell had in his garden over 3000 pots of Carnations and Picotees, several of them carrying six and seven flowers each. It was, to all intents and purposes, a "feast of Carnations." There were eleven competitors in the class for twelve blooms of Carnations, the first prize being won by Mr. M. Rowan, Manor Street, Clapham, who had Robert Lord, s.b.; Sarah Payne, p.p.b.; John Whitham, s.f.; Jessica, r.f.; Master Fred, c.b.; George Melville, p.f.; Fred, s.b.; Rifleman, c.b.; Thomas Tomes, s.f.; William Skirving, p.p.b.; Admiral Curzon, s.b.; and Rob Roy, s.f., a remarkably good and representative collection. Mr. Tom Lord, of Todmorden, had the best six blooms of Carnations out of eighteen competitors. It is satisfactory to know that a grower living within a four-mile radius of Charing Cross could beat cultivators of this flower drawn from all parts of the country.

Mr. Martin Rowan was also first with twelve blooms of Picotees out of eighteen competitors, having capital blooms of Mrs. Payne, b. rose e.; Clara Penson, l.p.e.; Mrs. Dodwell, h.r.e.; Nellie, h. rose e.; Muriel, h.p.e.; Edith Dombrain, h. rose e.; Jessie, l.p.e.; Mrs. Sharpe, h. scarlet e.; Thomas Williams, l. red e.; J. B. Bryant, h. red e.; Elsie Grace, l. red e.; and Alliance, h.p.e. Mr. Tom Lord also had the best six blooms of Picotees out of twenty competitors.

There were ten stands of twelve blooms of selfs, fancies, and yellow grounds, some very fine and attractive blooms being staged. Mr. Reed, gardener to Mr. George Dodwell, Oxford, was first with The Maestro, scarlet flaked with maroon; Queen of the West, pink self; Gladys, pink; Heroine, scarlet self; a very fine crimson self, unnamed; and some seedling yellows of great promise. Mr. T. E. Henwood, Reading, had the six best blooms out of eleven competitors, having The Governor, white self; Ada, yellow Picotee; and the remainder coloured sports from named varieties.

The premier Carnation selected from the whole show was Robert Houlgrave, s.b., a flower of great substance and richness of colour, raised and shown by Mr. Samuel Barlow, of Manchester. The premier Picotee was h. rose e. Mrs. Payne, shown by Mr. Rowan. The premier self Carnation was Emma Lakin, a remarkably fine and pure white flower, raised and shown by Mr. Joseph Lakin, Temple Cowley; and the premier fancy, The Maestro (Dodwell), scarlet flaked with maroon, a very fine flower with well-formed petals.

The following new varieties received first-class certificates of merit: Self-white Carnation Emma Lakin; rose-flake Carnation Lovely Mary (Lakin), a seedling from Lovely Ann of the same class; self-pink Carnation Emily Francis (Brown), a soft-coloured flower of great beauty; c.b. Carnation John Harrison (Hewitt), very fine petals and colour, and good habit of growth; self bright carmine Carnation Royalty, very fine petal and substance; and Picotee Pollie Brazil, h.p.e., raised by Mr. P. Anstiss, of Brill.

The finest yellow self at the show was Mr. Ernest Benary's Germania, a flower of great substance, depth of colour, finely formed petal, and excellent pod.

Drying flowers.—Would any reader of The Garden kindly give me any hints as to drying flowers?—E. C. Parel W.

Raising small seeds.—I am very unfortunate in raising small seeds such as those of Auriculas, &c. Although I give plenty of drainage and use peat and sand with the loam, the surface is always covered with Moss long before the plants are ready for pricking out. Will someone kindly give me any advice on the subject?—A. A.

Names of plants.—*C. C.*—Digitalis ferruginea.—*H. M.*—Philadelphus grandiflorus.—*S. H. G.*—A variety of Ash; please send better specimen.—*E. P.*—1, Inula glandulosa.—*B Stanford.*—We do not name Roses.—*F. E. S.*—Send flowers if possible.—*H. Tellet.*—Gloxinia (Achimenes) tubiflora.—*F. C.*—Send better specimen.—*Thrat.*—Next week.—*Violet, Shelverton.*—Impossible to name, flowers quite faded.

Names of fruits.—*R. Gatesbye.*—Fruit so badly packed that it was entirely smashed. In sending Peaches and Nectarines for name, please send foliage also

WOODS & FORESTS.

A STONE FOREST OF TREES.

The fossil grove of trees recently discovered at Whiteinch, about two miles from Glasgow, and about 50 feet above sea level, has lately attracted considerable attention from men of science and others who are interested in this wonderful geological discovery. It seems the Commissioners of Partick (a suburb of Glasgow) acquired a lease of about forty acres of ground for a public park, at the west end of which is an old disused quarry upon a piece of elevated ground, and in the course of excavating and removing the stones this ground was cut through the centre, by which means it was divided into two halves, the sloping sides of which are rocky and precipitous. As the margins are well wooded with large Beech, Sycamore, and other trees, the Commissioners were not slow to see the propriety of converting this quarry into a rock garden, where the people could retreat and enjoy themselves under the canopy of trees during a hot day. On entering the park, now known as the Victoria Park, this rock garden can be seen right in front, at the west end of which the fossil trees are exposed to view, and consist of nine specimens with the roots attached on the spot they grew. Both the ends of one prostrate trunk 18 feet 10 inches in length are still imbedded in the rock, while another trunk only partially uncovered is about 4 feet in diameter. The area which contains these trees measures 64 feet by 25 feet. The following are the circumferences of the different trees referred to at the base of the stem: 11 feet 4 inches, 8 feet 10½ inches, 8 feet 7 inches, 8 feet 6 inches, 8 feet 1 inch, 6 feet 8 inches, 6 feet 6 inches, 6 feet 4 inches, and 5 feet 3 inches respectively. The height of the stems from the root upwards varies from 1 foot to 3 feet, all being broken over where the schist ends and the sandstone formation begins. The spot where these trees are to be seen is enclosed with a small wire fence which prevented me from taking these measurements, but as I have them from a reliable source I have every reason to believe them to be correct.

I have no doubt but that were the search extended a larger number of trees would be found, but from the position of the rocks and ground this would of course entail considerable expense. It seems geological experts are not at one as to the generic classification of these trees; some set them down as Sigillaria and the roots as Stigmaria, while others hold that they have more the character of Lepidodendrons than that of the former, but if so, they must belong to the Clathrate group. At any rate from what I have seen, I have no hesitation in saying that they must be of a tremendous age, and probably when their giant tops were waving in the wind, man, and indeed animal life of any kind, was not in existence at all. The whole quarry is one of Nature's grand books from which much may be read and learned, and the story of the rocks is so impressive and interesting at all times that it cannot be erased from the memory, and when connected with stone trees is even intensified. In a paper read by the Rev. D. Landsborough to the Glenfield Ramblers at Kilmarnock on this fossil group, he says:—

The forest now revealed is to Scotland what Pompeii is to Italy, only Pompeii is a thing of yesterday in comparison. . . . We listen to the birds singing in the branches of the trees which now over-canopy it, and we gather flowers under their shade, but no bird ever sang or flitted among the trees of that old forest, flowers did not grow under their shade, nor did the foot of man nor even of a single quadruped ever tread its sward. How dark, silent, and solitary must the old forest have been.

The grounds in the park are tastefully laid out, and planted here and there with ornamental trees, shrubs, and flowers, while the crevices of the rocks are filled with Ferns and other suitable plants, all of which are in perfect health and impart a fresh, inviting appearance to the spot. J. B. Webster.

FORESTRY AT THE IRISH EXHIBITION.

For his excellent and well-arranged collection of forest produce as displayed at the Irish exhibition, and which shows off in a very practical and common sense way specimens of the timber and seeds of such trees as have been found to be peculiarly well suited for the climate of Ireland, Mr. Baylor Hartland, of the Lough Nurseries, Cork, deserves much praise. Of sections of Irish-grown woods there is a valuable and comprehensive collection, including 150 specimens, these being neatly arranged and legibly labelled. With the large and beautifully polished board of the giant Arbor-vitæ (Thuja gigantea), as cut from a tree grown at Fota, in the south of Ireland, I was much pleased, for it clearly set forth the beautiful graining and hardness of wood for which this North American tree is so remarkable. It is certainly encouraging to know that so valuable a timber-producing tree has been found, after a fair and unprejudiced trial, perfectly well suited for cultivation in every part of the British Isles, and Ireland in particular.

As a tree for economic planting in this country, along with the Corsican Pine (Pinus Laricio), the giant Arbor-vitæ is sure to occupy the foremost rank at no very future date. The Redwood (Sequoia sempervirens) would likewise, in judging from the exhibited specimens, appear to be quite at home in the south of Ireland. This might also be said of that somewhat rare and only semi-hardy Eucalyptus (E. amygdalina).

Of the wood of the Strawberry tree (Arbutus Unedo), Mr. Hartland is the happy possessor of one of the largest and most beautiful planks I have yet seen. It measures fully 20 inches in width, with a beautifully gnarled grain and exquisite polish. Of course, as it is well known that the Arbutus revels in the soil of South Ireland, less surprise is excited than had the plank under consideration come from almost any other part of the country. On the Roman camp at Holwood, in Kent, this tree, or rather shrub, grows with great freedom, the stem of one specimen measuring fully 5 feet in circumference.

A case of fully 150 cones, chiefly collected in Ireland, is another exhibit of great interest, for many of the specimens, particularly those of the Pines, are by no means readily procured, even in the sunnier portions of the south of England. A few of the rarer may just be noticed: Pinus Lambertiana, P. Coulteri, P. Jeffreyi, P. Sabiniana, P. monticola, and P. Hartwegi. I can hardly agree with Mr. Hartland in stating that such trees as produced these cones can be considered "useful in commerce and Irish industries," for at least four of the six have been abolished from English pinetums for the simple reason that they are not sufficiently hardy, unless for the milder and more sheltered portions of the country. Amongst the seeds I noticed that of the Judas Tree (Cercis siliquastrum), and I certainly feel curious to know if this is home grown.

Then, sent by the same exhibitor, there is a beautiful series of photographs and drawings of remarkable trees (not all Irish), and amongst these none is more conspicuous than that of the Golden Wellingtonia (W. gigantea aurea), as grown, I believe, in Mr. Hartland's own grounds. Speaking even cautiously, this is the most beautiful, distinct, and well-furnished specimen of a variegated Conifer that I have yet seen. In 1880 it was 42 feet in height and with a stem girthing 9½ feet. Its present dimensions I do not know, but they would certainly be of interest. A. D. Webster.

Holwood Park, Kent.

Timber of deciduous Cypress.—The timber of this tree (Taxodium distichum) is very durable, even under water, and is finely grained and of a reddish colour. A peculiar property of the wood is its adaptability to split straight, so as to serve for planks without the use of a saw. To cultivate this tree successfully it must have good, rich soil, a well sheltered situation, and abundance of moisture, not stagnant, which is probably the reason why a sandstone district is preferred, a chalk soil being too dry, and a clay subsoil defective in drainage. The tree is readily propagated from cuttings or seeds, of which latter a good supply is regularly imported from America. It is never planted for profit, but only as an ornamental tree for park or lawn decoration.—A.

Pines and Firs.—The Pines and Firs being so numerous, and the timbers of many being known in commerce by such a variety of names, it is difficult to ascertain the trees which yield them. 1. The Scotch Fir yields the red deal of Riga, called the yellow deal in London. Norway Spruce Fir yields white deal. 2. North American Pine, known as such here, as imported from America, has many names there. The North American Pine or Weymouth Pine is called White Pine in North America. Yellow Pine is chiefly employed in the States for house and ship-building, and is considered to be next in durability to the southern Pine, which again is called Yellow Pine, Red Pine, and Pitch Pine. The American Pitch Pine or Red Pine, called Norway Pine in Canada, and Yellow Pine in Nova Scotia, and many others, yield deals of various qualities more or less used in different districts. 3. The American Spruce Firs are the white, black and red. The last is sometimes called Newfoundland Red Pine, and is employed in ship-building. Both it and the Black Pine are exported to England.—C.

Facts relating to bent timber.—As to the peculiarities of bending, after a piece of wood is bent its character is almost entirely changed. It is wonderful how it is changed, and by that change it is better fitted for any use than it was before. Bending makes the wood heavier; it is pressed together, and the same bulk of wood weighs more after it is bent than before. Another peculiarity is, that when it is thoroughly dry, it is stiffer than the same sized piece of wood that is alike every other way in regard to grain. It will admit of more strain, and move less out of its position, than a piece of wood that is unbent. On this account it is better fitted for carriage making than sawed pieces. A piece of timber that has been steamed, whether it is bent or not, has its stiffness increased. It is more brittle than it was before, and, for some uses, it will not do as well; and yet there is a quality of timber that the steaming process and the kiln-drying process affect very much the same; they both cook the gum in the timber and make it brittle and stiff. There is a grade or class of Hickory that is benefited by being steamed or kiln-dried for use as spokes or whiffletrees. There is a kind of Hickory that never becomes stiff by a natural process of drying, and one of the desirable qualities of a spoke, rim, or whiffletree is stiffness as well as strength; you take that Hickory—and it is the very best we have—and steam it, and it is better fitted for these purposes than it was before. It is difficult to tear apart a piece of bent wood; the fibres are interwoven one with the other. We do not perceive the change on the outside, but when we come to split the stick open we find that its character is entirely changed.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

ENGLISH FLOWER GARDENS.

I QUITE agree with "A. H." in THE GARDEN, August 11 (p. 119), that an extended cultivation of hardy plants in our gardens would produce a more pleasing and diversified effect than the wholesale use of summer bedding plants. Yet I cannot agree that these should be entirely discarded. We are all, to some extent, prejudiced; we have our own ideas, and fail to recognise the merit of any particular style that does not fall within the limit of our own narrow views. "A. H." appears to be no exception to this rule; he evidently is wedded to the exclusive use of hardy plants. It is my opinion, however, that in a garden of any extent there is room for a little of everything, not an indiscriminate mixture, but plants should be so arranged that at each turn the eye may come upon something fresh. Even carpet or pattern bedding, which "A. H." so ruthlessly condemns, has its merits. It is hardly fair to judge things as they appear after such weather as we have experienced this season, but in an ordinary season a narrow strip or a small bed here and there make a very pleasant foreground, and the bright and varied hues of the different shades of foliage form a pleasing relief on a well-kept lawn, where tall plants would be entirely out of place. I can imagine nothing in Nature more beautiful than hardy plants arranged in groups as "A. H." suggests, but then I fail to see how this can be accomplished without some sacrifice, for in most cases it would require some time to establish the different subjects, and after the flowering season it would be some time again before a fresh display could be obtained. This would not be objectionable in sheltered nooks and corners, but in a prominent position the passing show would hardly compensate for the unattractive appearance that such a bed would present for the greater part of the year. The great point is to give each particular subject its proper place, and avoid going to extremes in any direction. I shall always maintain that in a garden of any pretensions room may be found for a beautiful display of hardy plants without doing away with summer bedding entirely. Individual tastes vary so much that it is always a little dangerous to condemn any particular system of planting our gardens, provided that reasonable judgment has been exercised in the selection of material, and the various subjects planted in positions most suited to their natural requirements. My own idea is that summer bedding, and especially carpet bedding, in many cases has been considerably overdone, as also has been the practice of turning hothouse plants out of doors in summer. It always appears to me an act of cruelty to turn out tender Palms, Dracænas, Pandanus Veitchi, and many others that are now frequently used in the subtropical garden. There is such an abundance of suitable material for all positions that it seems to me quite unnecessary to use such subjects as may be seen to better advantage under glass, and which would also provide an agreeable change when it is not pleasant to roam about in the open garden. A. HEMSLEY.

The yellow Bird's-nest (Monotropa Hypopitys) is a rather rare, and certainly very curious native plant. In the lake wood at Holwood, beneath the old Beech trees, it grows in some quantity, and the unusual appearance it imparts to the situations in which it abounds is of interest. The drooping heads of yellow flowers, which are placed on stems seldom more than 7 inches long, are by no means beautiful, nor very conspicuous, although there is something about them that is so unusual from the generality of our wild flowers. There are no leaves, simply a few scales of the same colour as the rest of the plant, and in this it imitates other parasitic and saprophytic plants, such as the Broomrapes (Orobanche), Toothwort (Lathræa), and some others. Usually the yellow Bird's-nest is found beneath the shade of the Beech, but to this it is not entirely confined, for it is occasionally to be met with where the Birch and Oak foliage form the chief canopy. Under the Mock Orange (Philadelphus) I have also found it, but whether it derives nourishment from that plant I have not yet had time to investigate.—A. D. WEBSTER.

CARNATIONS IN THE FLOWER GARDEN.

IT is unfortunate that many still cherish the idea that Carnations are not sufficiently hardy to withstand our English winters. The consequence is gardeners still neglect them, and are quite unaware of what Carnations are capable of and the important part they should take in the adornment of the flower garden. It has been said, "What is a garden without a Rose," and we might say, without a Carnation, too, for it comes next in importance. There are many flower gardens without either, not merely small gardens, but standard English gardens.

Now that there are visible on all sides signs of the commencement of a change in our mode of flower gardening which tend towards natural beauty instead of harsh formality, and variety instead of sameness, it would be well that the cause of the neglected Carnations should be pleaded, and a revival in their favour is much to be desired. Although we are told they are not neglected, many gardens tell an opposite tale, for Carnations have in many places never found a home, and are looked for, but in vain, unless it be some very poor seedlings, or a few remnants of former days stuck in some out-of-the-way border.

Carnations are perfectly hardy plants, and there is abundant evidence obtainable to prove this assertion. On the other hand, if Carnations are coddled, they are weakened in constitution and not able to withstand the rigours even of our often mild winters. In most cases the English system of growing Carnations has been that of coddling, and it has been thought little short of madness to plant Carnations out and leave them in the open air all the winter. Although some growers do go so far as to plant them out in spring, others grow them on into large pots and display them in full flower in glasshouses or under canvas tents, and we are told it is not possible to obtain good Carnation blooms in the open.

When grown under such conditions it is impossible to judge of the merits of Carnations for outdoor English flower gardening, nor can it be expected that those who grow them as described are in a position to speak upon the matter with authority or from experience. Moreover, it is perfectly obvious that young stock propagated from plants grown in this manner, where soft shoots are made in too high a temperature, is the very worst wherewith to try experiments or to prove the possibility of Carnations living in the open ground throughout the winter.

In striking contrast to this system of culture, we have seen a collection of Carnations, numbering 2000 plants, that were layered in the open air last summer from plants put out the previous spring. The layers were planted in the flower-beds last September and October, and all passed safely through the winter, not one perishing from cold; in fact, the plants themselves asserted their claims to hardiness, for during the successional frosts and thaws which characterised the first three months of this year, some of the plants were thrown out by the upheaval of the soil caused by the expansion of water when frozen, and they might be seen lying upon the surface of the ground, not perishing, but, under the uncongenial influence of a bitter wind, putting forth white fleshy roots in search of moisture. Due attention being given, and the plants replanted when the milder weather came, they grew away, and there is now no visible difference between those that were disturbed and those that were not. Experience proves also that Carnations planted in autumn are far superior to those planted in spring, provided, of course, that in the former case the plants are sturdy and hardily grown. The autumn-planted ones make a good root-growth before winter sets in; during the winter they remain dormant, but directly the temperature begins to rise they grow away and soon spread out into handsome, healthy tufts, when, even without flowers, they are an ornament to the flower garden. With plants put out in spring it is often just the opposite. They may be strong and healthy tufts that have been kept in a frame all the winter, but perhaps immediately after they are planted, a chilling, drying wind sets in before they have obtained root-hold, and the growth is weak and sickly, consequently producing inferior flowers, which lead some to say good Carnations cannot be grown in the open, whereas it is the system and not the plant that is at fault.

There are some soils better suited for Carnations than others, for we have seen the old Clove die off in winter by scores, but such cases are exceptional. The collection previously alluded to was not grown in the most favourable soil; far otherwise, for the soil is a cold and very heavy loam, which cakes and cracks with the alternations of wet and dry weather.

Quite recently, when passing a cottage garden in West Sussex, we saw some large plants that must have been several years old, for some had grown into veritable bushes a yard high, and others spread out into great tufts like the Pinks. Carnations vary in this respect, for while some kinds require to be layered and replanted every year, others do not, and in some soils a kind will grow more tufted. They seem to do better in places near the sea-coast, being possibly benefited by a degree or two of more warmth. However, without a doubt, there are plenty of soils capable of growing good Carnations when once they are planted. Excepting a few specialists, and some of those nurserymen, the growers of Carnations in England, under whatever condition, are comparatively few, and this is mainly attributable to the absolutely false supposition that they are tender, and must have the protection of glass. In some gardens Carnations have been grown in the kitchen garden borders, and there is evidence of increasing favour, for this year, in a few instances, we have seen them used in the flower beds. Two beds have also been noticeable and admired during the season in Hyde Park.

In using the Carnations effectively some instruction seems needed, for in all the instances of their use that we have noted, it has been a case of hopeless mixture of kinds and colours, the effect of which was not good.

Why should they be planted thus? In the bedding arrangements the Pelargonium beds were not planted with a collection of mixed colours, but with one kind to secure mass of colour and combined effect. It is the same with the Carnations, and the most effectual way of displaying their capabilities will be found in the formation of large, bold, free, and open groups of a vigorous kind, having a well-defined self colour. It can be done, for we have seen Carnations produce a mass of colour equal to that of Pelargoniums, and at the same time their additional superiority, interest, and beauty were most apparent.

The culture of Carnations is so simple, and they give so little trouble, while there is so much of interest and beauty in them, that we feel confident if this fallacy of tenderness can be for ever exploded, Carnation growing will so greatly extend, that undreamt-of results will be achieved. We have ample evidence what can be done in the way of Rose-growing; why not then Carnations?

In support of our contention of hardiness, we append a few remarks from Mr. Rogers, of Whittlesey, who recently sent a gathering of nice flowers of kinds raised by himself. Having seen some of Mr. Rogers' plants that stood out all last winter and were very conspicuous by reason of their wonderful vigour, combined with exceptional hardiness, free growth, and great freedom of flowering, we wrote and asked him his mode of culture, and whether he kept all of his plants in the open throughout the winter.

Alluding to the flowers recently sent, Mr. Rogers says:—

The Carnations I sent you are of my own raising; the whole of them have been propagated from layers in the open ground. I have about 120 varieties under culture in the open. I have a few named sorts, such as Pride of Penshurst, Gloire de Nancy, &c., but I find my own much more vigorous, which I attribute to the hardy way in which they are raised. The seed is sown in shallow boxes early in February in a cold frame, and when the seedlings appear plenty of air is given. As soon as they are large enough to handle I prick them out 2 inches apart in boxes, and place them in the open air. In about a month from pricking out they are planted in beds for the summer, and the following autumn they are carefully lifted and replanted a greater distance apart. This last operation gives room (should any turn out worth propagating) for layering. I have a strong objection to cuttings for open-air work, as they take a longer time to form roots, and consequently are not so vigorous to face the winter. I may here add this is a flat district, and our Carnations are grown within a quarter of a mile of the edge of the Wash, which in winter is generally covered with fresh water a mile in width, and as I scarcely ever lose a plant during winter, this should be sufficient proof that the Carnation, if properly treated, is perfectly hardy. For the past ten years this plan has been practised, and during that time I have experienced some peculiar seasons. I am well aware that the spring frosts will lift weak plants (that have not sufficient roots to prevent it) clean out of the earth and lay them on the top—at least I find it so in this damp district. Wireworm is a great enemy of the Carnation, eating away the inside of the main stem, for which mischief we often blame the winter, as the plants keep green until the approach of dry weather in March, when they immediately collapse, and unless closely examined the real cause will not be discovered.

The experience of practical men in the matter is of the highest importance, and helps to establish the Carnation's claim to fuller recognition, for although we have a National Carnation Society, it can hardly be said that its aims are truly national, or that the gardening world is greatly benefited by its labours. It has missed the mark, and it now remains for private individuals and private enterprise to step in and show what can be done. The society may continue to show us the florists' ideals, but in addition we want, what is of far greater importance, hardy, sweet-scented, free-flowering Carnations, early kinds and late kinds that will beautify our gardens and gratify our senses the whole season through. A. H.

A FEW GOOD FLOWERS.

Centaurea ruthenica.—The best of the class, with elegant pinnate leaves. The plants are 5 feet high, the flowers large, of pale straw colour, and stand out well. It is a native of Southern Russia and the Caucasian district. A mass of it in a fully exposed situation looks very well. It grows readily from seed, but seedlings do not make much show till three years old.

C. macrocephala is far commoner in gardens than the last, but a coarser plant. This too makes seed in abundance, and comes to maturity as soon. Figured in *Botanical Magazine*, t. 1248.

C. glastifolia of Linnæus, figured in *Botanical Magazine*, t. 62, has yellow flowers like the last, but smaller; they are, however, more abundantly produced, and the flowering season lasts much longer. It never ripens seed in my garden, and if not frequently renewed from side shoots and transplanted it dies out. Boissier has changed the name to Chartolepis Biebersteini (see "Flora Orientalis"), but as this generic name is cancelled in the "Genera Plantarum," the name used by Linnæus may be retained. Ware formerly sold this plant as C. aurea, intending, I suppose, to identify it with *Botanical Magazine*, t. 421, but the silvery bare scales of the involucrum and the decurrent stem leaves of this species at once distinguish it. I am afraid C. aurea, said in *Botanical Magazine* to be a "native of the south of Europe," and to "grow readily in any soil and situation," has been lost to cultivation, and I cannot find even the name in catalogues of European plants.

C. dealbata (Willdenow) has very ornamental leaves, silvery beneath, and resembling in form those of Cineraria maritima; flowers bright rose colour. It is a Caucasian plant and is described by Boissier ("Flora Orientalis") under the generic name of Psephellus, an obsolete name, according to the "Genera Plantarum."

A good bright form of C. montana with rose-coloured flowers.

Aster Thomsoni (Clarke).—A summer and autumn flowering plant of great merit, growing from a compact base into a spreading bush, and flowering all over. The stalks are wiry, and proof against wind and weather, and the habit of the plant and the soft lilac colour of the flowers make it a general favourite. It is a native of the Himalayas and a rare garden plant, but used to be sold by Ware as Calimeris incisa, a name belonging to a very inferior plant. It must be raised from seed or from spring cuttings, as it is difficult to divide.

Heliopsis lævis.—A North American Marigold with flowers not unlike those of our Corn Marigold, but brighter in colour. Seedlings vary much in stature, as well as in the form of the flower, and only the best should be retained to increase for perennial stock. C. Wolley Dod.

Edge Hall, Malpas.

*** With the above was sent a beautiful gathering of the varieties referred to.—Ed.

Montbretias.—The very pretty hybrid variety M. crocosmiæflora, which came from M. Lemoine, of Nancy, in 1881, and was awarded a first-class certificate by the floral committee of the Royal Horticultural Society, is a very desirable plant for pot culture, and there are now several other varieties which should also find favour, especially as they bloom at a time when there is not too great a variety of flowering subjects for the conservatory. Although the individual flowers do not last long, they keep up a show for a considerable time, the flowers opening in succession until the long branching racemes are exhausted. Among the newer forms, Golden Sheaf, deep yellow, is one of the best; Sulphurea, pale yellow; Fiery Star, red, with a little yellow at base of tubes; and Bouquet, yellow tube and red lobes, are good varieties. Like most Cape bulbs, the Montbretias succeed well in good mellow loam, which may be enriched with a little cow manure; they require plenty of root room. Three or four bulbs grown together in a 7-inch or 8-inch pot make a good show. They should be grown on in a cool house or pit, and watering carefully attended to, as if they are allowed to suffer in this respect the points of the leaves turn rusty, but if kept in good condition the foliage adds much to the attraction of this pretty class of plants. —A. Y.

—— What lovely plants these are, especially for those amateurs who do not possess a stove. I recently noted them in Mr. Bull's nursery at Chelsea, in greater quantity and in greater excellence than I ever remember to have seen them. The common crocosmiæflora was beautiful, the numerous rich orange-coloured flowers rendering the plants very attractive. In addition to this were several of the newer varieties, which, however much they may appear to be alike when seen separately and at a distance, are both distinct and beautiful when seen near each other. Amongst the most noteworthy of these were Etoile de Feu, producing flowers of a bright rich red, with yellow centre; Bouquet Parfait, large flowers of a bright vermillion, with rich orange centre; and Gerbe d'Or, flowers large and of a rich clear golden yellow. Either in pots for greenhouse decoration or for the open borders, these plants deserve far greater attention than has hitherto been accorded them.—W. H. G.

Petunias.—These were justly praised last year as dry weather plants. Equal praise may be given to the single varieties this year, especially to that known as the Superb Striped, a carefully selected strain of which has been flowering most freely for weeks past. Nothing in the garden has given better results than these. Planted in large beds, backed by China Roses, pegged, and edged with a broad band of Cerastium, they are truly superb, and retain their dwarf free-flowering habit in spite of the wretched weather we have lately had. Seen from a distance they show a mass of bright rosy colour, and unlike Pelargoniums and other so-called bedders, they will bear close inspection without raising a suspicion of sameness, for the diversity of shades and markings is something to make one linger and marvel over. This is one more instance of the good effects of some haphazard and makeshift arrangements. In all probability had the bedders made plenty of cuttings last year, instead of being brought almost to a standstill by the long continued drought, these Petunias would not have been used in the same way or place, and a charming mixture would have been lost.—John C. Tallack, *Livermere.*

Lilium auratum platyphyllum.—This is a grand variety of the golden-rayed Lily, differing in many particulars from the forms usually grown. The bulbs are composed of larger and thicker scales than are usually found among the bulbs of the ordinary L. auratum, but this is a somewhat variable character. Directly the plants start into growth it is easy to pick out platyphyllum from any of the others, for the stem is much thicker and the leaves a great deal wider and larger. It also attains to a greater height; while the flowers are larger, more massive, and different in shape from the common form, being somewhat saucer-like. In platyphyllum the markings of the flowers are variable, but usually the flowers are white, slightly spotted, with a well-defined golden band down the centre of each petal. Although Lilium auratum is so variable there are not many recognised varieties, and of them three of the most distinct are the one above mentioned; that with a crimson stripe down each petal, known as cruentum, or rubro-vittatum; and virginale, white, with a yellow band down each petal, but no spots.—H. P.

Primroses.—The present season has been so far productive of some unusual features, amongst which none seem odder than the forcing of early hardy Primroses into bloom in August. Last year, at this time, Primroses and Polyanthuses had not a green leaf on them, and none were visible until after the rain, which fell just at the end of August. This year the plants have made really luxuriant growth, and are now throwing up bloom freely. Even the doubles are excited also, as I find both

the white and lilac, which have thriven so admirably, throwing up blooms plentifully. Even the somewhat rare double crimson is showing flowers also. Thanks to the cool, damp nature of the season, I have been able to preserve several plants of this great beauty exceedingly well, and could wish now that I had ventured upon many. To preserve them, however, at all respectably is so rare a circumstance here, that it merits mention when good results follow. Of course, flowers produced as Primrose blooms are now, so much out of their natural season, are small, but there will be larger ones later, as it seems evident the cool autumn will render blooming general. Such flowering will probably in no way adversely affect the spring blooming, as then the plants flower from the autumn-produced crowns. There can be no doubt but that next month, unless exceptionally warm and dry, will present a favourable time for lifting and dividing the plants, as the earlier that work is done in the autumn, the better the chance of the plants becoming well established before winter sets in.—A. D.

FLOWER GARDEN NOTES.

Bedding plants and hardy flowers.—Though still cold and comparatively sunless, the drier weather has improved bedding plants greatly, and they now are in as good form as it is reasonable to expect them under the trying weather conditions of the last few weeks. All but the tender kinds have filled out well, and the scarcity of flowers on Pelargoniums is really the only noticeable defect, apart from the half failures of Coleus and Alternantheras, and these are so poor, and in the best of seasons cause so much anxiety as to their filling out, that it would be well if we could decide on their exclusion from the bedding plant list. It is difficult, I know, to find plants to take their places, with the same rich tints of brown, orange, and crimson, and the same dwarf habit, but, at any rate, their use should be reduced to the lowest possible point. The gayest beds are those containing Violas, Fuchsias, Marguerites, Petunias, and Calceolarias, but even these do not approach in beauty the plants now in good flower in the herbaceous borders. Phloxes are simply magnificent and the variety great, and seasons of flowering so extended that they might safely be put in competition with many varieties of bedding plants, and no doubt they would win. The Œnotheras are another section of hardy plants that just now make a magnificent show, the varieties Youngi and Fraseri being simply superb, the great mass of flowers so effectively intermixed with handsome bronzy green foliage being unequalled by any description of bedding plants. Harpalium rigidum, the single and double perennial Sunflowers, Japanese Anemones, Geum coccineum, Potentillas, and many others just now produce a far grander effect than it is possible for bedding plants of any description to produce, not to mention the amount of labour they require when compared with that necessary for bedding plants. I would not like to be understood as advocating the employment of hardy perennials in all positions to the exclusion of bedding plants, because I know from experience that it is very difficult to plant a geometrically planned garden appropriately with perennials, for the simple reason that the latter do not bear the manipulation of pinching, pegging, &c., to make them fit the designs that bedding plants do, and on this account alone bedding plants must be used so long as formal designs are in fashion. Very much, however, can be done to reduce the number of bedding plants for any given design by using shrubs of a dwarf formal habit of growth, such as Japanese Retinosporas, small Hollies, Thujas, and Cupressus; such plants associate well with the ordinary run of bedding plants, and if after three or four years they get too large, they can readily be transplanted to more permanent quarters, and their places refurnished with a smaller batch.

Carnations from seed.—We have had and still have some scores of plants in fine flower from seeds sown in the open border in May of last year, and the greater part of them bearing flowers quite equal to those of named varieties that are sold at a high price. The question arises whether seedling raised plants are not the most economical. I would say it is, provided the seed could always be relied on to be of as good a strain as that which I was fortunate enough to obtain. There are at least 75 per cent. of double flowers of all colours, from pure white to dark red, and the singles amongst them are by no means to be despised. The success of this, my last, trial at raising seedling Carnations has been so great that the same line as to raising plants will be continued, at all events till a failure occurs. The seeds were sown in the open border early in May of last year, and were pricked out when about 2 inches in length on a similar border facing west, and early in July were finally planted in their present positions on the herbaceous border in clumps of from three to nine plants, and gay as these borders are with other flowers, by far the most telling and effective are the Carnations. Some of the best are being propagated by layering the strongest shoots. A small mound of finely prepared soil, consisting of light loam, leaf soil, and sand, is placed at the base of each plant, and into this the shoots, having been partially cut through, are pegged. Should the weather be dry a slight sprinkle of the mounds is of daily necessity to keep the foreign soil constantly moistened through. Seeds sown now in pans and given frame treatment through the winter will make tidy flowering plants by this time next year.

Clematis and Roses.—These notes are written solely from personal observation, and mainly from one's own practice, and it is therefore quite impossible to keep self out of them. It is necessary to say this much by way of introduction to this note. Last year we had a long length of trellis constructed—a span of 12 feet—over a wide walk, and on it were planted Roses and Clematises in variety. Of course these plants, as was to be expected, made a poor show last year, but this year they have done well, having furnished the pillars and about a third of the trellis. The effect is already better than I had expected; the two kinds of flowers commingle so beautifully that when the whole is covered the effect must be grand in the extreme. The question arises, if the effect of this combination is so good on trellis work, why not plant them together in beds? Of course there is the question of soil exhaustion and injury to Roses by Clematis shoots overtopping them, but neither of these are legitimate obstacles, simply because both are preventible, first, by a more liberal use of manure; and, secondly, by planting the Clematises thinly and by timely training and cutting away shoots. I hope another season to make the experiment, and, all well, will report results. Last year the trellis was furnished with the Canary Creeper and Convolvulus major, and right well they looked in combination. This year only the Canary Creeper has been used as a temporary covering, which as yet, however, it has failed to fill by reason of this winter-summer.

General work.—To keep Dahlias and all other tall-growing plants securely tied to stakes, pick seeds off single Dahlias and all other plants that seed freely, else the flowering of the plants will soon come to an end. Bad flowers should be regularly picked off all flowering plants. The effect of a fine mass of flowers is much marred if but a few dead flower-stems be seen amongst the others. If it be necessary to peg down Verbenas, Petunias, and such like plants to make them cover the beds, it should be done, but if, on the other hand, the growth is too profuse, cut away shoots till all left are exposed to light, for then the flowering will not only be freer, but more continuous. Keep plants in geometrical designs within bounds of the said designs by frequent pinching and pegging; the surplus growth removed can be utilised as cuttings in preparation for next year. Propagation of most kinds may now proceed as opportunity offers. Pelargoniums and Violas should be amongst the first to be propagated. W. W.

Purple Loosestrife.—A plant of this semi-aquatic native flower, picked up a few years ago by the banks of the Kennet and planted here, is now a beautiful mass of bloom. There are fully 150 fine spikes of flowers and an entire mass, some 4 feet through. That is the way to have hardy plants in perfection. The clump is near the pump and gets an occasional soaking of water in dry weather. An even more lively thing is Lythrum roseum, an allied plant, but the colour of the spikes of flowers is a pleasing rosy red. Both are well worthy of culture, especially where there is water. If margins of ponds and lakes could be decorated with such plants as Epilobiums, Marsh Marigolds, &c., how well they would look.—A. D.

Crepis rosea.—This year has been a good one for most of the annuals, and among a good collection with a great display of bloom seen at Broxbourne this Crepis was noted as a distinct, pretty, and rarely seen annual. The various forms of British Crepis are not prettier than a Dandelion, but this species may be described as a Dandelion borne on a stem a foot in length, with a flower of exquisite form, and in colour a nice soft rose.

Origanum Dictamnus.—This is perfectly hardy upon the rockery at Broxbourne, and at the present time is sending up from its tufts of whitish, downy leaves a profusion of flower-spikes. The Hop-like calyces and the pretty pink flowers produced therein combine to render the Origanums distinct and beautiful plants, this variety especially, by reason of the silky tomentum which covers the leaves.

Commelina tuberosa.—Although introduced upwards of 150 years ago, this plant still remains one of the most beautiful border plants of the present day; indeed it is a long time since it came under my notice till I saw it a few days ago in Mr. Bull's nursery, where both the bright azure-blue form and the white variety compel notice from the brilliancy of their hues. It is an old plant, but well deserving the attention of everyone possessing a border in town or country.—W. H. G.

Chrysanthemum maximum.—This very hardy and free growing plant is in fine form this year, thanks to the abundant rain. Old stools have sent up stems fully 6 feet in height, carrying very large flowers. Plants raised from seed or from side pieces are about 3 feet high, and if blooming later, yet very finely. It is best to so increase these plants yearly, and root out the old stools. For furnishing elegant cut flowers this giant Daisy is one of the most useful of hardy plants.—A. D.

SHORT NOTES.—FLOWER.

Carnation Clara Roma.—This is a very distinct variety of a deep purple shade. The flowers are of good substance and well formed.

Carnation Celia.—A good variety of a very pleasing shade of pink, of rather tall growth, but the flowers stand up well.

Physostegia virginica alba.—This is a handsome and not very common perennial. It grows from 2 feet to 3 feet high, the shoots terminating in long spikes of distinct and pretty white flowers.

Thymus micans.—The true form of this is now established on the rockery at Broxbourne, and proves to be an elegant and distinct alpine Thyme, which grows into dense cushions that in summer are entirely studded with minute, but pretty flowers.

Candytuft Empress.—This, without a doubt, is the finest white Candytuft we have seen. The habit of the plant is compact, and it bears very large pyramidal spikes of pure white flowers, the individual blooms being double the size of any hitherto seen.

Veronica chathamica.—This is a pretty species noticeable on the rockery at Broxbourne. It is a native of Chatham Island, and appears to be a prostrate shrubby kind with glaucous leaves. The rosy flowers are freely produced in dense erect spikes.

A fine Foxglove.—I see in The Garden for August 18 "A. R." gives an account of a Foxglove. We have one growing in a Rhododendron bed, and to-day I have counted 450 seed-pods on it, including side-shoots, and a trifle over 8 feet high. This is a self-sown plant.—J. Rose, *Lockinge Gardens, Wantage.*

Veronica maritima rosea is a variety with rosy pink flowers. It will be found a pretty and useful border plant, as it is of a colour not common in this genus where white and shades of blue predominate. It is effective also, as the spikes of flowers are quite 6 inches in length, terminating the shoots which grow about 2 feet in height.

Acæna Novæ-Zelandiæ.—This Acæna is sometimes confounded with, and even classed as similar to, microphylla. On the rockery at Broxbourne both of them spread out into broad sheets side by side, and are abundantly distinct, for while microphylla assumes a brownish tint, the growth of Novæ-Zelandiæ is of a pleasing glaucous hue. The evergreen Acænas will be found very useful for carpeting the ground beneath taller plants.

Coronilla iberica.—This is a very hardy and continuous blooming Coronilla that now forms a conspicuous feature upon the rockery at Broxbourne. It is quite prostrate, the stems creeping a long way over the surface of the ground, scarcely rising upwards, but

carpeting the ground with a wealth of pretty leafage of a pleasing glaucous hue, the leaves in shape resembling those of C. emerus, but much larger. The flowers are freely produced, of a deep clear soft yellow, similar to, but much larger than those of the Bird's-foot Trefoil.

NOTES OF THE WEEK.

Eremurus robustus.—Mr. C. G. Van Tubergen, of Swanenberg, Haarlem, sends us a fine spike of the above, over 3 feet in length and thickly studded with beautiful pink flowers. The prominent yellow stamens render the flowers very conspicuous.

Pentstemons.—From Messrs. Cannell and Sons we have received a gathering of fine varieties of these. They seem to have done well this season, and in the gardens of the Royal Horticultural Society at Chiswick we saw lately a very fine collection.

Messrs. Kelway, of Langport, send us some splendid spikes of Gladioli. Magas is a most beautiful kind, in colour a French-white with a suffusion of pink, and by far the best Gladiolus we have seen for a long time. Other fine kinds were sent that are noted in our report of the Royal Horticultural Society's meeting.

Parsonsia albiflora.—This rare greenhouse climbing plant is now blooming in Sir E. Loder's garden at Floore, Weedon. The tube-shaped white flowers, about a quarter of an inch long, are produced in panicles. It is said to be sweet-scented, but I have not found it so. It is a native of New Zealand.—G. Goldsmith.

Catalpa syringæfolia.—There is a nice tree of this in full flower in a small front garden facing the Glenthorne Road, Hammersmith. It is one of the most beautiful of flowering trees, the spikes of bloom much resembling those of the Horse Chestnut, but the colour is purer. This Catalpa seems admirably adapted for planting in towns, and its fine foliage has a noble appearance. There are some good specimens of it in the Marylebone Road district.

A prolific Apple shoot.—Mr. Westropp, of Manor Lodge, Windsor, sends us a shoot of an Apple tree bearing eleven full sized fruits. With the shoot was sent the following communication: "The cluster of Apples which I send you was cut from an old standard tree of the Cat's Head. The tree is pruned every year in the ordinary way. It was in my garden when I took this place, and last year we had a good crop, but this year hardly two dozen on the tree."

Saccolabium cœleste.—A small plant of this beautiful Saccolabium is now in bloom at Kew, there being four nice spikes of flower. It is a native of Siam, and is grown at Kew with the Phalænopsis. The sepals and petals are white with a faint tinge of bluish violet. The lip is most exquisite. It is long, and curves upwards rather prettily, displaying itself to great advantage, and is large for the size of the flower, while the colour is a beautiful transparent azure-blue.

Littonia modesta.—In The Garden, Aug. 25 (p. 178), L. modesta is duly praised. It should, however, be stated that its variety Keiti has larger flowers and blooms more freely than the typical form. As to treatment, it will be quite sufficient to keep it in dry soil under a greenhouse shelf during winter, and to plant the tubers in the open at the end of March just like Gladioli. The plants make strong growth if the soil is well worked, and as many as thirty flowers can be seen on one stem. At the middle of October the tubers are taken up and housed again.—Max Leichtlin, *Baden-Baden*.

Stanhopea platyceras.—There are not many, if any, species of Stanhopea more beautiful than that which bears the name S. platyceras at Kew, where it has been a great attraction during the past week. The flowers are exceptionally large, being quite 4 inches across; the sepals are 2½ inches broad, and, like the narrow petals, are creamy white, spotted and freckled with purple. The pouch-like part of the labellum, or hypochil, as it is called, is a very dark purple-brown, and from this proceeds the pair of horns, incurved and seemingly as strong as those of a bull, being so thick and fleshy. The perfume, too, is strong and pleasant. It is really a noble and showy Orchid, and one that would, we imagine, pay an importer to introduce in quantity, if he could get it. But for some reason Stanhopeas are not popular; they are certainly not difficult to grow and flower to perfection, as they can all be grown in baskets in an ordinary plant stove, while they are remarkable in form of flower, colour, and fragrance. A coloured illustration of this appeared in The Garden June 9, 1888 (p. 534).

A large Allium.—I enclose a photograph of Allium giganteum which has presented quite a wonderful appearence in my garden, the plants, or rather the flower-stems, being 6 feet 6 inches high; the flowers, or, better still, the thousand and one blooms, formed one beautiful mass of fine lilac.—C. G. van Tubergen, Jun., *Haarlem, Holland*.

Lilium chalcedonicum is flowering well in several gardens sheltered from the sea breeze at Scarborough. It is noteworthy, as this brilliant scarlet Lily has not made a great show this year, even in places more favoured than here. The old orange Lily is also good, and we noticed the common Madonna Lily in the best of health, and blooming with its accustomed freedom. Of the many things that do well at Scarborough nothing is so vigorous and free as the purple Candytuft.

A Miltonia now in flower in the Kew collection, under the name of M. spectabilis Moreliana, is of exceptional interest, as it is certainly very much finer than any form of Morel's variety we have ever seen, being superior in size, form, and colour of the flower. The flowers are nearly 3 inches across, the sepals and petals being unusually broad and lie quite flat, while their colour is a deep rich port-wine colour. The broad labellum is much widened towards its tip and is of a clear rosy pink, heavily mottled and barred with vinous purple. It is one of the attractions of the collection, and will last some weeks in perfection.

Montbretia crocosmiæflora.—This pretty hybrid bulbous plant is one of the open-air flowers of the week, and enlivens many gardens where a light warm soil conduces to a vigorous growth. It is a cross between M. Pottsi and Crocosmia aurea, and in growth and flower, as well as colour, the progeny is quite intermediate. The flowers are more regular than those of M. Pottsi, but not so large as those of Crocosmia aurea, and the branched spikes are more abundant and more numerously flowered than in the latter. The flower colour is a warm apricot-yellow, with rings and blotches of orange-crimson. It lasts a long time in bloom. The effect of a well-flowered plant with the sheaf of spikes overtopping the mass of broad grassy foliage is extremely pretty. It is quite a hardy plant about London in light soils and a protected border, and is worthy of everyone's attention. It is of Continental origin, and was first known in this country about five years ago.

Ceanothus Gloire de Versailles.—One of the few deciduous hardy shrubs now in flower is this beautiful variety, whose rich blue plume-like flower-spikes show up above everything else in the open garden. I saw the other day in a Kentish garden a mass of it on a lawn, a dozen or more plants together all finely grown with wide-spreading branches so dense as to form a compact rounded mass. The whole group glowed with a deep sky blue, and I thought I had rarely seen a more beautiful or brighter lawn shrub in August. It is there perfectly hardy on a moderately heavy soil on a slope where no stagnant moisture collects, as this is one of the chief points to consider in this and most other somewhat tender shrubs. There are various other fine sorts of Ceanothus, but none surpass this, which should be in every garden either on a lawn or against a wall.—G.

Japanese Honeysuckle (Lonicera japonica).—One of the most beautiful hardy climbing shrubs just now is this Honeysuckle, which goes also by the names of Lonicera chinensis and L. Halleana. It differs from other Honeysuckles both in growth and flower. Its stems are tall, twining, and flexuose, and with the branchlets hairy, and the leaves large and pale green. The flowers, produced in terminal clusters, are large, pure white when first opened, fading to a warm yellow, the combination of the white and yellow flowers in the same cluster being very charming. They are deliciously fragrant, so much so that a profusely-flowered bush quite perfumes the atmosphere around it. It is one of the choicest of all the Honeysuckles, and as it flowers later than L. flexuosa, another admirable kind, the two may be planted together or near each other. They may be planted against an arbour, trellis, or pillar, and should always be allowed abundance of light and air. Being a common stock climber in the best nurseries, no garden (to use a well-known expression) should be without it.

Tridax bicolor rosea, another Mexican Composite, introduced by W. Thompson, of Ipswich, last year, is by far the most important novelty of the season among annuals at least. It forms a neat, erect, much-branched bush from 12 inches to 18 inches high, and bears quite a profusion of large, pretty, rose-coloured flowers. The leaves are oval, slightly toothed with a wedge-shaped base covered with longish white hairs. In bud the rays show a deep crimson colour, gradually changing to deep rose when open. It is certainly well worth a trial, and we have found it this year one of our best annuals. The type has white flowers.—K.

The Danish Ball-head Cabbage.—I forward an example of this grown from autumn-sown seed in well-manured, loamy soil, with free exposure, in my garden at South Hayling, where flowers, fruit, and vegetables are alike successful. The plants grew with great luxuriance, but did not give early promise of turning into the fine solid heads they now have. It seems to me that its solidity would make it a valuable feature of the provisions for a sea voyage of moderate duration. I also send a head of Best Early Cauliflower from spring-sown seed. The heads are very white and the flavour delicate.—F. E. Roberts, *The Acacias, South Hayling*.

*** Is not the Cabbage synonymous with the Flat Dutch? The Cauliflower was too far gone to form any opinion regarding it.—Ed.

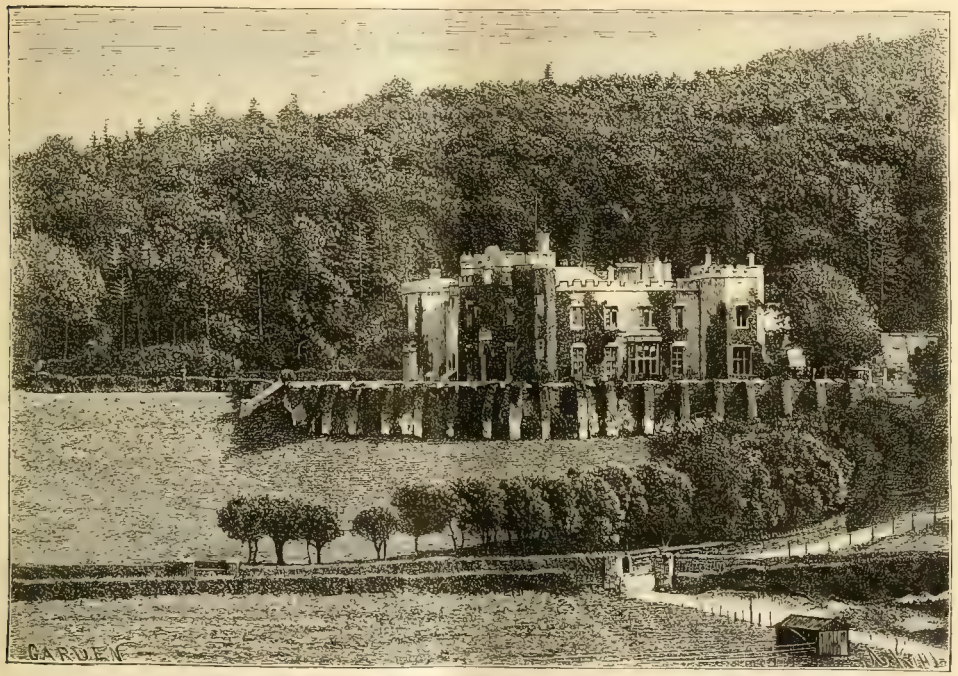
A blue Disa.—The graceful purple-blue-flowered Disa lacera has just flowered at Straffan, Co. Kildare. It has a slender flower stem 18 inches to 2 feet in height, and its narrow leaves die away before the flowers open. Six flowers are borne on the upper portion of the slender flowering stem, each flower being nearly 1 inch across, while the lip is cut or fringed into lacerated divisions, whence no doubt the specific name. It has also flowered with Mr. A. H. Smee, and seems to have been one of Mr. J. O'Brien's introductions from the Cape of Good Hope. It is pretty and slightly odorous at times. Although not at all gorgeous it is worth a place among the cool terrestrial Orchids, now, perhaps, too much neglected in favour of the more showy epiphytal kinds.—F. W. Burbidge.

Linum monogynum is now at its best, and a prettier picture for a rockery we have seldom seen. It is a native of New Zealand, and though, perhaps, not perfectly hardy, it suffers only in unusually severe winters, and may be kept easily in a cold frame by means of cuttings struck in autumn. The flowers, produced quite as freely as in the case of L. perenne, are somewhat larger and pure white. The stems are more leafy, and its neat graceful appearance is noteworthy, even in the absence of flowers. Another nearly allied species, L. candidissimum, with larger flowers, we have not seen for some time; it is also a native of New Zealand, and well worth making an effort to obtain.—K.

Plum Angelina Burdett.—This fine Plum is now to be seen in the Chiswick gardens of the Royal Horticultural Society, both growing against a west wall and as a standard in the open. In the case of the former the trees have borne sparingly and at the extremities of the branches, which is peculiar to wall-trained Plums, but the standard tree in the open is bearing a very heavy crop. This Plum was raised many years ago by Mr. H. Dowling, of Woolston, Southampton, and was, I think, distributed by Mr. C. Turner, of Slough. The fruit is of roundish oval shape, the skin purple with a blue bloom, the flesh yellow, sweet and juicy, and readily separates from the stone. It is ripe about the beginning of September, and if allowed to hang upon the tree becomes a perfect sweetmeat. This Plum appears to be worthy of much more extended culture than it receives.—R. D.

WATERMOUTH CASTLE.

Watermouth Castle, the charming residence of Major C. H. Basset, is picturesquely situated on the North Devon coast, three miles south-east of Ilfracombe, and within two or three hundred yards of the Bristol Channel. It stands on a gentle eminence, with a commanding view of land and sea, and, viewed from whatever standpoint you will, it presents a bold, commanding, and picturesque outline. Immediately below the castle, which is in the castellated style, is a sheltered and picturesque cove, with its rugged cliffs, extensive and romantic caves, which together are a source of great interest to visitors during the summer and autumn months. In the grounds there are charming walks, beautiful wooded slopes carpeted with a variety of wild flowers and British Ferns. The common Beech and Sycamore (Acer Pseudo-platanus) do well at Watermouth. The kitchen gardens, which cover an area of 3 acres, the soil being a rich red loam, from 2 feet to 3 feet deep, are well and judiciously cropped with an assortment of the most approved vegetables. Owing to the position



Watermouth Castle, Devon, from the north-east front. Engraved for The Garden.

of the gardens (the south sides of steep slopes), supplies of Peas, French Beans, Cauliflowers, &c., are obtained earlier and later in the year than is the case in gardens not so favourably situated. The glass-houses, with the exception of the new and handsome conservatory, which adjoins and communicates with the interior of the castle, are situated in the kitchen gardens. They are well heated and made the most of by Mr. Sanders, the head gardener. In the stove I noticed plants of Tabernæmontana coronaria flore-pleno, Clerodendron Balfourianum, Allamanda Hendersoni, Cereus grandiflorus, and a few nice pieces of Cattleya gigas, Anguloa Clowesi, Oncidium flexuosum, O. Harrisonianum, and Anthurium Scherzerianum, &c. Franciscea confertiflora, a plant not so frequently met with as it deserves to be by reason of its pretty mauve flowers, was also noticeable. The greenhouse was quite gay with well-grown plants of Pelargoniums of the show type, Statice Holfordi, Niphetos Rose in full flower, trained up underneath the roof, and kept well supplied at the roots with liquid manure while in active growth. In the Camellia house, which contained clean, robustly-growing plants, I noticed a fine plant of Rhododendron Veitchi, 7 feet high and 4 feet through at its base, and grown in a 14-inch pot, also several baskets filled with Woodwardia radicans and Asparagus plumosus nanus. Lycopodium scandens, suspended from the roof in the fernery, had a good effect when contrasted with the flourishing stock of plants in various stages of growth and variety underneath. The side stages in the conservatory were furnished with a very creditably grown lot of show and fancy Pelargoniums, &c., the centre bed, on a level with the tessellated tiled floor, containing among other things a good plant of Yucca aloifolia variegata, 8 feet high; Toxicophlæa spectabilis, a large plant of branching habit, producing large clusters of white flowers from the points of the young shoots and the axils of the leaves freely during the summer and early autumn months. Flowering shoots of Solanum jasminiflorum, Passiflora Constance Elliott, and Tacsonia Van Volxemi hung from the roof, giving a light and graceful finish to the whole.

In the vineries there is evidence of skill and a will to take as much out of the individual Vines as they are capable of yielding under good management and liberal treatment. The Muscats, the rods being about 20 feet long, are carrying fourteen good-sized bunches each, Madresfield Court nearly twice that number, which are, however, too many to finish well, although the Vines are full of vigour and in good condition; Foster's Seedling, bearing twenty medium sized and very compact bunches; Black Hamburgh, Black Alicante, Lady Downe's, Mrs. Pince's Black Muscat, and Golden Queen in the same house are swelling heavy crops of useful-sized bunches. A young Citron tree, planted against the back wall in this house and trained thinly to a wire trellis and ripening four handsome fruits from 4 lbs. to 5 lbs. each, is especially worthy of notice. Melons are grown on the single stem system, that is, allowed to grow to a height of 6 feet or 7 feet before stopping the plants, which are trained to a trellis fixed underneath the roof 15 inches from the glass. The plants looked well and were swelling nice even crops of clean fruit. Melons and Cucumbers are also grown successfully in pits and frames. The Peach and Nectarine trees are planted against the back wall and against cross trellises, that is, trellises running from front to back of house, which admits of plenty of light and sun reaching the trees on the back wall. The trees are in fine condition and heavily cropped with promising fruit, the varieties being Royal George and Noblesse Peaches and Pitmaston Orange and Violette Hâtive Nectarines, and one or two trees of Moorpark Apricot in the best possible condition and bearing heavy crops of fruit. A Lemon tree in a very flourishing condition planted at the base of a south wall, against which it is trained, was ripening a heavy crop of fruit. The only protection accorded to this tree during the winter is glass, a few old sashes being put over it in November and removed the following May. A flourishing Myrtle, 20 feet high, trained against Mr. Sanders's house comes in very useful for cutting from. From this point a fine view of Hangman Hill, 1100 feet above sea level, is obtained. The walk from the kitchen gardens through the grounds to the castle has on one side a well-filled herbaceous border, and on the other wild flowers and choice British Ferns, and is not the least interesting feature in the grounds. H. W. Ward.

CHRYSANTHEMUMS.

E. Molyneux.

NOTES.

Early flowering kinds, such as Madame Desgrange and its pale yellow sport C. Wermig, will now be developing their blossoms. The plants, 2 feet high and with three and four stems, are each carrying a single bloom measuring 5 inches to 6 inches in diameter, and are serviceable for decoration either in a cut state or upon the plants, where they will last fresh a long time and will prolong the season of Chrysanthemum flowers. Six-inch and 7-inch pots only are used, the plants being liberally fed while the buds are swelling and the flowers unfolding.

Mignon is a capital early flowering variety which we grow in pots. It has been in flower for two or three weeks, and we find it useful for mixed beds of flowering plants when such subjects as Canterbury Bells or Carnations are past. Suitable plants of Mignon Chrysanthemums already in flower are handy for planting in the gaps named or for flowering in pots. The flowers are also suitable for placing in a stand of herbaceous cut flowers. Miss Jolivart, another kind, about 18 inches high, is now coming into bloom, and is useful. The colour of the flowers is blush white.

Lady Selborne should have all the buds "taken" now as fast as they appear; in fact, many plants will have set the crown bud ere this. The blooms of this variety are much in demand and greatly appreciated for church decoration at harvest thanksgiving services, when the numbers on each plant are restricted to say half a dozen. One advantage of growing this variety is, that flowering early, the blooms can be used and the plants cleared off to make room for the ordinary November kinds. Where this variety is grown for producing a number of smaller and later flowers, the plants with from six to ten branches now showing the crown buds should have these removed, also all the side shoots which spring from below the bud already formed, with the exception of about three to each branch. These are the best which spring from immediately below the bud. Upon these new shoots the flowers will be produced about the middle of November, and for conservatory decoration or cutting from will be much admired. Another capital variety treated in this way is Mrs. G. Rundle, a pure

white medium-sized incurved variety. The crown buds of this variety are now being formed; therefore it will be necessary to decide in what manner it is intended this sort shall be grown and flowered.

Late varieties, such as Pelican, Meg Merrilies, and Ceres, where cultivated with the object of having a number of late blooms, have now about 9 branches to a plant, and should have the next bud removed, allowing then two shoots to each branch. These will later on form other flower-buds, which will flower late. Stanstead White, an incurved Japanese variety, having broad florets, is naturally inclined to be late in flowering. If the crown buds are selected which show now, fine blooms will be had just at a time when the bulk of the ordinary sorts are getting past their best; this variety is a vigorous grower, of an upright character, possessing deep green leaves, and one of the best in appearance of growth.

Those persons who are cultivating new varieties for the first time with a view to novelty, and the unearthing of distinct new kinds, would do well to select the early formed, or crown buds, which in most cases produce the flowers which develop the true characters of the variety. If more than one plant of a sort be grown it would be wise to flower one plant on the crown bud, and another one on the terminal or last formed bud; particularly should this be done if incurved varieties are under trial. An opportunity would then be given for testing the variety thoroughly.

Snowdrop and its sport Primrose League, two capital varieties for cutting where button-hole flowers are in demand, are now 2 feet 6 inches high, having about ten branches. The plants growing in 7-inch pots will soon break into additional growths. It would not be wise to allow them to become crowded, for the reason that the strongest branches throw out flower-stems from the sides, thus rendering the plant more effective either for cutting from or in a growing state. Due thought must be given to thin the branches, so that this object shall be gained.

Plants of single varieties, Pompons and Anemone Pompons, which are growing two plants in one pot, are now setting a bud in the points of some varieties. If the object is to have the largest and best formed flowers to be shown in a cut state, three in a bunch, the present bud must be taken just as is the case with the large-flowering varieties, removing from this time all superfluous growth. If prizes for these sorts are the object of growing the plants, this early bud selection must be resorted to to stand a chance of success. For this purpose I find that nearly as good results can be obtained by cultivating two plants in one pot, which means a saving both of pots and space—the latter often a serious consideration. More attention is required to supply the plants with water and stimulants than is the case with single plants in one pot. If a greater number of blooms are required, and this, no doubt, is the correct method to see single varieties when in bloom, the present formed bud must be removed, allowing the shoots to form one more growth, which will in time throw flowers freely from the points of each, and in many instances where the growth is not too thick, blooms will spring from the joints the whole length of the stem from the last break, and sometimes below it. Branches like these, cut from 1 foot to 2 feet long, clothed with flowers the whole length, are very beautiful.

Plants of Sœur Melanie, the best of all small flowering dwarf varieties, are now about 2 feet high, carrying from eight to twelve branches each. The plants growing in 7-inch pots will now soon break again into new growth. All the support this variety needs is one centre stake, looping all the branches to it, it being such a self-supporting, erect-growing variety. The advantage this sort possesses over all others for decoration is that, being pure white, it opens its blooms simultaneously all over the plant; not like some other sorts, which open the centre bloom first. If this be cut as soon as expanded many buds below are sacrificed, or the stem of the flower is cut so short as to be almost worthless. With a minimum of trouble this variety carries such good foliage as to render it very useful for filling jardinières at the foot of mirror glasses in the drawing or other rooms. Where plants of this variety are required dwarfer still than those named, cuttings of the points taken off about 5 inches long and inserted rather thickly into 5-inch or 6-inch pots, from the middle to the end of the last month will now be in the propagating case in the cool house forming roots. When this is complete gradually harden them off until they will bear full exposure to the sun, removing them then outside on to a bed of ashes full in the sun. No further potting will be required, but treat them liberally by supplying liquid manure freely to the roots. When the bloom buds show colour support the branches, either by placing one stake in the centre and tying the shoots to it in the same way as Mignonette or Bouvardias, or place a neat stick to each stem, as owing to the weakness of its peduncles the flowers have a tendency to droop, but if separate sticks are placed to each shoot the blooms can be supported.

Plants of any new or scarce variety which were rooted a short time since in single small pots with the object of increasing the stock of cuttings of such varieties in December, and which were removed from the base of the plants during the middle or end of June, will now need transferring to pots 5 inches or 6 inches in diameter; restrict such plants to a single stem, which will in time perfect a bloom upon each, and will be certain to supply some of the best cuttings.

The Fruit Crops.

MIDLAND DIVISION.

Floore House, Weedon.—Here and in this neighbourhood the fruit crops, which in the early part of the season promised to be abundant, have, through the very unseasonable weather we have had for the past three months, turned out only moderately well. In May we had ten nights with frost, on the 11th and 12th 7° each night. In June we had two nights with frost; on the 18th, or only a week before Midsummer Day, we had 5° of frost, and on the 1st of July, 3°, the young fronds and the common Bracken being turned quite black. On the 11th, at 9 a.m., the temperature was only 45°, and all through the month the temperature was exceedingly low. We had rain on 27 days during the month, the total fall being 5·95. Apricots are under the average, and continue to drop very much. Plums are a very bad crop. Pears and Cherries are a fair average. All small fruits are very abundant and good. Strawberries have been much under the average, the hot, dry summer of last year undoubtedly being the cause of so many of the plants failing to bloom. James Veitch is the only variety that has been good, the fruit of which has been exceedingly fine. The Apple crop is a fair average. The following varieties are among the best for cooking: Lord Suffield, Blenheim Orange, Hanwell Souring, and Bridgewater Pippin, a really excellent variety for kitchen use from October to December, and one I should like to see grown more in the south. It is a capital cropper, and rarely ever fails. Among the best varieties for dessert are Ribston Pippin, which is of excellent quality in December and on to February; Cox's Orange, wonderfully good on standards, and equal in quality to the Ribston; King of the Pippins has also an excellent crop, but the quality here is not good enough for dessert; Wyken Pippin is a variety which is much appreciated here, and is of excellent quality from Christmas on to March; it changes from green to a very light yellow, and is very handsome. The old Cockle Pippin has a good crop, and in January and February is very delicious, with quite a spicy flavour. Sturmer Pippin is also an exceptionally good Apple here, and in March it is of a very excellent flavour. The above are amongst the best that are cropping this year.—George Goldsmith.

Thoresby, Ollerton, Notts.—Although the spring was late and cold, north-east winds all the time, we had an abundance of bloom on everything and a fair prospect of heavy crops. But through the very cold, sunless weather and the caterpillar or maggot, many of our trees suffered nearly as much as the Oaks in the forest, and if a thunder-storm had not washed most of the pests off we should have suffered worse still. We have a good average crop on Cox's Orange Pippin, Blenheim, Pike's Pearmain, Margil, Sturmer Pippin, Worcester Pearmain, and Scarlet Nonpareil. Kitchen sorts do well, such as Lord Suffield, Keswick Codlin, Admirable, Bramley's Seedling, Cellini, Echlinville, New Hawthornden, Normanton Wonder, Northern Greening, and Duchess of Oldenburg, which never fails, but always has a heavy crop and comes in so early for the kitchen that we find it most valuable. Stirling Castle, Atkins' No. 2, and Golden Noble are all fairly reliable sorts here. Apricots were late in flowering, but during the last month much of the fruit has dropped off. Pears are a fair average crop, but will be small. Plums very few; last year we had a heavy crop. Cherries of all kinds heavy crop and good. Small fruits are plentiful and fine, Strawberries excepted. The latter were all right until the cold east winds of March and April made them appear as if a fire had passed over them. I think that this was the cause of there being so many failures. If the weather would keep fine there would be a gathering for some time from Oxonian.

Potatoes look well and, although late, will be a very fine crop if disease keeps away; we see no appearance of it as yet.—A. Henderson.

Bestwood Lodge, Notts.—The fruit crops here and in this neighbourhood are under average. The Apple crop here in the orchard is an abundant one, but on bush trees very thin, and unless the weather comes very fine and hot, Apples will be small and of poor quality. Pears are a very poor crop, and scarcely any of them will mature. Plums are under average, but the trees are very clean and healthy. Cherries average crop, and fruit of good size. Peaches and Apricots, very few grown. Strawberries under average, and much of the fruit spoilt by rain and slugs. A good many Strawberries are grown in this neighbourhood for market; they have been a complete failure. Raspberries, Gooseberries and Currants are very good. This is the worst and latest season I have known for seventeen years.—J. Edmonds.

Worksop Manor, Notts.—Apples are a partial crop in this district. Those which are carrying good crops are Blenheim Pippin, Red Astrachan, Keswick Codlin, Flower of Kent, Dumelow's Seedling, Alfriston, Lord Grosvenor, Lord Suffield, Cox's Orange Pippin, Margil, and Ribston Pippin, the three latter varieties are the best flavoured for dessert with me here. Pears on standards are bearing better than for several years. I have let the trees go on the extension system with very good results. The best sorts are Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré de Capiaumont, Beurré Diel, Beurré d'Amanlis, Beurré Superfin, Marie Louise, and Seckle, one of the best flavoured Pears grown. Plums are a nice crop; Victoria, Coe's Golden Drop, and Damsons are all carrying good crops; other varieties very few. Apricots are a very good crop, trees clean and healthy. Cherries, very few grown; Morellos none this season. Strawberries were plentiful, but the chief part rotted on the ground with so much wet weather. Bush fruits plentiful and good. Nuts, Filberts none; Walnuts plentiful.—Thos. H. Sutton.

Elvaston Castle, Derbyshire.—About Whitsuntide the orchards were in full bloom, and owing to the trees being young, we are fortunate in having a good crop of clean fruits, but they will have neither size nor colour. The earliest Apples bearing a good crop are Juneating, Early Margaret, Early Harvest, Gladstone, Quarrenden, Irish Peach, and Duchess of Oldenburg. Later dessert sorts that are doing well are Cox's Orange Pippin, Franklin's Golden Pippin, Blenheim Pippin, Lord Lennox, Claygate Pearmain, Dutch Mignonne. Our most prolific kitchen Apples are Lord Suffield, Tower of Glamis, Waltham Seedling, Lemon Pippin, Lord Derby, Deux Ans, Wareham Russet, Minchal Crab, Gravenstein, Hawthornden, Wadhurst Pippin, and an unknown variety. Some of the new sorts

such as Bauman's Reinette, Saltmarsh's Queen, Bismarck, Sandringham, Washington, Lady Sudeley, and Bramley's Seedling, promise well, and are bearing a few good clean fruits. Late flowering sorts, as Court Pendu Plat, are barren, also Besspool, Adam's Pearmain, Sykehouse Russet, and Sturmer Pippin. Pears were late in coming into bloom, but those flowering about Whitsuntide are bearing best; these are Williams' Bon Chrétien, Doyenné d'Eté, Citron des Carmes, Jargonelle, Beurré Diel, Pitmaston Duchess, Marie Louise, Marie Louise d'Uccle, Doyenné Boussoch, Beurré Hardy, Doyenné d'Hiver, Huyshe's Victoria, British Queen, Thompson's, Brockworth Park, some of the Bergamots, and Suffolk Thorn. Most of the fruits as yet are small compared with those of other years, and unless we soon get a more favourable time, they must be poor indeed. Position makes no difference this year, as south walls are no better than east or west. The weather has been cold and sunless; we have had nothing but a leaden sky for weeks together.—J. H. Goodacre.

Shipley Hall, Derby.—The present is the latest and worst season for fruits generally since 1879. The main crop of Strawberries is a total failure, the fruit rotting on the ground. Our rainfall in July was 6·47, and on July 12 we had a fall of snow. Loxford Hall Seedling and Hélène Gloede will again stand us in good stead. They are swelling a fine crop under a north wall, but at present (August 14) none have been gathered. Raspberries and other bush fruits are a full crop. Apples are a very thin crop, no variety being up to the average except Lord Suffield. Damsons are a heavy crop, but Plums are very partial. Morello Cherries are dropping their fruit through excessive moisture. None of the choicer kinds of fruit are grown excepting under glass.—W. Elphinstone.

Orton Hall, Peterborough.—The present season will not compare favourably with some of its predecessors in the supply of fruit, but, taken as a whole, there is not much cause for complaint, taking into consideration the present low temperature and the cold and frosty weather when many of the trees were in bloom. Peach, Nectarine, and Apricot trees blossomed well, but the crop is not an average one. Apricots are much below the average, Plums and Green Gages are scarce, but Damsons better. Cherries bloomed well and have been abundant, and more free from black aphis than they have been for some years. Filberts and Nuts are a good crop. Raspberries I have never seen better. Strawberries are almost a failure in this neighbourhood; never has there been so short a supply, the dry summer of 1887 being probably the cause. Black and Red Currants are plentiful and good, though many trees of the Black kinds that were under the shade of Plum trees were half killed by the aphides that fell from the branches overhead. Gooseberries have also been plentiful. The Apple crop is quite up to the average of former years, late-keeping varieties being more abundant than last year. One of our best early kinds, Keswick Codlin, that has borne a good crop for four or five years in succession has this year, however, only a few fruits scattered here and there, but no doubt another year will see it good again. It is an old and first-rate cooking kind, and should be included in all collections however small. Another kind that should always find a place is King of the Pippins. It never fails to bear, and is well known in the markets at Christmas time. It will not compare in flavour with the Ribston and Cox's Orange Pippin. These two latter kinds are bearing well, and, as is well known, are unequalled for quality and high flavour. Other dessert kinds bearing well are old Golden Pippin, Yellow Ingestrie, Nonsuch, Court of Wick, Adam's Pearmain, and Nonpareil; the three last named kinds are good for use in February, March and April. Amongst kitchen Apples not previously named, one of the most constant bearing kinds and in use from October to Christmas, is one locally known as "Kirke's," Kirke's Incomparable, a name not often found in the trade catalogues of the present day, but I have seen it named in Abercrombie's works. The fruit is about the size of that of a Ribston Pippin and red on the sunny side. When in bloom, it is the prettiest of all Apple trees that I have seen. The flowers are of a deep rosy pink colour, and the variety would be worth growing as a flowering plant for ornament alone. Northern Greening is another old and excellent cooking Apple. This, as last year, has again a good crop. Lord Suffield is bearing well, but it cankers badly here. Bedfordshire Foundling, Norfolk Beaufin, Striped Beaufin, Baldwin, Wellington, all good keeping winter Apples, are bearing well this season. Pott's Seedling, a first-rate, large, and early Apple, of vigorous constitution, and Hawthornden are now fit for use, and both kinds are well worthy of a place in every collection of Apples. Pears are about the same as last year; some old favourite kinds bear annually. One of the first to come in is Doyenné d'Eté, a small but very good early Pear, followed closely by Beurré Giffard and Jargonelle, both good. The Lammas usually bears, but in my opinion it is of third-rate quality, although in August it may be seen in the streets as plentiful or more so than any other kind. Williams' Bon Chrétien is cropping well this season, and, as is well known, is one of the best while it lasts. It should be in every collection. Other Pears bearing well are Duchesse d'Angoulême, Crassane, Beurré d'Aremberg, Flemish Beauty, Napoleon, Beurré Bosc, Orange Bergamot, Ne Plus Meuris, and Catillac. Many other kinds have some fruit on, but not worth calling an average crop.—A. Harding.

Burghley, Stamford.—Apples may be called a failure, with the exception of Keswick Codlin, Grenadier, and that fine new late keeper, Schoolmaster. Pears on walls a very good, but not a full crop; Glou Morceau and Bergamotte d'Esperen are the best. Plums very few indeed. I have six young trees of Victoria on an east wall, three of which are laden with fruit, whilst the other three cannot produce a fruit amongst them, notwithstanding all the six were one sheet of bloom. Strawberries have done very badly; only about one-half showed any flower. The only exception I can make is in Earliest of All, the plants of which were kept well watered last summer, and for the trouble taken a good crop of fruit has been obtained. I look upon this variety as the best of all early sorts. A small plot of Noble—young plants—kept well watered last year has also done well. Currants and Gooseberries an immense crop of good fruit.

Potatoes, early sorts, splendid, both for size and quality.—R. Gilbert.

Chatsworth, Chesterfield.—Bush fruit is over average, including Gooseberries, Raspberries, and Currants. Strawberries, Plums, and Cherries about average. Morellos very heavy. Pears under average, with the exception of Jargonelle, which is carrying a better crop than usual. This is really the only Pear we can grow with any satisfaction. Marie Louise, Louise Bonne, and other good cropping easily grown Pears we cannot grow to any size or with any flavour on wall trees even in a season like 1887. Dessert Apples we cannot grow worth eating. Kitchen Apples succeed fairly well in ordinary seasons, but always small and ill flavoured compared with fruit grown in warmer districts. Blenheim Orange bears a fair crop once in five years. Of the varieties mentioned below, Duchess of Oldenburg is the most reliable. The following are our most reliable: Keswick Codlin, Lord Suffield, Emperor Alexander, Hawthornden, Echlinville Seedling, Tower of Glamis, Winter Greening, Winter Pearmain. The foregoing remarks apply to old trees mostly. I have within the last twelve months planted some young Apple trees on the surface on concreted bottoms, and hope to grow better fruit in this way than by depending on the older trees.—Owen Thomas.

Wythenshawe, Cheshire.—The Apple and Pear crops here and in this neighbourhood are below the average. This is attributable to two causes, the drought of last summer and the destruction of the flower-buds by finches and sparrows. Some trees made a very weakly start and had but few flowers, while others were thickly set with flower-buds, and where such trees escaped the attacks of birds they are bearing good crops. Of Apples the following are bearing good crops: Kerry Pippin, Cox's Orange Pippin, Ribston Pippin, Court Pendu Plat, Old Nonpareil, Sturmer Pippin, King of the Pippins, Old Hawthornden, Lord Suffield, Lewis' Incomparable, Keswick Codlin, Alfriston, and Northern Greening. With reference to the Apple as a dessert fruit, we consider the first six in the above list—which are placed in their order of ripening—the best flavoured. Cox's Orange Pippin is the best dessert Apple that we have. The following Pears are bearing moderate crops: Citron des Carmes, Green Chisel, Louise Bonne of Jersey, Beurré d'Amanlis, Autumn Bergamot, Althorpe Crassane, Beurré Diel, Triomphe de Jodoigne, and Beurré d'Aremberg. Plums are a poor crop. Damsons in some situations are heavily laden with fruit. Cherries of the Duke class, and also Morellos, are bearing good crops. Raspberries are laden with fine fruit. Gooseberries, Red and Black Currants are bearing moderate crops, but would have been heavy had it not been for the attacks of birds in spring. Strawberries are a failure, and will be a heavy loss to the market gardeners of this district, where many acres are grown for the Manchester market. The only sort that is bearing any fruit worth naming is Vicomtesse Héricart de Thury, and we have had so much rain that a large portion of the fruit has decayed on the ground. Rain fell on nearly every day in July, the total for the month being 4·95 inches.—W. Neild.

Alton Towers, Cheadle.—Apples a good crop. The kinds grown here are Keswick, Lord Suffield, Blenheim, King of the Pippins, Worcester Pearmain, Manks Codlin, &c. Pears are very plentiful. It is many years since we had such a crop. Stone fruit of all kinds very heavy crop, but want sunshine. Apricots are very good. Peaches fairly good, rather under average. Strawberries were plentiful, but suffered very much from rain. Bush fruits and Raspberries are abundant and fine. Nuts are a fairly good crop.

All kinds of vegetables splendid, but want sun. Early Potatoes are looking splendid, and so far prove free from disease.—T. H. Rabone.

Packwood Grange, Warwick.—Strawberries much under average, many plants blind for the first time in my experience; the drought of the previous season appears to have prevented the maturation of the buds; the fruit ill-developed and deficient in flavour. Raspberries and Currants above average, and Gooseberries a fair crop. Apples on the Paradise stock generally a total failure; on the Crab fair to good. Pears under average, many a total failure, but the following promise very good crops: Beurré Giffard, Williams' Bon Chrétien, Beurré d'Amanlis, Louise Bonne, Van Mons Leon Leclerc, Pitmaston Duchess, and Comte de Flandre. Plums a general failure.—Edmund Tonks.

Coddington Hall, Newark-on-Trent.—The Apple and Pear crop in this district is below the average, although in our own orchards we have a good quantity; the fruit, however, will be somewhat undersized, owing to the late spring and cold summer. The dessert Apples which do best in our neighbourhood are Duchess of Oldenburg, Worcester Pearmain, Blenheim Pippin, Lady Henniker, Reinette du Canada, and Cellini, all good in their respective seasons. Pears, hereabouts, are more abundant than Apples, both on walls and on standard trees; with us the following varieties succeed best, and all occupy walls: Jargonelle, Beurré de l'Assomption, a grand autumn Pear, but one which will not keep long; Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, the delicious Thompson's, Winter Nelis, and Glou Morceau. Plums are a fair crop, particularly such sorts as Victoria, Diamond, Pond's Seedling, Kirke's, Jefferson's, and Denniston's Superb. Strawberries as a rule are a thin crop, whole beds being without a single fruit. In our own gardens our young plants, put out last August, have produced a fair crop of large fruit, but our two-year-old beds are a failure. The wet weather has, moreover, greatly interfered with the flavour and keeping qualities of the fruit. Gooseberries and Currants of all kinds are abundant and good; also Raspberries. Amongst the latter the comparatively new Baumforth's Seedling is a grand acquisition. Peaches and Nectarines

out of doors are not to be relied on in our district. Cherries are a good crop, particularly the Morello. —John Crawford.

Rangemore, Burton-on-Trent. — The fruit prospects in this district are fair in some, and total failures in other gardens. We are on the stiff, cold clay, and scarcely any kind of out door fruit attains its proper flavour, even in most exceptional seasons. This applies more particularly to Apples and Pears. The only dessert Apple we can grow is King of the Pippins. This can be recognised as it does approach its normal condition in appearance and flavour. Ribston Pippin, Cox's Orange Pippin, Blenheim Orange, and such kinds, never look like themselves, remaining a light green colour, except where exposed to the sun, and then instead of attaining that beautiful colour, they are a dirty red, and about October shrivel up. Of kitchen Apples, Lord Suffield, Keswick Codlin, Warner's King, Baron Ward, Northern Greening, and Norfolk Beaufin, do fairly well, both as regards quantity and quality of fruit. Plums and Cherries we usually get good crops of fruit on walls and standards. Apricots in general do nothing with us, in some few cases an exceptional single tree will bear, and do well. Peaches and Nectarines are not attempted. Of Pears, after repeated trials, we only grow early kinds, and the Catillac, Williams' Bon Chrétien, Jargonelle, Marie Louise, Louise Bonne, and Beurré Diel are our best. All small fruits do pretty well, and give us a good average crop. This year our Apple crops are medium on the kinds before mentioned. Pears a partial crop. Cherries medium, both dessert and Morello. Apricots poor. Plums medium, both on walls and standards. Gooseberries and Currants good. Strawberries very poor. Raspberries medium.—W. Bennett.

Burton Closes, Bakewell.—The very cold and backward spring considerably retarded vegetation generally, hence all kinds of fruit trees were late in coming into blossom. On many of the standard Apple trees in this locality there was an unusual abundance of bloom. This I attribute to the hot, dry summer of last year, the wood being thoroughly well ripened and matured. Having escaped frost during the period of blooming, many trees are bearing heavy crops of fruit. Should the weather now prove favourable, I think I may safely say the Apple crop will be a good one. Pears and Plums also are an average crop; in an old orchard at Haddon Hall the trees are heavily laden with fruit. Peaches, Nectarines, and Apricots are not generally grown in the open air in this part of Derbyshire, the climate being too cold for their successful cultivation. Strawberries generally are a moderate crop, but the fruit is very fine and clean. Gooseberries, Currants, and Raspberries are abundant, the fruit large, and of good quality. There are good crops of Cherries, especially Morellos. I think Morellos should be more extensively grown in this district, as they are so useful in many ways, and would succeed well on walls where many of the choicer kinds of Pears prove unsatisfactory.—Walter G. Gaiger.

Belvoir, Leicestershire. — There is a very serious deficiency in the Apple crop this year. The old and tried kinds of Apples, such as Hereford Pearmain and Frogmore Prolific, which during a long course of years have never quite failed us, are this year barren. The drought last year and during the first half of the present season affected the trees, and they exhibited weakness at the blooming period, and this, added to the cold, ungenial spring, caused the failure in our fruit crops. The best Apples for flavour in this district are Cox's Orange Pippin, Margil, Ribston, King of Pippins, Golden Pippin, Hereford Pearmain, Blenheim Orange, Kerry Pippin, and Besspool. The Eve Apple, though small, is highly coloured and sweet. There are too many old exhausted orchards in this country; suitable sites for fresh plantations can be more easily obtained in the present depressed state of agriculture than in former years, and the planting of approved sorts of comparatively recent introduction, to meet demands at an early and later period in the season, would be a good investment. The Pear crop is light. The failure is more general on pyramids and standards than on wall trees. Some wall trees are bearing well; the prolific variety Beurré d'Aremberg (Orpheline d'Enghien) has a good crop; Beurré d'Esperen and Josephine de Malines promise well. Since the copious showers in July, Pears and other fruit trees have outgrown their insect pests and are making vigorous shoots. There is by no means a good crop of Plums, but certain hardy and prolific sorts, such as Victoria, Rivers' Prolific, and Damsons, are bearing well, and the trees are growing vigorously. The continued cold and absence of sun during the time Apricots were in bloom prevented the setting of the fruit, and the crop is excessively thin, but the trees are healthy. The crop of Peaches is rather better than might be expected, but not by any means a full one. There is a full crop of Morello Cherries, and the early sorts were a good average. Bush fruits about an average. —W. Ingram.

Worden Hall, Preston.—Small fruits, such as Gooseberries, Currants, and Raspberries, are a very heavy crop. Strawberries poor. Cherries on walls very good, on standards poor; Morellos plentiful, but they do not swell up as they should. Apricots a fair crop, Peaches a failure, Plums good. Damsons very good here, but none in some of the neighbouring gardens. Nuts good. Some varieties of Pears such as Jargonelle, Souvenir du Congrès, Beurré Hardy, Beurré d'Amanlis, Winter Nelis, and a few others are bearing well. Apples, both kitchen and dessert, almost a failure. We find the best for dessert are White Juneating, Red Juneating, Early Harvest, Devonshire Quarrenden, King of the Pippins, Cox's Orange Pippin, which is hard to beat for quality, appearance, and length of season. For late use Boston Russet and Court Pendu Plat.—Robert Frisby.

Hopton Hall, Wirksworth.—Plums on walls fair crop. Good crops of Jargonelle and Marie Louise Pears on the Quince stock. These are always good on a southern aspect, and are the only reliable sorts here. Keswick, Lord Suffield, and Nonsuch Apples are bearing good crops. Irish Peach on pyramids and unpruned has a capital crop, and has never failed. This is the only dessert Apple we can depend on, and is always of good flavour if eaten at the proper time. Duke of Devonshire on wall crops well and proves a good late dessert variety, with juicy refreshing flavour. Blenheim Orange and Ribston Pippin have failed this year on walls, and are much cankered. Damsons and Apples in this district appear to be poor on old trees. They were much affected by caterpillars. A fine, though not heavy, crop of Strawberries. President fine. Laxton's King of the Earlies produced an excellent crop in 5-inch pots in April; the same plants planted out are now giving a very good crop. Gooseberries are an excellent crop, clean and fine. Cherries on walls have been good. May Duke, Elton, Late Duke, and Morellos have good crops. Red, White, and Black Currants are plentiful. Raspberries plentiful.—G. Bolas.

Tatton, Knutsford.—Apricots a fair average crop, but only a few trees grown. Plums a very poor crop. Damsons a fair average crop. Peaches and Nectarines average crop, but very late. Pears an average crop, Marie Louise being thinner than usual; Winter Nelis, Ne Plus Meuris, Beurré Royal, Beurré Diel, Napoleon, Autumn Bergamot, Louise Bonne of Jersey, Catillac, Jargonelle, and a few others are carrying good crops, but all are very late. Apples—Keswick Codlin, Lord Suffield, Pott's Seedling, Hawthornden, Mère de Ménage, John Apple are bearing full crops. Dessert Apples: Irish Peach small, but of good flavour; Margil good; Ribston Pippin a full crop and of good quality; King of the Pippins a full crop of fair size and quality; Blenheim Orange a thin crop, and the quality not so good as of those grown in the south; Court Pendu Plat a very thin crop this year; usually it is a very good cropper and the quality fair; Reinette du Canada and Fearn's Pippin are also thin crops this year. Cherries, both early and late, are good crops. Strawberries only half a crop. All bush fruits fair average crops of good quality. Raspberries a full crop of good size.—Joshua Atkins.

Wingerworth Hall Gardens, Derby.—Strawberries were bad and late, Raspberries good. Apples a good crop, but late and small. For eating, the Irish Peach is early, rich in flavour, and bears well as a standard. Kerry Pippin is small, good, and keeps well. Ribston Pippin is one of the best; I have raised many from seed, and some of them are the best we have. There is a good crop of Pears on the walls, but they are small and late. We are now having warm weather, and if it continues, it will swell and ripen the fruit.—Wm. Froggatt.

EASTERN DIVISION.

Woolverstone, Ipswich.—The fruit crop, considering the fine promise we had, is a most disappointing one, as, except Currants, Raspberries, and Gooseberries, which have been abundant and fine, there are but few Plums, Apples, Apricots, or Peaches and Nectarines, and though Pears set freely, many of the fruits have fallen, and many are deformed and damaged by maggots, which infested the trees to a great extent till the rains washed them off. Strawberries were very thin of bloom, and more especially was this so with plants that had been planted out for years, the sharp drought and heat of last season having been too much for them. As to Apples, in regard to flavour, the most valued here is Cox's Orange Pippin, which is of fine table quality, fair size, good appearance, and lasts long in season. For general use Blenheim Pippin stands next, and for the winter months these two are unrivalled, and to succeed them the best is Sturmer Pippin, which keeps sound and firm until well into May.—James Sheppard.

Drinkstone Park, Bury St. Edmunds.—Apricots flowered fairly well, but we have scarcely any fruit. Cherries are a good crop, both of table and Morello varieties. The fruit of the former is deficient in flavour. Figs plentiful, but now turning yellow and falling off prematurely. Peaches and Nectarines will average about half a crop. Plums very irregular, and will average a third of a crop, an occasional tree heard of with exceptional crop, for instance, standard Green Gages. Pears will average a fair crop, reduced by having to take off a great many deformed fruits. Apples very scarce, late, and faulty in shape, the leading dessert kinds being fruitless, except Ribston Pippin and Court of Wick Pippin. Our best dessert varieties are good in ordinary seasons, but we want a great amount of sunshine to give the fruits colour and flavour, as our soil is not particularly good. Bush fruits and Red, White, and Black Currants are very good. Gooseberry crop good. Raspberries very good indeed. Strawberries most erratic; might average a third of a crop; most of that spoilt by weather. All the above small fruits are sadly wanting in flavour. Cob Nuts and Filberts are a very light crop; Walnuts very plentiful. Apples of last season kept remarkably well. King of the Pippins and Blenheim Orange were good at the end of April, and a dish of Ribston Pippin was sent in for dessert on May 17, while a couple of bushels of a local Apple are good in the fruit room now (Aug. 6).—G. Palmer.

Livermere Park, Bury St. Edmunds.—The fruit crop in this neighbourhood, taken as a whole, is very bad, though it is cheering to be able to report well of some things. Apples, on comparatively young trees especially, are almost a complete failure, by far the greater number of trees not having a fruit on them, and many others only have about half a dozen. Old orchard trees on Grass will be our mainstay this year, and by far the best of these are Ribston Pippin. Both old and young trees of this excellent variety have almost an average crop, which can be said of no other kind. As a rule those that have partial crops are the early sorts, such as Kerry Pippin, Worcester Pearmain, Scarlet Pearmain, Rollisson's Pearmain, Dutch Codlin, and Manks Codlin. I cannot miss this opportunity of giving Cornish Gilliflower another good word, for the only tree of it here has a few dozen fruits which will be very useful, and will probably beat all others for flavour if there is a fine autumn. All keeping Apples ripened with us several weeks before their proper season last winter and were of excellent

quality, several of the so-called kitchen Apples being equal to some dessert kinds. Easter Pippin, Duchess of Sutherland, and Norfolk Beaufin were in use for cooking till the end of June, and were then fresh, plump, well flavoured, and of good colour. The dessert kinds most appreciated throughout the season were Kerry Pippin, Devonshire Quarrenden, Cox's Orange Pippin, Golden Pippin, Hubbard's Pearmain, a first-class, but not well known Apple, good in flavour, texture, colour, size, and of conical form, Ribston Pippin, Blenheim Orange, and Cornish Gilliflower. Pears are a very bad crop; the only sorts which promise fairly well are Marie Louise and Napoleon, both on a west wall. Ninety per cent. of the trees are absolutely fruitless. Apricots are very much under average, the few fruits on the trees being of good size. Plums on walls have about half a crop. The bullfinches cleared all flower-buds from the standard trees and also from Damsons. Bullaces a good crop. Cherries, Morellos over the average, and sweet kinds are very scarce. Peaches and Nectarines are very bad where grown in this neighbourhood. Figs promise well, and will probably give some capital fruit if the present genial weather lasts throughout the autumn. Strawberries had a heavy crop of fine fruit, the greater part of which was spoiled by the long-continued wet weather. Young plants layered last year gave by far the best results, and the fruits on them were very fine. President and Vicomtesse kept their flavour best of all. Sir J. Paxton was firm and stood well, but the flavour was very inferior. Gooseberries were better than last year, but only half a crop, owing to the ravages of bullfinches on the buds. Excellent crops of very fine fruit in neighbouring gardens that give birds no shelter. Black Currants much under average. Red and White Currants an average crop of very fine fruit. Raspberries average crop, but the fruit was much injured by wet. Tomatoes have set very few fruits since being planted out, but those set on the plants beforehand have swelled well. A few have already ripened and others will soon do so. The crop of these must be a bad one, even if they escape disease. Filberts are a complete failure. Walnuts are over the average. Grapes under the average and very late.

Potatoes have made very strong growth. The tubers are fine and there is a heavy crop. Disease, however, prevails in a very virulent form, large breadths being blackened in a day. In the garden, where the haulm has ripened sufficiently, it has been pulled and cleared away to get rid of all the spores if possible and save those tubers which are not already affected.—John C. Tallack.

Wellingore, Grantham. — Apricots are a failure. Peaches and Nectarines under the average. Plums under the average. Cherries blossomed well, but set badly owing to the cold wet at that time. Morellos, which flowered a little later, have set well and promise a good crop. Strawberry plants were nearly all blind, Garibaldi being the only kind giving a full crop, President coming next with about half a crop. Raspberries, Gooseberries, and Currants were a full crop and good; but Gooseberries were attacked by caterpillars, of which only timely hand-picking has ridded them. Apples and Pears are under the average, and have been much affected by maggot, but the late heavy rain appears to have cleansed them. Open bush trees of Ribston Pippin with me are giving a full crop. Among cooking Apples, Small's Admirable is again giving a full crop; this, I consider, is one of the best kinds, as it seldom fails. Brockworth Park as an early Pear, and Van Mons Léon Leclerc as a November Pear, are again good on walls. Conseiller de la Cour as pyramids are good. Walnuts under the average. Nuts a fair crop, but the foliage being almost eaten up no doubt much of the fruit will fall. —Thomas Hare.

Papworth Hall, Cambridgeshire. — The Apple crop is very poor, although our trees are all young, having mostly been planted within the last ten or twelve years. They are wonderfully healthy and have made splendid growth, and are now wanting sunshine to ripen up the wood for another year. As regards the Apple as a dessert fruit, of course we have never, in my opinion, found anything to surpass the Ribston Pippin, and we have a grand tree of that variety which always bears fruit every year. We have two or three other varieties which are very good with us in their season, namely, King of the Pippins, Gipsy King, Cox's Orange Pippin, Worcester Pearmain, and Blenheim Orange Pippin. We have several large orchards in this locality, but there is little fruit. Pears are about half a crop. Peaches and Nectarines are a very thin crop, although they promised well as regards bloom in the early part of the season. As to Apricots, we have a very fair crop. Strawberries were a grand crop, but owing to so much wet the fruit did not ripen well. Of Gooseberries and Currants we have had an abundant crop, I never remember seeing them so fine as they are this year. Raspberries, too, were a very good crop, and the fruit was very fine. Plums are very scarce indeed. We have an unusually good crop of Walnuts, but Filberts as far as I can judge will be scarce. Cherries were a fair crop.

Vegetables in general I never saw in better condition, but I am sorry to say that the continual wet is telling on the Potato crop, as the tops are already showing signs of disease.—T. Smith.

Bloxholm Hall, Lincoln — Apricots are a good average crop, clean and healthy; when in bloom they were well protected with frigi domo. Peaches and Nectarines are a good crop, and were also protected when in bloom, hence our success. Cherries a heavy crop; Morellos extra; Black Tartarian, May Duke, Napoleon, and Empress Eugénie are also very good. Apples and Pears are a very light crop, as, although the bloom was plentiful, it had not sufficient strength to hold out against our cold, wet spring. The following Apples are carrying a fair crop: Allen's Everlasting, a very good dessert Apple; Stirling Castle, Annie Elizabeth, Lord Suffield, Echlinville Seedling, and New Hawthornden. Pears on walls, as Marie Louise, Winter Nelis, Passe Colmar, Easter Beurré, Beurré Diel on espaliers, Williams' Bon Chrétien, Pitmaston Duchess, Beurré Bosc, Catillac, &c., are good. Plums are a failure all round, both on walls and standards. Strawberries promised well, but the fruit is now rotten on the ground. The varieties that succeed best with us are Vicomtesse Héricart de Thury, President, Sir Charles Napier, and La Grosse Sucrée. Gooseberries a heavy crop. Currants, Red, Black, and White, are a good average crop. Walnuts a good crop. Filberts poor.

Early Potatoes a good crop and free from disease. Late crops are looking well, but we are afraid of disease, the weather being so wet.—David Lumsden.

Herringswell House Gardens, Mildenhall, Suffolk.—Apples are much under the average this year. The varieties most in favour here for dessert are Blenheim Orange, Ribston Pippin, Claygate Pearmain, Lord Burleigh, Winter Pearmain, Pearson's Plate, and Cox's Orange Pippin. For the kitchen, Dumelow's Seedling, Early Almond, Royal Russet, Warner's King, Northern Greening, Easter Pippin, and Kentish Fillbasket are the best. Pears on walls are a good crop. The sorts grown are Duchesse d'Angoulême, Marie Louise, Passe Colmar, Brockworth Park, Jargonelle, and Doyenné du Comice. Cherries on walls are good, as are also Peaches and Nectarines. Plums of all kinds here are a good crop, but the yield in the market gardens in the nelghbourhood will be very light. Gooseberries and Currants of all kinds are plentiful. Strawberries have been plentiful with the exception of Keen's Seedling, which was barren. The Strawberries, however, were much damaged by the rain, and could not ripen properly on account of the absence of sunshine. The sorts which thrive best are President, Vicomtesse H. de Thury, Elton Pine, King of the Earlies (a new variety which promises well), and Sir Joseph Paxton, the last named being very much injured by mildew. Nuts are few, but Walnuts abundant. The want of sunshine has been severely felt here.

Potatoes are looking well and promise to be heavy. No signs of disease at present.—F. Dodds.

Sandringham, Norfolk.—The crop of bush fruit is good of all kinds. Strawberries were very fair. Plums not any. Pears fair. Cherries poor. Apples very moderate. No matter what the season is, we do not succed with this fruit. The trees canker very much. Lord Suffield, Worcester Pearmain, Lord Derby, Hawthornden, Keswick Codlin, and the Sandringham all do well, but good dessert kinds are very second rate.

Our kitchen garden crops good. Potatoes with dry weather and sun will be a wonderful crop.—Charles Penny.

NORTHERN DIVISION.

Wentworth Gardens, Rotherham.—Apples here are abundant; such varieties as Lord Suffield, Keswick Codlin, Cellini, Golden Reinette, Easter Pippin, Prince Albert, Cluster Pearmain, Costard, Devonshire Quarrenden, Transparent Codlin, Hawthornden, Cockpit, Court Pendu Plat, Sturmer Pippin, &c., are bearing heavy crops. Pears are not a good crop this year, although there is a fair sprinkling of fruit on some of the trees. The best crops are upon Beurré Diel, Easter Beurré, Ne Plus Meuris, and Louise Bonne of Jersey. Plums are a failure. Peaches and Nectarines are not grown outside here. Apricots are a very thin crop. Of Cherries, May Duke, White Heart, Kentish and Morello are the best bearers here. Strawberries were almost a failure, our best sorts being Black Prince, Vicomtesse Héricart de Thury, British Queen, and President. Currants of all kinds are good. Gooseberries are a thinner crop than usual, this being caused not by frost, but by birds pecking the buds in spring. Warrington is our best and most reliable variety. Nuts are a very thin crop.

The Potato crop up to the present time, I believe, is free from disease. The only kind grown here is Veitch's Improved Ashleaf, also Magnum Bonum in the fields.—George F. Glen.

Worsley Hall, Manchester.—If we now have warm weather we may yet obtain fair crops. Pears are generally a failure, or nearly so, the variety Jargonelle carrying an excellent crop both on walls and standards. Early Peach is our best early dessert Apple, being sweet, juicy, and good, better than either Red or White Astrachan. Yellow Ingestrie, which succeeds this, is small, but handsome and good, ripening off a beautiful yellow colour. Please Ladies, an old Scotch sort, is hardy, a good bearer, and very fair quality. Cox's Orange Pippin comes next, as it is excellent in every way. King of the Pippins and Scarlet Nonpareil both do well and bear constantly. We have a variety labelled Fair Maid or May Bloom, a large Apple and rather rough shaped, but excellent for dessert at Christmas. Its flesh is of a yellow tint, and crisp and juicy. I have never been able to meet with this variety elsewhere. Old Margil is a good Apple, but not a constant bearer. Plums are fair, but never succeed thoroughly in this district. Bush fruits are good, though partly spoilt with excessive wet. Raspberries are a better crop than usual, though short of flavour. Strawberries were a comparative failure, as we did not obtain one-fifth of the weight of last year.—W. B. Upjohn.

Aldenham Park, Bridgenorth, Salop.—The fruit crops here in general are very good. Apricots are above the average, the Moorpark, Hemskirk, and Breda varieties being the only ones grown here. Plums are above the average, especially Rivers' Early Prolific, Jefferson's, and Reine Claude de Bavay. Cherries are very good, especially the variety Empress Eugénie; Morellos, too, are carrying heavy crops. Pears are rather under the average in quantity, but I think they will make up for it in quality; Beurre d'Amanlis, Williams' Bon Chrétien, Green Chisel (which is now ripe), and Vicar of Winkfield are bearing the heaviest crops. Peaches and Nectarines are looking fairly well; of the former I find Alexandra and Noblesse to be the hardiest and less subject to blister than any variety I have got. Gooseberries and Currants are a good average crop. Strawberries were abundant, but owing to the heavy rain and the ravages of slugs, &c., half our crop was destroyed. The Apple crop in this neighbourhood is, on the whole, lighter than for many years past, though we have a few varieties

which seldom fail, viz, Keswick Codlin, Forge, Greenup's Pippin, Hawthornden, and Cellini. As regards flavour, Blenheim Orange is, without doubt, the best, then comes the Ribston Pippin, but the trees here are subject to canker; Devonshire Quarrenden succeeds well, and is much appreciated as a dessert fruit.—T. Canning.

Seaham Hall, Durham.—Owing to the cold season, and more especially to the winds from the sea, this has not been a favourable season for the setting of the bloom. Apples are very scarce, only Lord Suffield, Hawthornden, Blenheim Orange, Red Astrachan bearing any fruit. These are sure bearers and the fruit is of fair quality, considering that we are so exposed to the sea; but, as a rule, Apples are here of an inferior quality for want of sun and cold winds. The Red Astrachan, Golden Pippin, and Blenheim Orange varieties are of good flavour. Of Pears, Jargonelle is the only one that has fruited this season. We had plenty of flowers, but they failed to set. Currants, both Black and Red, have a good crop. Gooseberries have a fair crop, but owing to the sparrows in winter most of the buds were destroyed. The Strawberry season has been too wet, and the fruit decayed before it was ripe. Cherries do not fruit here.

Potatoes look well, and there are no signs of disease.—R. Draper.

Raby Castle, Darlington, Durham.—Apples are generally very poor, a few kitchen kinds being tolerably good, Nelson's Codlin notably so. Dessert kinds are chiefly grown here on walls, and consist of Golden, Cox's Orange, and Ribston Pippins, which rarely fail to produce a good crop. Other kinds are grown as standards and espaliers, but the fruit rarely attains maturity, except the Red and White Juneatings, which bear very freely on standards. The Devonshire Quarrenden never ripens its fruits, except on walls, and even then are inferior both in size and flavour to those grown in Devonshire. Pears are very few, excepting Jargonelle and Beurré Diel, which are both bearing a good crop, but so late that I question if any but the Jargonelles will come to maturity. Apricots are plentiful on hot walls. Peaches and Nectarines are all grown here under glass. Plums are a failure, excepting Victoria and one or two other kitchen varieties. Damsons none. Sweet Cherries are plentiful; we have an abundance of Morellos. Bush fruits of all kinds are excellent. Strawberries a failure; whereas in gardens not a mile distant Strawberries are abundant, though the greater portion of the fruit rotted on the plants from excessive rain and lack of sun.—R. Westcott.

The Castle Gardens, Alnwick.—This garden will not produce first-rate dessert Apples, except on walls. I have of late years planted several trees. Ribston Pippin, Cox's Orange, Worcester Pearmain, Blenheim Pippin, and King Pippin are good. The Ribstons have produced some splendid fruit, but all are scarce this year. Some of the general free-fruiting kinds have a crop on standards. The blooming season (end of May) gave great promise of an abundant crop, but cold winds the beginning of June and a severe hailstorm on the 14th spoilt the crop. Apricots are a fine crop and the trees are in splendid condition. Peaches are the most general crop that I have had for seven years. We seldom fail to produce a crop on free-fruiting kinds such as Royal George, Dr. Hogg, Prince of Wales, and Sea Eagle promises to be a great cropper. Pine-apple is the best Nectarine; the fruit is not large from the open air, but of splendid colour. The land here is light, and I give a great deal of attention to Peaches and Apricots by applying large quantities of manure water even in winter when dry and after a dry summer. To this I attribute the usual success, but if this cold, wet weather continues the fruit cannot be large this season. Of Pears we have generally a light crop. I would highly commend Hacon's Incomparable for December and January; it is the best here for that season, the fruit being large, rich, and juicy. Cherries are under average, but good. Morellos and May Duke usually fruit well here, but Bigarreaux will not bear. Plums generally scarce, but some young trees of Victoria on wall have fine crops. I cannot make anything of the Victoria variety as a standard. Strawberries planted last year are now fruiting fairly, but old plants are a very light crop and three weeks late. In these exceptional seasons I find Vicomtesse Héricart de Thury to excel all others. Raspberries are an exceptionally heavy crop, and other bush fruit a good average.—George Harris.

Lowther Castle, Westmoreland.—Strawberries were below the average, the fruit small and late. President was the only variety that gave good fruit this year. Plums are below average both on walls and standards; the best on walls are Victoria, Kirke's Seedling, and Magnum Bonum. Cherries are an average crop both on early and late varieties. Pears are almost a failure with the exception of a few on walls, and these are very late and small, and I am afraid will be useless. Damsons an average crop. Gooseberries above the average. Red and Black Currants are an average crop. Raspberries promise a full crop. Nuts are a failure. Apples are almost a failure in this neighbourhood. The fruits are also very small and late. The following kinds are carrying about half a crop: Keswick Codlin, Tower of Glamis, Cellini Pippin, and Lord Suffield. Our best dessert kinds here are, as a rule, Worcester Pearmain, Scarlet Pearmain, Mannington's Pearmain, Sturmer Pippin, and Nonpareil. These are quite a failure this year, owing no doubt to the cold east winds and severe frosts during May, which destroyed the crop just as it was set. Apricots are very poor and fruit small and late.—F. Clarke.

Wynyard Park, Stockton-on-Tees.—As far as this district is concerned, fruit crops are much below the average, though I do not remember a season that opened more favourably with regard to the quantity of bloom, especially on Apples, Pears, Plums, and Cherries, but owing to the prevailing low temperatures in the setting stage, with an after attack of caterpillars (particularly on Apple trees), the crops are anything but satisfactory, though the heavy storms have cleared us of the caterpillars. Apples that are carrying the best crops here are: Blenheim Orange, Echlinville, Keswick Codlin, Stirling Castle, Cox's Pomona, Devonshire Quarrenden, Sturmer Pippin, Pitmaston, Nonpareil, Tower of Glamis, Claygate Pearmain, Ribston Pippin, Cambusnethan, Red Astrachan, Winter Codlin, and Normandy Pippin. Pears are a particularly thin crop; very few varieties are carrying any fruit, and of these the best are Williams' Bon Chrétien, Beurré Diel, Duchesse d'Angoulême, and Marie Louise. Plums are a poor crop; Victorias on standard trees are the only ones worth noting, and these are good. Morello Cherries are a very good crop, particularly on bush trees, those on walls being by no means so good. Apricots are almost a complete failure. Bush fruits are plentiful. Black and Red Currants an excellent crop of very fine fruits. Owing to the lateness of the season and so much rain, it has been simply disastrous for Strawberries. Up to the present (August 6) we have not gathered out of doors more than 12 lbs., and these from Vicomtesse Héricart de Thury, the quality of the fruit being exceptionally poor; President, James Veitch, and others are carrying heavy crops. Taken all round, it is by far the worst fruit season I have experienced in South-east Durham.—E. H. Gribble.

SUPPLEMENTARY ENGLISH REPORTS.

Impney Gardens, Droitwich.—The fruit crops, generally, in East Worcestershire are below the average, with the exception of all bush fruit, which appears plentiful everywhere. Great disappointment has been felt around here in the failure of the Plum crop, as many depend much upon the produce of their plantations for a livelihood; the disappointment is all the more keen after the grand promise for good returns in the spring. This failure has been brought about chiefly through a plague of caterpillars, which destroyed both fruit and foliage to such an extent, that had a hot dry season followed, like that of last year, many trees would certainly have died right out, but the heavy rains of late have done much to produce a clean growth. Strawberries have suffered much from the heavy rainfalls, but by propping up the fruit by means of short stakes and twine, we have secured a good supply of large fruit, but very deficient in flavour. Where time could not be found to adopt the above plan, the crop was sure to succumb to mildew and the attacks of slugs. Peaches and Nectarines on walls are carrying fairly good crops, but owing to the unusually late season, together with a dull cold one, fears are entertained that they will not ripen. All depends upon the amount of sunshine we get the next six weeks. Every assistance will be given to the trees, and where practicable spare lights will be placed against the walls, with a view of husbanding as much warmth as possible. The same remarks apply to outdoor Figs. Apricots are plentiful and require thinning. Pears and Apples are somewhat puzzling this season, inasmuch as some require supports, while others, the same varieties, in the same orchards, are fruitless. Of kitchen Apples the following are carrying the heaviest crops: Lord Suffield, Stirling Castle, Echlinville Seedling, Golden Spire, Cellini, Cox's Pomona, Mère de Ménage. Dessert varieties: I notice the old Golden Pippin to be carrying by far the heaviest crop, followed by King of Pippins, Irish Peach, Devonshire Quarrenden, Worcester Pearmain, and Cox's Orange Pippin. Respecting the different merits of dessert Apples, we find Cox's Orange Pippin most appreciated, not only for its handsome appearance, but also for the rich flavour, which we do not get in any other variety. We depend chiefly upon the following varieties, which come into use in order named; Irish Peach, valuable for its earliness, beauty, and refreshing juice—much of which it loses, if not eaten soon after gathering. The same remarks apply, in fact, to all summer Apples. Devonshire Quarrenden: This variety is often seen in large clusters of small, badly coloured fruit, but when properly grown, and the fruit judiciously thinned, it forms a handsome and valuable early Apple. Worcester Pearmain can be recommended as a regular cropper and for its handsome appearance, and though the flavour is not so good as that of some less showy varieties, we find it a very useful kind indeed. King of the Pippins is a general favourite everywhere, as it is a good bearer, showy in appearance, and everything that can be desired as to flavour. It is most useful for autumn and early winter work. Cox's Orange Pippin follows, and, as pointed out above, is held in the highest esteem where good Apples are appreciated, and by its good keeping qualities supplying fruit for at least four or five months. Golden Pippin, when properly harvested, forms our next supply, with beautifully coloured fruit and tempting appearance. This variety requires very careful handling, the skin being so clear that the least bruise shows immediately. Court Pendu Plat is very valuable for its keeping properties, as it can be had when nearly all other kinds are over. To secure this end, the fruit is allowed to hang on the trees as late in the autumn as possible, and stored away in heaps covered with straw or in barrels. If gathered early and placed on shelves, they shrivel before midwinter, and, of course, become uneatable. I have selected the above out of many other varieties that are grown here as the best and most reliable of sorts, but also find several others useful for filling in, as it were, between seasons, such as Kerry Pippin, Margil, Cornish Gilliflower, Adam's Pearmain, &c. We find Blenheim Orange and Ribston Pippin canker badly here, so have not placed them in the list we depend upon, though the first often produces heavy crops of handsome fruit in the many orchards around here.—Richard Parker.

Ilsington Gardens, Dorchester.—Apricots, Peaches and Nectarines are a very poor crop. Plums under average; Cherries and Plums an average crop. All small fruits are very abundant. Strawberries and Raspberries have suffered from the excessive rain, but Apples are a good average crop, the foliage of many trees having been injured by the caterpillars. We find the following the best flavoured dessert kinds: August and September—Irish Peach, Kerry Pippin, Devonshire Quarrenden; October, November, and December—

Ribston Pippin, Cox's Orange Pippin, Cornish Aromatic, Mother Apple, King of the Pippins; the latter never fails to bear a good crop here; January to March—Braddick's Nonpareil, Duke of Devonshire, Melon Apple, Scarlet Golden Pippin; March to June—Allen's Everlasting, Lord Burghley; the last-named is an Apple of fine colour and flavour.—J. Powell.

Fruit Garden.

PROFITABLE PLUMS.

Taking one season with another, the Plum is one of the most profitable fruits that are grown in quantity in this part of the country. It is true it is a crop which is at the mercy of May frosts, when we are unfortunate enough to be visited by them at the time when the trees are in bloom, but of late years we have escaped very well.

In the neighbourhood of Worcester Plums are cultivated in quantity. The Vale of Evesham is noted for this fruit, besides other localities in the county where Plum orchards are of frequent occurrence. But my object in penning these notes is not to give an account of the crop generally, but rather to state a few facts relative to that which is growing in the orchard on this estate. A walk through the long rows of trees at the present time enables one to form an estimate of the crop, which on most of the kinds is this year very heavy. So heavily are the trees laden, that, notwithstanding many were thinned some time ago and the branches propped up to prevent damage from breakage, a great many snapped off with the weight of fruit. The orchard in question is over 20 acres in extent, and is connected with the home farm. It has been planted about fifteen years, not as is usually done with trees already furnished with heads, but by planting the stocks 8 yards apart and grafting them afterwards where they stood, the stock for the Plums being Pershore Egg. The original intention was the formation of an orchard of Apples and Pears, but to utilise the space until the trees had reached a good size and wanted more head-room, rows of Plums were planted alternately with the Apples and Pears. But so remunerative have the Plums proved, that I question whether when it comes to a case of thinning, the Apples and Pears will not have to give place to the Plums, especially as some kinds of the former fruits are far from satisfactory. Not many varieties are grown, and I will take them in their order of ripening. First stands

Rivers' Early Prolific.—Too much cannot be said in favour of this Plum. They were being gathered last week (second week in August); most of the fruit were then pretty well coloured, but not soft, as they are of no use for sale if allowed to hang on the trees till they are nearly ripe; many of the trees were carrying from two to three pots (5 pecks), and as they were fetching in the market, at this time, from 10s. to 15s. per pot, it will be seen that this is an excellent variety to grow for market. The tree is a good grower and forms a handsome head. The quality of the fruit is first-rate, no other Plum, if we except the Gages, making such a rich preserve. There is another of Mr. Rivers' Plums, which is sometimes sold for Early Prolific. I suppose it must be Late Prolific. The two varieties have become mixed, and some grafts obtained from one place for Early Prolific turned out to be quite a different thing, the habit of the tree being more upright, the leaves smaller, and it is altogether a very much inferior kind to grow for profit.

Prince Englebert follows Early Prolific, and a grand Plum it is, deep purple coloured, and takes on a dense bloom; it is a robust grower and very prolific. This year the crop is thin, but last year the trees were heavily laden, and the fruit realised a good price.

Victoria comes next nearly one half of the trees are represented by this popular Plum, and well it deserves extensive cultivation, for a season without Victorias would indeed be a bad Plum year, so constant are its cropping qualities. To give you some idea of the weight of this year's crop, I send you a small branch of fruit from one of the trees, which is no uncommon sample; many similar branches could be cut from most of the trees. This Plum is always a favourite kind with buyers, and will often command two or three shillings a pot more than most other kinds which ripen at the same time.

Pond's Seedling is a much larger Plum than either of the preceding kinds, but what is gained by it in size is lost in quantity, as here it is not so prolific and the trees do not grow so kindly, but being a large and handsome fruit—two great points in favour for market—the quality also being good, it usually fetches a good price.

Diamond is another large Plum, but, unlike the preceding kind, it is robust and prolific. Scores of large trees are this year carrying enormous crops. It is not far behind Victoria as a reliable bearer. The fruit is oval, deep purple in colour, and carries a heavy bloom.

Autumn Compote is the latest and the least satisfactory, the growth of the tree not being kind, the heavy soil of this locality apparently not suiting this variety. It is, however, a handsome fruit of good quality, and valuable for continuing the supply to the end of September.

The yellow Plum called Pershore Egg is very extensively grown in this part of the country, and when Plums are as abundant as they were in 1886 this variety gluts the market, and will hardly pay for gathering. Such would not happen if the railway rates were more favourable to the home-grower, as with such direct communication with the great centres of population in the north as Worcester possesses, there ought not to be any difficulty in finding a market for any quantity of fruit yielding a profitable return to the grower. A. Barker.

Hindlip.

*** The branch of Victoria Plum received bears out Mr. Barker's statement, as on a shoot 18 inches long there were forty-five half-grown Plums.—Ed.

FRUITS UNDER GLASS.

Vines.

Late houses containing Lady Downe's and other thick-skinned varieties intended for bottling will now require more than ordinary attention, and then I question if the fine quality so frequently met with last year will be the general outcome of this cold, sunless summer. The temperature every night of late having touched 40° and on one occasion 34°, it is hardly necessary to assume that fire-heat has not yet been given up, neither must it now, as daylight will soon be counterbalanced by darkness, whilst Grapes to keep fresh and plump should be quite ripe by the end of September. Fresh warm air being the main factor in laying on colour and bloom, fire-heat must be just keen enough to admit of a free circulation by day when the temperature should rise to 80° or 85°, and it must be turned on again when the ventilators are opened for the night. On bright sunny days and during the time the house is closed in the afternoon it may be dispensed with, but the fires, so long as this cold weather prevails, must be kept going, otherwise the minimum temperature will be touched at nightfall; whereas it should not be reached before early morning. All danger of scalding having passed away, it will now be well to commence shortening back the laterals, but not to an extent that will expose the shoulders of the bunches to the direct influence of the sun, as it is well known that the most perfect finish is always found under a good canopy of foliage through which glints of light and solar warmth can pass indirectly. If the inside borders are likely to require another liberal watering, no time should be lost in giving them a supply of warm diluted liquid guano or soot water at a temperature of 80°, when the surfaces may be lightly and neatly covered with fresh stable litter to prevent evaporation. The outside roots having received an abundance of water from the clouds, they may be left alone for the present, as solar heat is of more importance than shelter; indeed, I question if a well-drained border containing the roots of Vines whose Grapes are cut at Christmas ever requires more than a layer of Fern or stable litter for excluding frost from its surface. Although the colouring process will now be rapid, the supply of atmospheric moisture must not be stinted, at least for the present, as good Grapes double in size after they commence colouring, especially where the stems, walls, and floors are judiciously damped on fine mornings, at mid-day, and again after the house is closed with strong sun-heat to swell the berries. A moist, slow season being more favourable to the size than the sweetness of the Grapes, all large bunches for the last time should have the scissors passed over them, first, for the removal of partially fertilised berries, and, second, to set the berries thoroughly free, as bunches that bind now are more likely to rot than pass safely through the winter.

Muscats.—The treatment of these as regards heat and atmospheric moisture is so similar to that recommended for carrying Lady Downe's to their highest perfection, that it is hardly necessary to repeat my remarks in this paper. If anyone doubt this let him plant or inarch a Lady Downe's and a Gros Colman in his Muscat house; let him cut and bottle the produce with his ordinary Grapes from the Lady Downe's house, and time will prove which bunches keep fresh and plump longest, and which berries contain the most saccharine matter. So far good; but in another respect the treatment of the two houses must differ, for whilst black Grapes, as I have just remarked, colour best under a full spread of foliage, the Muscat and all white or amber varieties fall short where the sun and light cannot reach them. To secure these conditions, all laterals, that is where the main foliage is sound and good, must now be shortened pretty well back to a leaf or two, more or less, immediately over the bunches. Laterals on young rods from which Grapes are expected next season also may be cut out close to the main buds from the base up to the pruning point; whilst those upon the parts which will be cut away must have a few leaves left to draw the sap and prevent the fruiting buds from breaking. This treatment, it must be understood, applies to Vines whose premier leaves are fresh and healthy, and not to such as have been defoliated by accident or the ravages of red spider. In cases of this kind, by no means uncommon, it may be absolutely necessary to tie down a few of the laterals as second-rate substitutes for damaged or lost leaves, and to stop them at a few joints more or less to keep up an even spread of fresh foliage. If the roots are confined to inside borders, now coming rapidly into favour, they must be well supplied with tepid water more or less tinged with soot or good clarified liquid. Early morning from now forward is the best time to water autumn and winter Grapes, Muscats included, and the better to prevent the surface roots from becoming dry they should be well littered with long stable manure moderately, but not dangerously, charged with ammonia. The tyro who believes in strength will do well to mark the concluding part of the last sentence, as an overdose of this subtle stimulant may destroy the most tender foliage. This, however, will not happen if he allows the litter to remain a day or two in the open air, turns it once or twice and leaves a chink of air upon the ventilators for twenty-four hours after the manure is introduced. As the ripening process goes on and the Grapes put on their rich amber colour, it is just possible the shoulders of the bunches under modern roofs may burn or become slightly brown, a defect which does not greatly detract from the quality, but nevertheless depreciates the value. Night air and early morning ventilation before the sun strikes the roof are good preventives, but certainty being preferable to risk, all fixed fiery roofs, for a few weeks at least, should be slightly shaded. Haythorn's hexagon netting answers well, as it breaks the sun's rays without

impeding light; moreover, it renders the house wasp-proof, as it can be drawn over the ventilators. Fixed shading of an opaque nature is an abomination, as it interferes with the ripening of the wood and foliage and checks the escape of heated air and moisture. If early forced Muscat Vines still hold their leaves and the latter are laying on their soft red and gold marbled colours, the house must have an abundance of fresh warm air by night and day and an occasional dash with the syringe to prevent the appearance of spider. If not already done, the laterals forthwith must be removed from every bud up to the pruning point on young canes, also from the lower parts of spur shoots. The main leaves, it is hardly necessary to say, must not be injured, as these have not quite finished their work, and the upper laterals on the young rods and spur shoots must be left to act as safety valves for some little time longer. If the borders, inside of course, are satisfactory, their principal requirements will consist of moderate supplies of water and a plentiful mulch of some light non-conducting material. If, on the other hand, the roots have reached their limit and fresh food is considered necessary, 18 inches or 2 feet of the old border, roots and all, may be removed quite down to the drainage and replaced with new compost. The surface of the border at the same time may be relieved of all inert soil and mulching fairly down to the roots, redressed with turf and bone-dust, firmly beaten with the back of the fork, and lightly watered to wash the soil home amongst the fibres.

Early Hamburghs now going to rest must have an abundance of air by day and night and bi-weekly washing with the hose or syringe to keep them clean, and let the sap gradually down to what some are pleased to term a dormant condition. All border work, be it lifting and relaying, reducing, or top-dressing, as a matter of course, will have been brought to a close, and beyond a light covering of fresh stable manure for keeping the thin layer of surfacing moist, the external roots will have full exposure to the elements. When all the leaves have fallen from the Vines, the whole of the roof-lights may be removed to the workshop for repairs and painting, and when the paint is thoroughly set they must be returned, as nothing is gained by exposing the inside roots to cold rain after the end of September. Stripping, indeed, it must be understood, is not absolutely necessary, as we have fixed roofs under which the Vines start evenly and regularly at the proper time; but cleanliness being a great virtue and painting an absolute necessity, labour and materials may be economised by drawing all the moisture out of the lights first, and operating upon them afterwards under cover. If the house in which

Fruiting Pot Vines is not wanted for other purposes, nothing will be gained by following the hackneyed method of turning them out of doors to be beaten and battered by storms of wind and rain, especially where the roof-lights can be run half off the structure, and perfect rest is certain. If well grown and ripened, and all the roots are confined to the pots, the latter should now be placed on planks or tiles to prevent worms from getting into the crocks and compost, and the better to preserve the roots in a fresh, bright, healthy state, the pots should be completely covered with some light moderately dry material; dry Fern, old tan or litter answers very well, but before any of these are placed about them, the balls should be properly moistened, for, next to gorging the roots with cold rain in the open air, the next fatal error is allowing them to become dust dry when kept under cover.

Midseason Vines from which the fruit has been cut will require careful attention for some time to come not only in watering and airing, but also in syringing, especially where spider has put in an appearance. If trained upon the semi-extension principle, all the laterals may be removed from the lower halves of the fruit-bearing shoots, and, assuming that the foliage is clean and healthy, many of these also may be shortened to let in light and air, as next year's crop depends upon getting the buds ripe and the embryo bunches formed before the leaves fall. Vines upon the restrictive principle most not be too closely divested of sublateral growths, especially where there is room for the full development of the foliage without its becoming crowded. The laterals near the base of each fruit-bearing shoot, however, also upon young canes intended for fruiting, may be cut out quite close to the bud at the base of the main leaf, care being taken that neither of the latter are injured, as one without the other is of little use. These remarks apply to Vines in perfect health and whose only root requirements are the annual top-dressing, but, assuming that the roasting of the past and the drenching of the present seasons render lifting and renovating necessary, the removal of superfluous foliage in this case must be deferred, as it is very important that root action be restored not only before the leaves fall, but before lateral growth ceases. If at hand or within reach use good turfy loam fresh from the old pasture, properly enriched and corrected with lime rubble, charred refuse and half-inch bones, but avoid the use of leaf-mould or animal manure, as the first breeds or feeds fungus, and the second, whilst encouraging worms, soon becomes inert and does more harm than good to the fibrous compost. Having removed all the old soil, ascertain that the drainage is good, and proceed by covering the latter with some of the fresh turf Grass side downwards. Upon this lay a foot or so of the roughest of the previously prepared compost; if in a fermenting state so much the better. Make it thoroughly firm to prevent settling and repeat until the base is high enough for the first layer of roots. Having let down the latter, trim away all gouty, defective and injured parts, lay out a few of those which emanate from the lowest part of the undisturbed border, cover with more compost and proceed in this way, layer upon layer, until all are disposed of and the border is some 6 inches higher than the intended level. If any of the old roots are extra long shorten them well back, notch them in a few places to induce fibres, and keep them well up to the surface, as it must never be forgotten that the young fibres will descend; also that a medium border well filled with roots is better than a large unmanageable mass of soil which entails unnecessary expense in formation, feeding, and protecting; and last, but not least, in which a superfluity of rich food is not favourable to the ripening of the wood and the perfect finish of the berries. Protect outside borders when finished with a good covering of fresh stable litter, trust to the clouds for water, and keep the interior of the house close and moist until the crisp appearance of the laterals denotes that fresh root action has set in. Inside borders may be treated in the same way, but the covering of old Mushroom manure or the like may be lighter, and tepid water when growth has set in must be given to the compost. Vines in single borders require shading, but having an outside as well as an inside run, this precaution is neither necessary nor desirable, as one or other may be taken out and removed with impunity at any time after the last bunch of Grapes is cut.

Young Vines planted out in inside borders in May and June will still be growing freely, but having been stopped at 6 feet or so above the front wall plate, the lower parts will now show signs of changing colour, and the canes will be thickening rapidly. An abundance of active roots below the surface and a few well ripened buds above it being the end held in view, the first must be kept near the mulching by the frequent application of tepid water, and the buds may be plumped up by the removal of every bit of lateral from the base upwards to the bud to which it is intended to shorten back in November or December. All growths above this pruning bud may be allowed to extend for the present, that is, so long as they do not overcrowd each other and choke the ventilators, but gradually, as the premier leaves on the lower parts of the canes show signs of changing colour, the strongest of these may be shortened. More air and a little gentle fire heat may be given, and the use of the syringe may be almost, if not entirely, suspended. I have seen young canes much injured by full exposure to all weathers when protection from wind and rain and a continuous circulation of dry, warm air would have ensured a perfect bunch of Grapes from every bud left upon them. W. C.

SHORT NOTES.—FRUIT.

Pine growing is still carried on somewhat extensively at Arundel, three large stoves being devoted to fruiters alone, which were ripening up some fine large fruits when we saw them recently.

Peach Amsden's June.—This is an American Peach that finds great favour at Arundel on account of its earliness. It is a free-fruiting, hardy kind that ripens well on the open wall in July.

West's St. Peter's Grape.—Mr. Busbury, of Arundel Castle, speaks highly of this as a late Grape. We noted a fine crop of it during a recent visit, but it is a kind that takes a long time to finish off. This Grape also does very well in the large vinery at Chiswick.

Mulberries dropping.—At Ham Manor there is a very large Mulberry tree that usually ripens annually a great crop of fruit. This year, owing to the cold weather, all the berries are dropping. We saw the ground positively covered with them, and they were still green and hard.

A large Fig tree.—On a wall at Kindon Hall is a very old Fig tree of great dimensions. It covers a piece of wall 18 yards long and 18 feet high. The old branches are kept cut out, young ones being from time to time laid in. The tree annually carries large crops of fruit, which generally ripens satisfactorily. The kind is Brown Turkey.

GARDEN FLORA.

PLATE 664.

FANNIN'S WINDFLOWER.

(WITH A COLOURED PLATE OF A. FANNINI.*)

The three species given below are all the Windflowers that are natives of the Cape; another, A. Thomsoni, is found on the mountains of Kilimanjaro at 9000 feet to 10,000 feet elevation, and will probably be hardy with us in this country, the nearest European species being found in Algeria, no representative of this genus being found in Abyssinia or Morocco. It is not until Natal is reached that we find A. Fannini, still further south A. caffra, and futher still A. capensis. The species in the accompanying coloured plate is probably the only one of the three likely to be useful to us as a hardy herbaceous plant in this country, and if what it promises is fulfilled, it will vie with the popular A. japonica as a border plant. Apart, however, from its lovely sweet-scented flowers, it may be found well worth growing for the size and beauty of its ample foliage.

A. CAFFRA, a near ally of A. Fannini, is said to be very plentiful in moist, stony places on the south-east of the Cape. It very much resembles A. Fannini, but is smaller in all its parts, and, as Sir J. D. Hooker suggests, the two may prove forms of the same species. So far as we know, A. caffra is not now in cultivation.

A. CAPENSIS.—This is a very old species, figured in the *Botanical Magazine*, t. 716, and, so far as we know, not now in cultivation.

FANNIN'S WINDFLOWER (A. Fannini).—This is one of the most remarkable herbaceous plants we have yet seen. It was, we believe, first discovered at Dingle Farm, Natal, in 1863, by the gentleman whose name it bears, but it was not until twenty years after this that good seeds were received in this country, and in the following year it flowered for the first time at Kew, where it has been grown in the open air ever since. It was also gathered on open grassy situations about 3000 to 4000 feet above sea level by Mr. A. W. Adlam, of Pietermaritzburg, Natal, who sent fresh seeds to England, and these were largely distributed to those interested in plants of this nature. Speaking of this Anemone in one of our contemporaries, Mr. Adlam says: "My path led along a hillside where Anemone Fannini grew very strongly; flower-stems 5 feet high, leaves 2 feet in diameter, and flowers 2 inches across." Twenty years ago Harvey noted this species as a noble plant, and it certainly is, although as we

* Drawn for THE GARDEN by H. G. Moon in the Royal Gardens, Kew, April 21, 1888. Lithographed and printed by Guillaume Severeyns.



have seen it in cultivation, it is not at all comparable with the giant size the Rhubarb-like leaves attain in a wild state, although the flowers were fully the diameter given by Mr. Adlam. The flowers are sweet-scented, and open in April and May. As stated above, it has proved perfectly hardy in the open border at Kew where it has been growing for two years on a south exposure; the leaves are deciduous, but come up strongly in spring, the largest dimensions being 13 inches in diameter. Its deciduous character will be of great advantage in cold districts, as the crowns may be covered over with some porous material to exclude frost, &c., and save them from injury. It seems to grow best when planted in good loam with a liberal addition of well-rotted manure, and when fairly established abundance of water. When the large flowers first open they are of a greenish yellow, but become pure white in a few days, and last about a fortnight. Whether this remarkable plant ever becomes as popular as the Japan variety remains to be seen; at present, however, it promises well, and the more liberal the treatment the better will be the result.

D. K.

ORCHIDS.

W. H. GOWER.

ORCHIDS IN FRANCE.

I HAD so frequently heard that French gardeners could not grow cool Orchids, that I determined to run across to the picturesque old town of Rouen to see the Comte de Germiny's collection at the Château de Gouville, near Fontaine-le-Bourg. Here I found a large garden exceedingly well kept, both indoors and out, all classes of plants being duly cared for and well done. Here I confine my remarks to the Orchids. At Gouville the Comte and the gardener are equally and deservedly proud of their Orchid culture, and I am sure no greater lover of these plants can exist in the British, or any other Isles. The Comte most affably went round the gardens, and not once did an expression escape as to the value of this or that plant, but only questions as to its beauty or its culture. After having been all round the garden I said, "Mons. le Comte, you have not shown me your hospital." He quietly remarked, "I have shown you my whole place, so I cannot have a hos-ital."

I will commence with the Odontoglossums, and really, if our gardeners do not set themselves to work, they will have to be placed second in the race. Here I found an enormous quantity of grand specimens, not little pieces, but huge masses which have been here some years, and every year has seen an improvement in the size of the bulbs and health of the plants, until they have now such enormous bulbs that they excel those in the majority of collections round London. The plants, too, are well rooted, and the foliage is as green as possible. The question arises, how is this achieved? In the first place the plants are all grown in Teak-wood baskets and stand upon pots. This I had not seen practised before, but I can appreciate the system, as it certainly is the means of keeping the plants more free from stagnant moisture than our own system of growing them in pots. They are growing in a mixture of peat and Sphagnum of about equal proportions and some fibre from the Polypodium vulgare, and are potted firmly, which also, I contend, is an advantage, as it enables the plants to fix themselves more firmly, and sourness and stagnation are avoided. The temperature and atmosphere were about the same as are given in this country. The houses in which all the plants are grown have curvilinear roofs, and they are shaded with what the French call *claie*, but which in English would be called lattice-work. It is not much used in England, but I observed recently that it is adopted at Burford Lodge for Sir Trevor Lawrence's collection. The Odontoglots had been very fine, judging by the number of old spikes. Some few, however, were still in flower, such as O. Pescatorei and crispum, roseum and Harryanum, and some varieties were but just throwing up spikes; these were very strong commensurate with the growths from which they were produced. O. vexillarium and its variety Lehmanni were still very gay, especially the latter, which was remarkable for the great quantity of spikes and flowers of large size, produced from moderate-sized plants. This species is not grown cold, and the Comte remarked that they found it thrive best when treated to a temperature a few degrees lower than is given to the Cattleyas, and which appeared to be about on a par with



Disa grandiflora.

English culture. Masdevallias are also largely grown here, and in large specimens also; they have not the convenience of a back wall, but they are in superb health; scarcely a spot of black is to be seen in the whole collection. The species and varieties are numerous, but as the first flowering season was past and the second crop was not open, I could not form any opinion as to their merits, although I know some fine forms have been flowered in this establishment. Disa grandiflora (see illustration) is another cool Orchid that is grown to perfection by Mr. Vincent, the gardener here, and at the time of my visit there were between 500 and 600 flowers open; truly a marvellous sight, and one that amply repaid a journey from England if there were nothing more to be seen. These plants are certainly grown cold, being wintered with the Pelargoniums, and when the spring comes they are removed to a cold frame and plunged. Here they grow and remain until they flower, when they are brought into a cool house and arranged with other Orchids. Another remarkably well-grown and well-flowered plant of the majus variety of Epidendrum vitellinum, bearing upwards of thirty spikes of flower, was also noteworthy. Such a fine specimen in a single plant I had never seen before. After this who will dare to say the Frenchmen cannot grow cool Orchids? Another Epidendrum which does well here is E. Wallisi, one of the slender-stemmed paniculate section, which flowers at every joint downwards, and a plant with several stems is seldom, if ever, out of bloom. Stanhopeas are largely grown here, as I have previously remarked them to be on the Continent. They are grown cool, and the kinds now flowering are graveolens, insignis, and ocellata, and a grand plant of Acineta bearing three spikes. Of Cattleyas and Lælias there is a fine collection of large specimens of all the good and leading kinds, all growing well, though, as with us at the present, there are not many flowering. Notable, however, was a fine example of C. Leopoldi splendens, which had borne thirty-two flowers on the single spike. Here I observed a greater amount of air is given than is usually the case in English gardens, and apparently with good results. This is quite in accordance with my teachings for many years, but I have not made as many converts as I could have desired. C. gigas is also doing well and flowering here, so that with this species we have not a monopoly in England. It, however, would be impossible to enumerate all the fine things in this great collection, and I will now conclude with a few remarks upon the East India kinds, or the hot country Orchids. Here, however, they are not grown hot, and with the result that there are immense specimens in an enjoyable atmosphere; and I venture to remark that we have nothing in England to compare with the Comte de Germiny's house of Aerides and Vandas, in which are lounges where the Comte and his friends resort for enjoyment. Therefore the atmosphere, as may be imagined, is not too oppressive, and enables one to truly enjoy the plants. The house in question, speaking from memory, is about 100 feet long, and is fitted with stages at the sides only, and upon these stand quantities of Slipper Orchids, Vandas, Aerides, and many other things. The centre of the house is supported upon a double row of columns; upon these and on cross wires are numberless Vandas, Aerides, Saccolabiums, &c., of which I shall give details further on. There are also numerous examples of Nepenthes of the rarest kinds, amongst them the finest specimen of N. sanguinea that I have ever seen, with enormous pitchers of a deep blood-red colour. Another rare species pitchering here very freely is the rare N. Veitchi and many other kinds of less note. This shows that a very hot, close atmosphere is not necessary for the cultivation of Pitcher Plants, which many amateurs would love to grow if they were not taught to believe that they required a house entirely set apart for them, and that kept at an unbearable heat. Through the bottom meanders a narrow streamlet fed from a central fountain, the sides of which are planted with various Ferns, Gymnostachyums, and other plants, and the columns are clothed with Begonias and various other climbers. These with the Orchids produce the effect of a tropical forest. The Orchids are simply magnificent. Huge Vandas of the suavis and tricolor section are growing and flowering in profusion, the roots several feet in length. Here are large specimens of Aerides of sorts. A. expansum Leonis is a grand example on its natural block or branch of tree with some twenty-four stems

2 feet or more high each, and carrying 12 spikes of bloom. A. Lawrenceæ with two enormous spikes, still bearing out its reputation of being the grandest of the odoratum section, and Saccolabium Blumei with numerous clusters of its elegant spikes are also noteworthy. Vanda Parishi, although not so rare as it was a few years since, is always a good plant, and is also producing a spike of grand flowers. Here also is a splendid specimen of Vanda Batemanni some 7 feet or 8 feet high, producing enormous roots, but, curiously enough, although growing so well, it does not flower, and this I attribute to a want of rest. About and amongst these are many Bromeliaceous plants of great beauty. These, I am pleased to see, are specially cared for by the Comte. There were also many fine Anthuriums, including grand specimens of A. Veitchi and Warocqueanum, and the now common Andreanum is here, with an immense quantity of its brilliant spathes, very grand and specially interesting from being the originally introduced plant. Sobralias are also grown very well. Mr. Vincent pointed with great pride to these plants. At the time of my visit two species only were flowering, macrantha and xantholeuca, the latter a very rare species with large yellow flowers, and although the individual blooms are short-lived, the plants continue producing a succession for a very long time. I have hitherto said little or nothing about the Slipper Orchids, but they are by no means neglected at Gouville, the specimens being large and numerous. The following are the most notable in flower at the present time: fine plants of Prince Demidoff's variety of superbiens, Dayanum, calurum, Stonei, Dominianum, Harrisianum, and Spicerianum; the latter appeared to me to be blooming at a very unusual season. With these I conclude my notes on this portion of the plants at Gouville, simply noticing the ornamental character of the chimneys which carry away the smoke from the furnaces. The chimney has an outer covering of cement, made to represent trunks of trees with stumps of branches, the imitation being remarkably real; one of them is clothed with Ivy and the other with Ampelopsis Veitchi, and they have a very picturesque appearance, which as they are in the neighbourhood of a forest is very appropriate.

Cattleya virginalis.—A white form of C. eldorado, with flowers of even better shape than those of the typical plant, is sure to be welcomed at this season in the Orchid houses, and a very fine variety of it was recently flowering with Mr. Measures at Camberwell. The whole of the flower is of the purest white, saving the throat, which is stained with orange. Mr. Simpkins, who has charge of this fine collection, finds it requires more heat than the majority of Cattleyas, which is quite in accordance with my own experience of this plant, for I found C. superba and C. virginalis thrive well together.—W. H. G.

Mormodes luxatum eburneum.—Very few people have of late years paid much attention to this singular genus, but the present species and its variety have always been favourites. The ivory-white form was recently flowering well in Mr. Bull's establishment at Chelsea, bearing dense spikes of its large, fleshy, fragrant blossoms. It is a plant that requires to be kept quite dry when at rest, but it enjoys an abundance of heat and moisture when growing. The blooms, if kept from damp, will last about two weeks in full beauty.—G.

Cypripedium Parishi was discovered by the gentleman whose name it bears, and sent to the Messrs. Low, of Clapton, by whom it was distributed. It appears to have been flowered first by the Messrs. Veitch, of Chelsea. As a species it comes near to C. lævigatum; the flowers are not specially attractive, yet they have a beauty peculiarly their own, and four or five blooms are borne at the same time on a scape. The sepals are pale green, with a yellowish hue; petals long and prettily twisted, some 4 inches long, green at the base, bearing a few black spots and a few black hairy warts on the edge. They are wholly of a bright shining purple, the lip being greenish-purple. It has always remained amongst the rarest of the East Indian tailed Slipper Orchids, and has produced but few if any varieties in cultivation. I recently noted a good form of this plant flowering in Mr. Tautz's collection at Shepherd's Bush, where it is grown in the warmest house.—H.

Vanda limbata.—The flowers of this pretty species are very long lasting and should not be allowed to remain upon the plant until they die, because they exhaust its strength. The plant may be classed with the small growing kinds, and the flowers are borne in somewhat lax racemes, each of which is about 2 inches across. The sepals and petals are brown, tessellated with reddish brown, bordered with yellow and flushed with lilac, whilst the lip is lilac flushed with rose, having a white border. I saw this rare and pretty plant in the Studley House collection; it appears to be a free bloomer.—W. H. G.

Cattleya Dowiana.—Although usually considered a rather shy bloomer, this species is abundant with Mr. W. Bull at the present time—nankeen yellow sepals and petals, and the large crimson-purple lip, which is beautifully streaked with gold, rendering it very conspicuous. It blooms at a somewhat dull season of the year for Orchids, and its gorgeous flowers possess a delicate fragrance, qualities which should commend it to every grower of Cattleyas. It requires good exposure to sun and light, not too much soil about its roots at any time, and then during growth it can be watered freely without harm. I have noted some forms which lack the golden network over the lip, these, however, although very rich and massive looking, are not so desirable as the original form.—W. H. G.

Cypripedium Canhami, or Mr. Chas. Canham, as those who glory in popular names call it, is one of the finest hybrids of its race, and is said to be a cross between C. villosum and C. superbiens. The flowers are very large and bold; dorsal sepal green in the centre, flushed with purple at the base and bordered and broadly tipped with white; the petals are large and broad, rosy purple throughout, dotted with black; lip large, the point being green, the remaining portion dull purple. The leaves are much shorter and broader than those of villosum, faintly tessellated in the way of those of C. superbiens. I imagine it requires the heat of the East India house.

Lælia elegans prasiata.—There would appear to be two distinct forms of this species, one producing light coloured flowers, and the other very dark, and as far as I have observed, the light-coloured form blooms earlier than the dark-flowered one. One of the best of this last-named set is L. prasiata, which I recently observed in the Cambridge Lodge and Studley House collections; the sepals and petals are rosy magenta, tinged more or less with green; the three-lobed lip is rolled over the column at the base, where it is pure white, the points reflexed and there tipped with crimson; the front lobe is rich deep crimson with a pale margin, its surface being veined with lines of a deeper hue. This variety belongs to the two-leaved section, and I have found that all of them require more heat than the majority of their congeners.

Spathoglottis Lobbi.—This plant, which was figured in The Garden in 1882, I recently noted flowering in Mr. Bull's nursery, and although not one of the giants of the Orchid world it is exceedingly pretty and well deserving greater attention. It belongs to a genus of Asiatic Orchids allied to Bletia, and of which there are said to be a great number in the Indian and Pacific Islands. They are terrestrial plants with for the most part underground corms or roots and narrow sword-shaped leaves, the scape being erect, and bearing a raceme of numerous flowers; in the present species the flowers are yellow with a few lines of orange-red on the lateral sepals. S. Petri is a species sent home by Mr. Peter Veitch from the South Sea Islands, and first flowered at Chelsea about ten years ago; it has rosy lilac flowers, whilst S. angustorum is a larger-flowered species of more recent introduction with almost white flowers, resembling in shape those of Phalænopsis Lowi. These plants are easily cultivated if a little care is bestowed upon them, and yet they are so mismanaged that they seldom live long in our collections. They are deciduous, and require the water supply to be gradually diminished until with the fall of their leaves it is entirely stopped. After this the corms must be kept in the same temperature and quite dry, this serving to ripen them up; when ripened they may be removed into a cooler place and the soil kept moist, which will help to prevent the corms dying with dry rot; upon the first signs of activity repot and place them into the former temperature.

Odontoglossum vexillarium.—The collection of these plants in Mr. Peacock's garden, Sudbury House, Hammersmith, is quite exceptional, both in health and quantity, and Mr. Vicary, who has had charge of them for some years, assured me that they had over three thousand flowers of this species during the past summer. They are all cut for indoor decoration, but my experience of it makes me believe it is not well adapted for cutting, but where one has a large stock to draw from it is not of such vital importance. The plants in question appear to be well treated to overhead sprinklings, and in addition they are frequently dipped to keep away thrips.—W.

Lælia Turneri.—Although this is by some considered a variety of L. elegans, the peculiar spoon-shaped lip has led me to suppose it distinct. It has been said to be the finest and richest coloured of all the elegans section, but some of the newer introductions surpass it; the sepals and petals are rich purple suffused with rose; the lip is three lobed, the portion rolled over the column being white tinged with rose colour; the middle lobe is distinctly spathulate and of a deep maroon-purple, bordered with amethyst-purple. It blooms at a season of the year when its flowers are in request. This fine plant was recently noted in bloom in the Cambridge Lodge collection at Camberwell, and also in that at Studley House, Shepherd's Bush. In both places it is placed in a warm position in the Cattleya house.

Odontoglossum Wallisi.—This is by no means a common species, and at the same time it is one which we have not yet seen in its full beauty. Its bulbs somewhat resemble those of O. Pescatorei, and its leaves are very narrow and deep green. The raceme bears about a dozen flowers, which although not large are very showy. The sepals are rich brown with a yellow border, the petals being yellow with a few streaks and blotches of brown; lip somewhat fiddle-shaped, terminating in a point, white, with a large blotch of rosy purple in front, which occupies the greater portion of the front, but leaves a white marginal band. This plant was recently growing and flowering with Mr. Cowley at Mr. Tautz's, and treated in precisely the same manner as O. crispum, some very fine forms of this latter species being still open.—G.

Odontoglossum Harryanum.—Large quantities of this species are now flowering in Mr. Wm. Bull's establishment, and amongst them are some very fine varieties. It appears to be a free-growing plant and an abundant bloomer, and it seems astonishing that collectors should have been so close to its habitat, and yet it remained unknown, and indeed such a form was never thought of. The plants have not been sufficiently long in this country to allow them to produce an inflorescence so large as the imported plants show it, although the individual flowers have arrived in that state. When it does become established the only objectionable character may disappear. When first I saw it I thought there were two, but one is apparently lost, and that was the connivance of the petals, which, as they met together, quite obscured the beauty of the lip. As the plants gain strength, however, the petals appear to spread, leaving the beautiful mauve-purple lip exposed to view. The other fault, in my

opinion, is the change of the sub-cordate front lobe from pure white to a pale yellow a few days after opening. The plant appears to grow robustly with such species as O. crispum, Pescatorei, and Halli, and it has, I believe, a great future before it in the horticultural world. The plant was first introduced and flowered in this country by Mr. Horsman, of Colchester, from whom it passed into the hands of the Messrs. Veitch, of Chelsea, and Professor Reichenbach dedicated it to the head of that firm.

Miltonia Regnelli purpurea.—This variety, I think, originated with Mr. Rucker, at Wandsworth, many years ago, and has always remained a scarce plant. A good example was recently flowering in the Studley House collection, Shepherd's Bush, where it is highly esteemed. The scape bears four or five flowers, which, individually, are some 3 inches across, the sepals and petals rosy pink, passing into white at the edges; lip flat, rich magenta-crimson, with several white elevated crests on the disc. It will be found extremely serviceable in a cut state, as its flowers last for a long time in water, in which way they may be enjoyed for a considerable time after they have remained a sufficient time upon the plant. Although a Brazilian plant, it enjoys strong heat and moisture when growing; indeed the heat of the East India house suits it admirably.—H

KITCHEN GARDEN.

MARKET GARDEN NOTES.

WORK is still plentiful in market gardens, for the season has thus far been remarkable for the amount of growth made by all kinds of vegetable crops, and weeds in particular. For several weeks the weeds had undisputed possession of the land, as the surface was never dry enough to kill them by hoeing, and nothing short of hand-pulling and carting away are of any avail in reducing their number. Thanks, however, to a larger amount of sunshine since August set in, the work of cleaning the crops has been much more readily performed. Many crops that are exhausted have been cleared off of late, and all hands are busy getting the crops for winter or spring sown or planted. Foremost amongst crops claiming immediate attention is

POTATOES, for the dread disease has of late set in with great violence, and those who have any ready to lift are getting them out of the ground and storing them in dry sheds. A very large proportion of the Potato crop grown in this locality consists of varieties that mature early, such as Beauty of Hebron, which is certainly the most largely grown of any variety in cultivation, and very heavy crops are being lifted without any great loss up to the present. Many people, however, are hurrying them into market rather than store them, fearing they may keep badly. This has caused prices to be lower than they have been for years. The late sorts have thus far resisted the disease, and the haulm still looks green.

WINTER GREENS of all kinds, such as Savoy, Kale, and Cabbage, are being put out in quantity on the land cleared of Potatoes. The season having been so congenial to growth, the plants are very strong, and should the autumn prove mild there will be an abundance of winter vegetables of all kinds.

BROCCOLI, EARLY AND LATE, are being put out in large quantities, as they have realised good prices during the past few years. Adams' Early is one of the most largely grown of spring Broccoli, as it is cleared off in time for getting in Potatoes, but the late sorts are generally more remunerative, as they come in at a time when there is a scarcity of good vegetables, and if put out quite late in open fields on firm land they seldom suffer from frost, as the growth they make is hard and well matured. These late-planted-out specimens start vigorously into growth in spring and make fine heads, even when they look too small to come to anything, compared with the same kind of crop in walled-in gardens.

BUSH VEGETABLE MARROWS have been exceedingly productive this season, and those who relied on them for a main crop have had far better results than from the running sorts, as the latter have made far too much leaf-growth to be fruitful; while the bush variety, from its nature of making no long shoots, has continued to fruit most abundantly. The long white variety of this excellent vegetable can be sold more freely than the green-skinned one, and those who have not yet given it a trial should not lose another season without doing so; for, whether the weather prove excessively dry or wet, I find it by far the most profitable sort to grow.

TOMATOES that were planted largely out of doors, owing to the good results obtained during the past hot, dry seasons, are this year doing very badly. They have grown enormously, but the early bloom dropped off, and it is only lately that anything like a crop has set, and it is doubtful if these can ripen. Every endeavour is being made to hasten the swelling by stopping the growing points beyond the bunches of fruit, as if the fruits can only be grown to a good size out of doors, they can be cut off with the stem intact and hung up in warm glass-houses to ripen.

SOWING SEEDS OF LATE CABBAGE to stand the winter in the seed-bed is being done, for if planted out early in spring they grow very rapidly, and generally stand the winter better than when put out in single rows, as in the seed-bed they shelter one another, and being undisturbed at the root they continue to grow in any mild periods that occur.

LETTUCE, of both Cos and Cabbage varieties, are being sown for spring use; a sheltered position on light stony ground suits them best, as the growth made is firm and the plants make plenty of root, and when transferred to rich soil in spring soon make fine heads. The old Black-seeded Brown, Hicks' Hardy Cos, and Grand Admiral Cabbage are the sorts in most favour about here.

ONIONS for spring transplanting, and for pulling green and tying in bunches, are being sown in drills about 1 foot apart. The Giant Rocca and Tripoli are mostly used for transplanting, and the mild-flavoured White Lisbon for pulling green. These are sown thickly, and are thinned out for bunching as soon as they are fit.

RADISHES for winter use are rather largely grown. The Black Spanish and China Rose are the sorts grown, as they are edible when they grow to a large size.

EARLY APPLES of the Lord Suffield type are being gathered and sent to market and realise good prices. As they are a thin crop this year and other fruits being scarce, those growers who are fortunate enough to have a crop are certain to obtain a ready sale.

EARLY PEARS are small and by no means a good sample, as the protracted cold and wet caused thin-skinned sorts to crack; but the later sorts are swelling up better now and promise well; in fact, in this locality, Pears are by far the best crop of the year as far as outdoor fruit is concerned.

Gosport. J. GROOM.

Pot Tomatoes.—A few plants of Laxton's Open Air Tomato intended for planting outdoors were kept in 4½-inch pots in the house until the weather favoured planting outside. That favoured weather did not come and I kept the plants growing on, they being about 15 inches in height, and blooming and fruiting freely. I then dropped each plant, still in its pot, into an 8-inch one, filling up with soil, and thus the dwarfness has been retained without affecting the productiveness of the plants. The fruits of Laxton's Open Air are rather sutured. If we can presently induce it to produce handsome round fruits without affecting the habit of growth of the plants, we shall have a variety which should be specially favoured by amateurs, who could then grow Tomatoes in pots pretty much as they do ordinary greenhouse plants.—A. D.

Onions.—White-bulbed Onions seem to be more tender than are yellow or red ones. I find a batch of White Globe planted for seed in a warm place has succumbed to the wet sadly, the tubers seeming to have rotted. Out in a much more exposed place, and where the soil is cold and stiff, the bulbs of Danver's Yellow have stood remarkably well and are carrying fine heads of seed; then I notice that the white-bulbed varieties, of which the Early Queen is a good sample, bury their bulbs in the soil as they develop, whilst all good hardy Onions have their bulbs well on the surface. I had a white Onion sent me for trial as being the earliest in cultivation. It proved to be an indifferent stock of The Queen, for whilst many bulbs ripened off very small, others grew large and are still growing, whilst the true Queen should have been ripe long since. It is very hard to say in what direction Onions can be improved, we have so many varieties of such good form and fully covering all the year. Very large bulbs are not the best for seed-production. Not only will many decay after planting, but the best will not throw up such stout stems as will very firm bulbs one half the size. I have never yet been able to discover any practical use for big Onions, except to win prizes. It is perhaps the case that a big-bulbing strain will produce a better average of good-sized hardy bulbs under ordinary culture, and that is some gain, but of course the resulting bulbs are far from being the monsters which seem needful for exhibition. The Onion mould, like the Potato and Hollyhock fungus, is far from being extinct, as I hear complaints of its existence, and am not surprised, as the cold, wet summer seems to have specially favoured this pest. Really good, sound keeping bulbs of Onions will hardly be plentiful this autumn, as the needful heat to ripen them seems still to be so sadly lacking.—D.

Quality of Potatoes.—We shall perhaps later hear many complaints as to the quality of this or that Potato or of Potatoes generally this season. That there should be some appreciable lack of quality is to be expected, having regard to the fact that the tubers have been for the greater part of the summer growing in soil saturated with water, and without that sunshine which is absolutely essential to the maturation of all vegetable products. Then, to make matters worse, the disease ere the tubers are ripe has stripped the foliage from off the stems of all early kinds, and is rapidly destroying the tops of all the later ones. In such a case it is utterly impossible that the tubers can be of that good quality which more favourable seasons produce. All the same, there bids fair to be a big crop of tubers; but I fear the disease, such has been of late its rapid development, will exceed in mischief anything seen during the past ten years.—A. D.

The Potato disease.—So rapidly has the disease spread throughout our Potato breadths that the air has not been more full of the perfume of decaying tops than it has of lamentations over the mischief found amongst the tubers. So far it is found chiefly amongst the first and second early sorts, because these have been most generally lifted. One neighbour whose soil was rich, and the Potato growth very luxuriant, informs me that he can hardly find a dish of sound tubers out of bushels. Potatoes are of necessity now being sold very cheaply in the market; indeed, dealers do not care to purchase, except sufficient for present sales. Sometimes growers cannot make more than from 1s. to 1s. 6d. per bushel—a terrible price, and with from one-third upwards of the crop at home bad, it presents a poor look-out for the trade. The American kinds, Early Rose, Beauty of Hebron, and White Elephant, seem to have been peculiarly hard hit, worse indeed than our English kinds. I should not be surprised if some fresh impetus be not given by raisers of Potatoes to produce fresh varieties which may possibly help growers to meet public requirements without growing American sorts. I have, so far, lifted very few roots, preferring to let the tubers remain as long as possible to mature, which drier weather and but a few green leaves will help them to do. Long experience has shown that rushing up Potatoes whilst the air is rife with Peronospora spores is but to store away decay. It is wiser to allow the produce

to remain until the stems have quite died away and the spores have gone to rest. The really diseased tubers can then at least be discovered from the good ones, and much trouble in sorting over is spared afterwards.—A. D.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Pyrus (Pear and Apple).—Though in every sense the Apples and Pears of the orchard and garden are ornamental, they do not come within the ordinary meaning of the term ornamental trees. There is, however, so much beauty in some of the sorts of Pears and Apples—beauty of growth of flower and of fruit—that I should repeat here what has been so often advocated in The Garden, that every tastefully planted lawn will always have upon it a few well selected fruit trees, for what more beautiful in early summer, and again in autumn,



Fruit of Japanese Crab Apple (Pyrus Toringo).

than they? Of the purely ornamental species of Pyrus there is now a bewildering number, since botanists have classed all Apples and Pears and their allies under one genus, Pyrus; though it will be convenient for us to adhere to the old classification in which the Pears were placed under Pyrus, the Apples under Malus, the Beams under Aria, and the Mountain Ashes and Service Trees under Sorbus. These all form such natural groups that no one is likely to confuse one with another, and their names are more easily remembered when so classified. These old genera are now placed as sections of the genus Pyrus. The finest flowering trees, and most valuable for ornamental planting, are those included under the section Malus or Apples, the type of which is the common Crab Apple (M. communis), of which there is a beautiful flowering variety called the Paradise Apple, having large handsome flowers, but it is seldom planted for ornament, though in common use as a stock for grafting. The Chinese and Japanese Crab Apples are all very beautiful, among them being the finest of our small trees that flower in early summer. The Chinese double-flowered Crab (P. M. spectabilis) is a lovely tree, growing from 15 feet to 25 feet high, making a wide-spreading head of branches, which is abundantly wreathed with large semi-double blossoms of a delicate rose-pink colour. It is not often met with, except in old gardens, as it used to be more commonly planted than now. The varieties of P. M. baccata, or Berry Apple, so called from its small round fruits, are known under the general term Siberian Crabs. They are graceful in growth, showy in flower, and usually produce an abundant crop of highly coloured small fruits, which add much interest and beauty to the garden in the autumn. The Japanese Crab (P. M. Toringo)—see illustration—is extremely beautiful, the flowers and fruits being so plentiful. The



Flowers and fruit of American Crab Apple (Pyrus coronaria).

flowers are white or pale pink, and the fruit very small and hung on long slender stalks. Of the Toringo Crab there are now several forms, differing in colour of flower and fruit. It is a small tree, often a large spreading bush if the leaders are removed. Finest of all the Eastern Crab Apples is P. M. floribunda, from Japan, and now becoming so common in English gardens, large and small. Fully grown it makes a low tree with a dense, wide-spreading head of slender branches, which every May are hung with a profusion of flowers of a pale pink when expanded, but of a brilliant crimson in the bud stage, which is the more beautiful. No garden is well planted if this tree is wanting, and as it is hardy beyond a doubt, grows rapidly anywhere, and can be bought cheaply, there is no reason why everyone should not enjoy it who has a garden. There are a few new varieties of it, one, called Halleana, being remarkable for the larger and more richly-tinted blossom. The North American Sweet-scented Crab Apple (P. M. coronaria) is a lovely tree, of small stature, having very large pale pink and deliciously scented flowers. Like P. spectabilis, it used to be planted more commonly than now. There are various other ornamental Apples that come into the section Malus, but the foregoing include the finest and those that are most readily obtainable from nurseries. The charming shrub known in gardens as Cydonia Maulei is now placed under Pyrus, but in these articles it is placed under Cydonia. Of the true Pears, much cannot be said of them as ornamental trees for general planting, as they are a good deal like orchard and garden Pears in growth and in flower, while their fruits are not remarkable. One or two, however, may be planted for ornament, one of which is P. Bollwylleriana, from Central Europe, which produces an abundance of small white blooms in clusters in spring. Another Pear well worthy of planting on account of its distinct and beautiful foliage is P. salicifolia, the Willow-leaved Pear, which has narrow leaves of silvery whiteness. It is therefore a most valuable tree for the landscape gardener, who can produce with its aid beautiful and varied effects in combination with other trees. It is a Siberian tree and grows about 20 feet high, and in the public parks in and near London forms an attractive feature in the plantations, especially when covered with flowers in spring. With similarly hoary leaves is another Eastern

species, Pyrus elæagnifolia, or Oleaster-leaved Pear.

Of the Sorbus section of Pyrus the common Mountain Ash (P. Aucuparia) is a familiar example. It is too common to need description, for one sees it everywhere. There is a yellow-berried kind (fructo-luteo) which is rare, another with weeping branches (pendula), one of erect growth (fastigiata), and a fourth with variegated leaves, which, however, is not very ornamental, so seldom is the variegation distinct. Other species of the Sorbus section worthy of attention for ornamental planting are P. S. americana, the American Mountain Ash, which is a good deal like our own Mountain Ash, and P. S. hybrida, a tree of very distinct growth, the head being pyramidal and dense. The leaves are intermediate between those of P. S. Aucuparia and the White Beam (P. Aria). The true Service Tree, Pyrus (Sorbus) domestica, used to be more frequently planted than now. It is a handsome tree with elegant foliage, and its fruits are edible when "bletted." Of the White Beam Trees (P. Aria) there are some very handsome kinds. Even our native White Beam is ornamental, and, like the Mountain Ash, is one of the very best trees for planting in exposed



Flowers and fruit of Mountain Ash (Pyrus Aucuparia).



Fruiting branch of the true Service Tree (Pyrus (Sorbus) domestica).

places on poor soil, and no tree thrives so well on chalk as this. Its broad silvery foliage renders it a distinct object in the landscape, and it is therefore a valuable park tree. Its allies and varieties number some beautiful trees, and these include latifolia, with broader leaves than the type and quite as silvery. There are other forms of P. Aria, but this is most easily obtainable, and the best, P. A. Hosti (see illustration, p. 210), is a very handsome tree, both in foliage and flower. The leaves are large and silvery, and its flowers are in broad flat clusters and a delicate rose-pink. It is a central European tree, perfectly hardy, and grows about 10 feet high. A good coloured illustration of it appeared in The Garden in October, 1881. The Himalayan Beam Tree (P. vestita, called also P. lanata and nepalensis) is an extremely fine tree, but is not hardy everywhere in this country. It has very large leaves, like those of the Loquat, and of silvery whiteness. In districts where it thrives it makes a tree between 20 feet and 30 feet high.

Ceanothus Gloire de Versailles. — This beautiful and wondrously free-blooming Ceanothus presents a most attractive object in the pleasure grounds at Maiden Erleigh, Reading, where on a wall clothed with climbers, Roses, &c., it covers a large area and is one mass of lavender-blue flowers. It is there perfectly hardy, and is one of the finest of wall shrubs.—A. D.

The Strawberry-bearing Benthamia (B. fragifera).—This pretty shrub or tree does not bear a very ornamental appearance in the open air in the London district, but in the southern and western counties it appears to thrive, and I was somewhat surprised to find a very large plant of it in the gardens of East Cowes Castle, Isle of Wight. The plant in question was nearly 30 feet high by about 10 feet in diameter. It appears somewhat thin, perhaps, through being somewhat heavily shaded. Mr. Hill, who has charge of these gardens, says it flowers and fruits every season. The blooms being large and pale yellow in colour, render it valuable as a flowering shrub, which should be planted wherever there is a chance of its succeeding.—W. H. G.

A fine American flowering tree (the White Dogwood).—In passing through a section of the country during the latter part of May last, I saw some very fine specimens of this tree, and in the most plentiful numbers I have ever noticed. While a native tree, it is by no means so very common, being sparsely distributed over the United States, more frequently seen southward, with an occasional specimen in Canada. The Dogwood possesses two striking merits, viz., freedom of bloom in the spring and its especially attractive deep red foliage in the autumn, so that it is a difficult question to decide at which season it is the most beautiful. At the time of my visit the trees were at their best as regards flowers, the large white blossoms which appear before the leaves, seeming at a short distance to cover the tree like immense snowflakes, and really equalling the flowers of the beautiful Magnolia, so tender and hard to grow at first in the northern parts of the United States. I noticed it in several places along the shores of Lake Ontario, but abundantly in groups, or rather colonies, on the banks of Great Sodus and Port Bays. A fair-sized cove on the north-eastern shore contained the finest specimens I ever saw, many trees being more than 20 feet in height, while, of course, there were small ones. The scene was a most artistic one; the stray sunbeams of the afternoon sun through the forest trees behind, and shining on the snowy blooms furnished just the requisite amount of light to produce a happy effect. As viewed, the trees looked almost as though planted artificially, the larger ones being in the centre of the cove and gradually coming down to small bushes at the edges. The Dogwood is too rarely seen in cultivation on American grounds, and this is perhaps accounted for by its being so difficult to get to grow when transplanted from the woods to the lawn. The fact that its flowers are single may have something to do with it, for, broadly speaking, Americans as yet are not educated so thoroughly, horticulturally, as Europeans, so that double flowers are more appreciated and sought after. The surest way of transplanting the Dogwood is to take small trees from the nursery row of seedlings, which are as easily grown as those of most kinds of similar trees. These have plenty of fibrous roots, which are liable to be few in number on trees taken from their native haunts. The right time for transplanting is in April, or for the autumn as late as October with us. Some protection for the first two years will tend to carry the plants through the winter. As true in the case of other subjects, the flowers of the Dogwood are inconspicuous, it being the outer very large four-leaved involucre in which the real flowers of greenish tint are situated that gives the beauty. Then after the crop of flowers is gone, a fine deep green foliage decks the tree until the autumn, when it changes to a brilliant deep red, which gives tone to the landscape at that time possessed by few other subjects. —W. F. Lake, *Buffalo, N.Y.*

Hardiness of Yucca aloifolia variegata.—The typical plant I have frequently seen tried in the open, but it has usually presented a miserable appearance in the climate of London. On a recent visit to the residence of Viscount Gort at East Cowes I saw some plants of the variegated form 4 feet or 5 feet high. These had been outdoors some ten years, had not sustained a blemish nor been sheltered in the least, but stood fully exposed to the prevalent wind (south-west), which I thought was a very severe test of their hardiness. During this period the thermometer has registered 15° of frost.—W. H. G.

The large-flowered Mock Orange (Philadelphus grandiflorus). — This has two qualities, besides that of size of bloom, which place it far above P. coronarius, especially as a cut flower. These are its snowy whiteness and its freedom from the heavy and overpowering scent which makes the older variety unbearable indoors, and instead of which we get a delicate fragrance which is very pleasing. The sprays of blossom should be cut just after the first flowers have opened, when they will last in full beauty for many days. If cut when all the flowers are open they soon fall. Complaints are sometimes made of this Philadelphus that it flowers but sparingly, and this is true when the plants are growing in too rich a soil. If growth is, however, checked by root-pruning, or by planting in somewhat poor soil in an open situation, a beautiful picture that will not easily be forgotten will be the result. Transplanting may be carried out with impunity at any time during autumn or winter, and will

act as a salutary check on the plants, for which they will be grateful. This is certainly one of the best of our flowering shrubs.—John C. Tallack, *Livermere.*

Destroyers.

THE AMERICAN BLIGHT.

(SCHIZONEURA LANIGERA.)

The following extracts, translated from an article in the *Revue Horticole* on this insect, will probably be read with interest by all cultivators of Apple trees. After giving a *resumé* of the general characters of the aphis family, to which this insect belongs, the writer says :—

The wingless and sexless form which is found throughout the year upon various parts of Apple trees (the leaves excepted) attains, when full grown, a length of not quite a tenth of an inch, and is covered with a bluish white down, the tufts of which make the insects appear much larger than they really are. When deprived of this covering the insect varies in colour from dark to yellowish brown. The younger the individuals are the brighter is their colour. When crushed they stain the fingers a greyish brown or carmine-red. Young specimens are covered with this cotton-like substance, but in adult ones it is found upon the head and the extremity of the body. The glands which secrete these waxy tufts which give this insect its cottony appearance are placed upon the back and sides. The spaces on the back between the tufts are covered with a whitish powder. This waxy covering is of the greatest use to the insects; thanks to this clothing, the threads of which become entangled until they form a felt-like material, which cannot be penetrated by water, they are protected from the rain. This covering is developed more abundantly when the colonies of the insect are moistened. According to Mühlberg, it protects these unwelcome insects from the beaks of insectivorous birds, but it is true it also enables man to find them. The young individuals are much more active than the old ones. Whilst the latter remain fixed to the branch they are feeding on round the wounds and the cracks in the bark in which they congregate, climbing one upon the other in such a way that the uppermost can scarcely thrust their suckers through the crowd into the bark, the young ones move about with more or less agility, and in this way the pest is spread. We need not expatiate upon their changes of skin. It is known that the larvæ of insects change their skins periodically according to the extent of their growth. The American blight moults four times and the cast-off skins remain among the colonies. All these wingless and sexless aphides reproduce their species without the intervention of a male, and the young in their turn give birth to young ones when about fifteen days old, and generations of this series succeed one another eight or twelve times in the course of the summer. Let us admit, says M. Mühlberg, that in the spring a fertile insect should be in a favourable position, and be able to reproduce its species without hindrance, and should be the progenitor of eight generations of thirty individuals, then we would have at the end of the summer a colony of 656,000,000,000 individuals. To show in what a mass these insects may be found side by side and one on the other (besides the adult specimens, the young ones literally swarmed), I need only say that I found in the middle of April, in one wound a quarter of an inch square, eighty-four individuals, which were further increased by several which were born during the operation.

The winged individuals are born towards the end of the winter and in the autumn. They are produced from wingless specimens which have undergone the complete cycle of metamorphosis—that is to say, which have passed the phases of larvæ and nymph. The winged insects are less clumsy in shape than those without wings; their bodies equally bear the waxy tufts. We have seen that the sexless insects produce young ones. The true females also reproduce their species without being fecundated, and give birth to five or six wingless young of two different forms, which are deposited on the under surface of the leaves (Gœthe, Mühlberg). According to the latter author, the young are at first enveloped in a very thin pellicle or skin, from which they emerge in a short time. These young ones are of two kinds; those of a greenish colour are males; the others, which are shorter and of a yellow honey colour, are females. Each of the latter contains a solitary egg. The individuals hatched from these eggs pass the winter in cracks and crevices of the stem near the collar of the roots, generally some inches from the ground. It is only when the insect cannot find such quarters that it climbs higher on the stem, or even into the larger branches, to shelter itself in some inequality in the bark. These hybernated females lay for the first time in May, and their progeny place themselves in the sores made the preceding summer, or on the young shoots.

From a practical point of view, it is, then, from the end of March until the middle of April that one can most successfully wage war against the American blight, for at this time the new generation has not yet come into being, and the parent insects have not yet left their winter quarters.

M. Mühlberg is of opinion, from his own observations, that the wingless insects, sexless or of either sex, pass the winter in any of the sores in which they were hatched during the previous winter, even in those on the smallest branches, and begin in the early spring to multiply their species.

The injuries caused by the American blight are often of considerable extent. Its presence on the stems and branches produces swellings, wounds, and canker; the wood of the trees becomes dry and brittle. The more the tree is weakened, the more liable it is to attack. Vigorous Apple trees, growing in good soil, suffer less from the attacks of this insect and are able to resist them longer. It has been noticed that often in the case of a tree bearing two different kinds of fruit, one variety will be infested with a great number of these insects, whilst the other will entirely escape.

It has been long known that this blight does not attack indifferently all kinds of Apple trees. Those kinds whose fruits contain the most sugar are, according to M. Girard, more liable to be infested than those whose fruit are insipid, sour, or more especially bitter. These insects attack the delicate bark of the young branches, and in preference congregate round places injured by some cause. Their punctures penetrate into the woody tissues, and soon cause swellings, whilst the wood becomes altered as deep even as the pith. The wood swelling more and more rises up in a wen, thrusting itself upwards; being subjected to this pressure, the bark cracks, and its ridges surround these growths like lips; these cracks are formed lengthwise on the branches, thus the edges of the wound offer a shelter to the blight which huddle themselves together in it in great numbers. Upon these unhealthy tissues the reiterated punctures by the insects cause fresh morbid growths, which increase and form swellings on the surface of the branches; thus the characteristic cankers are produced, which according to circumstances occupy in the course of several years a quarter, half, three quarters, or even the entire circumference of the branch for the thickness of an inch, and often attain the size of a Hazel nut, later on that of a Walnut, or even of a child's fist.

They much resemble the canker known of old on Apple trees, and with which sometimes they are identical. It is easy to foresee what will be the end of the branches attacked in this manner; they wither more or less entirely, and become in every case incapable of producing fruit. The ease with which these cankers are frozen or crack often even to the pith is another cause of death. To these injuries must be added the decay which results from the moisture retained in these cavities. It is evident that these insects equally exhaust the trees by continually drawing off their sap, as by the morbid exudations, and the formation of sores and cankers, so that the weakening of the trees cannot but increase.

The American blight generally place themselves under shelter, and though they like to be exposed to the south, they usually choose the undersides of the branches, and by choice they frequent the parts least exposed to the action of the sun or wind. Infection by this blight can be easily recognised when one examines with care the parts of a tree which are affected. The white spots formed by the numbers of down-clad individuals are easy enough to see even at some distance, but a number of insects escape notice at first, hidden as they are in the cracks and crevices produced by the frost; if to these are added the hybernating insects which are quite free from the cottony covering, and if one considers their yellowish or brownish colour, one can understand the difficulties which exist in finding them.

We have seen that there are among these insects winged individuals which are able to transport themselves to some distance, and which in consequence found new colonies upon eligible trees. The wingless insects even also make little journeys and run about for short distances, but certainly one of the most active agents in disseminating this species is the wind, which carries to a distance through space these weak insects and deposits them on trees in remote regions. Thus the Swiss horticulturists have remarked that in their country the infection has spread in the direction of the prevailing winds and in the principal valleys. From the main valleys the pest has spread into the lower parts of the lateral ones.

The means of combating these insects are very numerous, so many persons have proposed different ones, many of which give good results. Of the preventive measures suggested the best are those which endeavour to isolate the pest. It has been suggested that persons who buy fruit trees or grafts should carefully examine them, and as much as possible make sure to only buy them from nursery gardens which are free from this blight. Above all things the Swiss recommend, first, to stop the transport of the winged individuals by destroying the blight on all the Apple trees in the neighbourhood; secondly, to take care in killing the insects upon old trees not to forget the branches; it would be well not to work when there is much wind; thirdly, to examine with care the clothes of the workmen when once the work is finished, so that they shall not in going to another orchard carry any of the insects with them.

There is no lack of chemicals for destroying the American blight. Liquids alone are of any use, powders having never given good results; coarse oils, decoctions of bitter or fœtid substances, salts of mercury, infusions of tobacco, carbolic acid, turpentine, alcohol and its derivatives, essences and essential oils, and dissolved soap have been recommended and all are useful in killing this insect, but it must be remembered that it is difficult to work with the greater part of these materials and water, as it is difficult to make a homogeneous mixture. Being lighter, generally, than water they separate according to their density, and besides, hardly any are soluble with the others. Many of them are injurious to vegetation, and some are of a high price. Doctor Cramoisy has recommended the following mixture—pyroligneus acid, one thousand parts by weight; salicylic acid, two parts; red oxide of mercury, one part; fuchsine, one quarter of a part; the fuchsine is added simply to colour the solution, which should be diluted thirty times with water when the trees are in active growth, but in the winter it may be used pure. One or two months after the application of this caustic, says M. K. d'Hercules, the old outer bark among which are the eggs falls into dust with the least friction, and the bark becomes smooth and shining and of a fine mahogany colour. The usual recommendation is to whitewash the trees, having previously scraped off carefully all the rough bark and to work the wash thoroughly into all the cracks and then to water the soil at the foot of the tree and all round it. We would say, apropos of this, that whatever be the substance employed, the sores should be carefully examined, and their raised edges pared until they are quite flat, and the cracks should be filled after being washed with the remedy with a cement formed of grafting

wax, resin, or tar mixed with 3 per cent. of turpentine. In conclusion, we would say the disinfectants should be applied with a coarse brush or a bundle of cloth fixed at the end of a stick. The liquid should be forced into all crevices and holes with a syringe. If old trees are being dealt with it is as well to cut out some of the crown of the tree, and to be sure not to forget to burn the branches cut off, otherwise the insects on them will emigrate to others and spread the infection. Lastly, in bad and desperate cases, it would be better to cut down and grub up the contaminated trees and throw them into the fire. MAURICE MAINDRON.

STOVE AND GREENHOUSE.

PALMS FOR THE OPEN AIR.

I AM anxious to plant a variety of these plants in the open air in the Isle of Wight. Which are the kinds you would recommend?—W. H.

*** The list of these plants which have been tried for this purpose is a small one, but as Palms are now reasonable in price, experiments might be tried at comparatively small cost. I would not, however, start planting with very small subjects, as they would be such a very long time before they made any appearance. Neither would I put them in open spaces at once. The ground should be well drained, and if not good it should be made so; light yellow loam, decomposed leaves, and sharp sand well mixed would make a good addition to the natural soil. The Palms should be carefully planted and made firm, and should have the shelter of other shrubs, but not be liable to much overhead shade or drip. Treated in this manner, the following kinds are worthy of a trial in that favoured island, and if you start the experiment I should be glad to hear from time to time what success has been met with. Chamærops Fortunei and humilis have both been tried, and are now growing in the island and various other places with more or less success, and, I believe, would have been more effective at the present moment had they been protected as I here recommend, but there is too much thought of at once making them objects of note and interest. Livistona australis is another fan-leaved kind, a hardy robust plant, a native of Australia; it well deserves a trial. Areca monostachya, the Walking-stick Palm of Australia, is a small growing kind which should also be tried, especially as so many Australian plants thrive in the open in the Isle of Wight. Other kinds from the same country are Seaforthia elegans and Ptychosperma Alexandræ. Acanthorrhiza stauracantha, a native of Mexico, thrives well in a greenhouse and is well deserving a trial; it has palmate leaves, deeply divided; these are dark green above and silvery white beneath. The Kentias, again, are well deserving of naturalisation, if it is possible; they are fairly hardy, stand well as window plants in the open in the neighbourhood of London during the summer, and also in a cold room inside during winter. K. Fosteriana, Belmoreana, and australis are the most reasonable kinds. Areca sapida and A. Baueri, natives of New Zealand, and also joined sometimes with the Kentias, might succeed. Sabal Adansoni, from the United States, is also a likely subject, but of very slow growth under glass even; Jubæa spectabilis is a stout, feather-leaved Palm, from the cool parts of Chili, but also of slow growth; whilst Chamærops hystrix, from Florida, is a fan-leaved kind worth trying; so also is the Californian Pritchardia filifera and the Japanese Rhapis flabelliformis.

I have not much faith in the success of any of the above kinds, but they are the most likely ones to succeed. The experiment should be well carried out. One plant only of each kind would not be a fair trial, neither should the plants be small and young. The plants most suitable for the purpose would be those that had been used for a season or two in the decoration of halls and apartments; these would have become somewhat hardened in constitution and would have made some sort of hard stem. If you have wooded grounds of various aspects and means at command, try it by all means, and carry out the operation with a heart and determination to succeed if possible.—W. H. G.

WORK IN PLANT HOUSES.

STOVE.—GESNERAS, WINTER-FLOWERING.—The winter-flowering kinds of Gesnera, of which G. zebrina is a well-known example, are not now so much grown as they deserve. Not only are they amongst the most beautiful of ornamental-leaved plants, but their flowers are also attractive. Another thing in their favour is that they take up little room, and bloom at a time when flowers are not plentiful. Tubers that were started in summer and that afterwards were put singly or in pairs into 2-inch or 3-inch pots, should now be moved into others two sizes larger. These Gesneras will thrive in either peat or loam, but where the former can be had of good quality with plenty of vegetable fibre in it, I should give it the preference; a little sifted leaf-mould and some sand should be added. Drain the pots sufficiently, as the roots will not bear anything approaching stagnant moisture in the soil. The plants should have a moderate stove heat and be stood near the glass, as without plenty of light the foliage comes thin and wanting in colour. Care must be taken to keep the plants free from mealy bugs or other insects, as if these are allowed to get established on them much of the beauty of the leaves will be destroyed in the process of cleaning.

GESNERAS, SUMMER-FLOWERING.—G. Cooperi and G. Donckelaari are representatives of the summer-blooming sorts of Gesnera. Some of the kinds will flower twice in the course of the season, provided they are started early enough into growth, as when the first bloom is over a fresh stem will appear that will flower during the end of summer. When the plants have done blooming they should be stood where they will get plenty of light and have less water given than when they were in active growth; but whilst keeping them somewhat drier, water must not be withheld so as to cause the leaves to flag, as if the tops do not ripen off gradually, the tubers will suffer and not be in a condition to ensure their passing safely through the winter.

GLORIOSAS.—As soon as the plants go out of flower give less water, but, as advised for the Gesneras, the reduction must be gradual and such as will help them to mature their growth, but not cause the tops to die off prematurely. Through this many bulbous and tuberous-rooted subjects fail to pass safely through the winter. Neither must the temperature be allowed to fall too low, as when the plants do not get enough warmth the roots suffer in proportion.

ANTHURIUM SCHERZERIANUM.—The indifferent state this fine plant is often seen in would lead to the supposition that its cultivation was yet imperfectly understood. To have it in the best condition the roots must be in perfect order. This they will never be unless the material in which they are grown is of the right description. Nothing of a closer nature than the fibrous matter out of the best Orchid peat, with the earthy portion shaken out of it, added to an equal portion of chopped Sphagnum, with a good sprinkling of sand and broken crocks or charcoal, will grow this Anthurium as it should be. It cannot be had in the best state if subjected to too much warmth. A night temperature of 50° through the autumn and winter suits it best. In spring and summer it requires to be grown proportionately cool, yet at no time should the atmosphere be too dry. It ought to be repotted every year, as from the very large quantity of water which is required, the soil, even when composed of the materials named, is liable to get pasty and too retentive, in which case the roots perish. When this happens it takes several years to get the plants up to their right order again. In this, Anthurium Scherzerianum is similar to most Orchids, which, when their roots perish prematurely, are a long time in regaining their condition. Kept in a temperature such as I have named, the plants make their principal growth during the autumn months. The best time to repot is just before growth begins. The work should be carried out at once. The plants should be turned out of the pots and laid on their sides, and as much of the old soil should be got away as can be done without injuring the roots; then, with a plentiful supply of water, the remainder should be washed clean out with the syringe. By adopting this plan and completely renewing the soil once a year, it is kept in a perfectly sweet and porous state. So managed, the plants will have double the quantity of healthy active roots which they will be found to make when grown in ordinary peat and allowed to remain for a longer time without its being renewed. Fill the pots half full of drainage and press the material down slightly. As soon as the potting is completed water moderately, but do not give so much for two or three weeks as will be necessary when the roots have begun to move freely, after which the soil should have a good soaking twice a week. This Anthurium is half aquatic, and requires to be kept much wetter at the roots than most things would bear. Even during the first months of the year when at rest the soil should never be allowed to get nearly so dry as the generality of plants like it to be.

SEEDLING ANTHURIUMS.—Where seed of this Anthurium was sown early in spring, the plants will shortly be ready for pricking off. They should be put three or four together into 3-inch pots. Fill the pots half full of drainage, use soil of a similar description to that advised for larger plants, only that it requires to be somewhat lighter. The seedlings must be kept quite moist at the roots, and should be stood near the glass in an intermediate temperature through the winter, during which time they will make considerable progress, and be in a condition for putting singly into small pots in spring. Anthuriums in either a large or a small state should be syringed overhead daily whilst they are making growth, by which means such insects as thrips, red spider, and aphides will be prevented from gaining a footing on the leaves.

ANTHURIUM ANDREANUM.—This species has scarcely upheld the high opinion that was formed of it at the time of its introduction. Like A. Scherzerianum, there are a large number of varieties of it, scarcely two plants being alike. Some of the forms produce flowers double the size of others. This species is of a somewhat scandent habit, so that when the plants get strong enough to make growth of full size they begin to spire up, each succeeding growth forming a crown that emits roots on a stem that keeps ascending, and in this way they soon mount up, so that the crowns get much above the soil. If let go on in this manner the flowers come much smaller than whilst the crowns are close to the surface of the pot. When in the state described it is best to sever the stems so as to admit of the crowns being lowered down to the surface of the soil. They may either be put singly into suitable sized pots or several together into larger ones. After being thus treated they will soon get established, and will generally go on for about two years before they again push their crowns much above the soil. For ordinary decorative use this species is best confined to comparatively small specimens that consist of from one to three crowns each. In this way the plants can more easily be kept in the condition that enables them to produce full sized flowers. A. Andreanum is evidently an Epiphyte, which accounts for its forming crowns that keep mounting up away from the pot. To grow it well it should have soil of a like description to that advised for A. Scherzerianum. The present is a good time for breaking up plants that are in the condition mentioned, as when done at this season it does not interfere with the flowering to the extent that follows their being divided in spring. A. Andreanum likes more heat than A. Scherzerianum; when kept in a warm house it goes on growing more or less nearly all the year; consequently there need be no hesitation in carrying out the work, as the divided plants will get established before winter. It likes plenty of moisture both at the roots and in the atmosphere, and should be kept well up to the glass under the influence of a full amount of light. So managed the growth will be stouter and the flowers proportionately larger. In regard to drainage and

potting, it should be treated in the way advised for A. Scherzerianum.

Propagation of ornamental-leaved stove plants.—Several of the most desirable kinds of stove plants which belong to the fine-leaved section can, with advantage, be increased at this season. By propagating them now they will be much in advance of such as are raised in spring.

Crotons.—Small plants of these, such as can be grown in 6-inch or 7-inch pots, are best adapted for room or table decoration. These should always be confined to a single stem, as when more than these are present, or side branches exist, the plants look too massive. The narrow-leaved varieties, such as C. Warreni, C. Prince of Wales, C. Johannis, C. majesticum, C. angustifolium, or C. Weismanni, are the most effective for the decoration of warm plant stoves. The bright colours of Crotons, both the narrow and the large-leaved varieties, make them suitable for using in this way. The plants may be grown larger, but it is well to avoid very large specimens unless for exceptional purposes, as it is better to have a number that are of medium size dispersed about the house than a few large examples. Consequently, to keep up the stock, it is necessary to propagate some annually. The cuttings should consist of shoots about 6 inches long; choose such as have the leaves highly coloured. Put them singly into 3-inch pots; they will root in a few weeks. Drain, and half-fill the pots with a mixture of sifted loam and sand in equal proportions, filling up with sand alone. Cover with propagating glasses, or confine in a striking frame. Keep the cuttings moist, and also shaded from the sun. A temperature of about 70° will answer for them.

Alocasia macrorhiza variegata.—In this we have one of the most effective of all variegated plants. The bold markings of its leaves stand unequalled by those of any species in cultivation. To have it in good condition it is necessary to propagate every year, as the plants grow quickly, and are rarely so good after they have been grown two years. In selecting the suckers it is necessary to be careful to choose such as have something like an equal balance of white and of green colour in the leaves, as if they have too much green whilst in the sucker state, they generally continue the same when the plants reach their full size; and if, on the other hand, the leaves have too much white in them, the plants rarely attain enough strength. Take the suckers off with as many roots as can be got, and put them into 5-inch or 6-inch pots, drained and filled with a mixture of sifted loam and sand, sprinkling a little sand on the top. Stand them in a striking frame, which must be kept moderately moist, but not too close, or the leaves will decay. In a brisk heat they will soon get established, after which move them from the frame, and keep through the winter in a warm stove, giving pots two or three sizes larger when the roots seem to require more room. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Tuberoses at Arundel.—These are very well grown at Arundel Castle. We recently saw a large batch in flower, the average number of flowers on a spike being about twenty-four; some were carrying as many as thirty.

Lapageria alba.—A large plant of this at Arundel has this year sent up a long shoot from the ground, which has terminated in a great cluster of more than twenty flowers, forming a perfect umbel.

Bismarckia nobilis.—I recently noted this rare Palm in Mr. Bull's establishment, but not in sufficient character to enable one to judge of its beauty. It would appear to be nearly related to the genus Pritchardia, and it comes from the west coast of Madagascar, an island so prolific in new genera and new species. It is said to become a very handsome plant, but I should imagine it is a slow grower. It requires a considerable amount of heat.—W. H. G.

Abutilon Boule de Neige.—There is a plant of this in the conservatory at Dale Park with a stem girthing 11 inches. Mr. Sandford has a great demand for white flowers, and finds this Abutilon one of the most useful things he can grow, as it continues to flower the whole year through. It is a great standard tree, and when the branches extend too far they are cut closely back, young flower-laden shoots being again sent out. A quantity of wreaths are required at Dale Park, and these white Abutilon flowers with the petals turned back and the bundle of yellow stamens pinched out prove most useful, and are obtainable with little cost or trouble.

Cassia floribunda.—At Dale Park this Cassia has been effectively used in the conservatory for a pillar plant, for which purpose it seems well adapted, as being a strong grower it is apt to become too large for a pot. Mr. Sandford says that by cutting it in hard annually it throws out a great quantity of shoots which flower with the greatest freedom. The pillar, hidden by a fresh green growth, each shoot terminating in a large panicle of deep yellow flowers, proved the suitability both of the plant and the treatment it received.

Elegant table plants.—There is something yet to be desired in the class of plants usually employed for table decoration. At the present season Coleuses are a good deal run upon, but though they are bright and showy and are easily grown, they can hardly be called elegant. Ferns, especially selections from the large family of Maiden-hairs, and Pteris are always useful. Unless the room is a very large one, no plant, in my opinion, should exceed 1 foot or 14 inches in height, and even if the room and the party are large, no plant on the dinner table should be higher than is above set down, but a few taller plants may be grouped or used as single specimens on the side tables, or to fill in fireplaces, and break up angles and furnish recesses in the room. The following list offers a good selection of easily grown plants for table work: Cocos Weddelliana, Aralia elegantissima, Croton angustifolium, C. Johannis, C. majesticum, Pandanus Veitchi, P. elegantissimus, Aralia leptophylla, Dracæna terminalis, D. gracilis, D. Cooperi, Cyperus alternifolius variegatus, Geonoma gracilis, Adiantum cuneatum, A. scutum, A. farleyense, Ananassa sativa variegata, Reidia glaucescens, and Caladium argyrites. Small well-grown Adiantums in 2½-inch pots are useful for dotting about the table on certain occasions for a change. To get colour into the Crotons and Dracænas, they must be grown in a light position, and the Pandanus potted in rather poor sandy peat.—E. H.



Pyrus Hosti (showing fruiting branch) from a tree in the late Messrs. Osborn's Nursery, Fulham. (See p. 207.)

VIOLETS IN FRAMES FOR WINTER.

It is just as easy to have plenty of Violet blossoms in winter as it is in spring if the necessary means can be had. In the first place, the young plants must have been propagated in spring not later than April (plants of one season's growth from layers are always best) and planted out 1 foot apart in some open situation where the land has been well manured and cultivated. Violets are very exhausting, especially to the surface soil, and therefore they should not be planted on the same land two years in succession. During the summer the surface must have been frequently stirred to encourage growth, and in a very dry, hot season a mulch of old Mushroom manure between the plants and an occasional soaking of water will be very beneficial. The present season has been damp, and the plants are in consequence strong and healthy, and no labour has been incurred beyond the necessary hoeing and weeding. If the blossoms are required early in November the plants should soon be planted in the frames. Where

Melons are grown in pits or frames the Violets will do very well as a successional crop in the same beds. If there has been any red spider on the Melons the frames should be well scrubbed with soap and water before the Violets are planted. Melons are usually grown in heavy loam, and to suit the Violets a few inches of leaf-mould should be placed on the surface and well blended by forking it over. Move the plants with good balls and plant them so that they do not quite touch each other. Water them well in and keep the lights off for the present, or till the nights become colder, and at all times when not absolutely freezing the plants must have ventilation in accordance with the condition of the atmosphere. The best double-flowered Violet for growing in frames is Marie Louise. The single-flowered Neapolitan is very sweet. For open-air culture the single Russian in some of its improved forms is the hardiest and best. But in dealing with the latter, it is a good plan to grow them well in an open situation and transplant to a sheltered place where some temporary covering can be placed over them in severe weather. White Violets are not generally so much cared for as are the blue-flowered varieties; the white Russian is very hardy, and Queen Victoria, a double-flowered white kind, is very sweet. The frame must be matted up in severe weather, and during mild weather sufficient water should be given to keep the roots moist. A hot-water pipe through the pit would be an advantage, though it should not be used till the cold weather sets in. E. H.

Iris stylosa.—Those who want flowers in the winter should grow this plant, as it only requires a warm greenhouse temperature to bring it into flower, and at other times it gives very little trouble. It might possibly live and flower in the open air, but it is so lovely under glass that I have not tried it. The blue colour which predominates in the flowers, and the charming gold bands, together with a delightful fragrance, render it one of the most pleasing of winter-flowering plants. The most effective way of growing this Iris is to cultivate it in rather large pots, as it is a strong-rooting subject and requires plenty of pot room. The best lot of plants I ever had was grown in pots 12 inches in diameter, and left undisturbed for three years, but well supplied in spring and summer with liquid manure. Being evergreen, they may be potted at any time; but the best time is as soon as they go out of flower, and they will then have sufficient time to strengthen for flowering the next year. Specimens that have bloomed in the greenhouse should not be placed out of doors until early in the summer. A cold frame protected from frost will afford them all the shelter they need. When placed out of doors the pots should be plunged to their rims in soil or ashes, giving plenty of water in dry weather.—J. C. C.

Aristolochia elegans.—Though the genus Aristolochia is an extensive one, very few members of it are ever met with in gardens, owing no doubt to the fact that in some cases the flowers are not showy, and in others they are not freely produced, while some are most disagreeably scented. To the species under notice, however, none of these objections will apply, for it produces its beautifully marked blossoms in great profusion, and they are almost, if not quite scentless. No description can convey an idea of the delicate velvety reticulation that overspreads the yellowish groundwork of the flower, but the coloured plate of it given in The Garden, June 19, 1886, shows its distinct and peculiar markings. This Aristolochia is, like most of its class, of climbing habit, but is more fitted for small houses than for a larger structure, one reason being that unless the flowers are brought near the eye their delicate markings are lost. The foliage is of a peculiarly glaucous green colour, and when the plant is growing freely very handsome. It is so free-flowering in a small state, that I have had plants raised from cuttings bloom freely when in 4-inch pots. It will succeed either in the temperature of a stove or that of an intermediate house, and cuttings of the young shoots will strike root at any time during the summer if put in a close propagating case. The very stout shoots should not be chosen for the purpose, as the weaker and shorter-jointed ones are far less liable to decay. Besides this mode of increase seeds are occasionally produced, and if sown directly they are ripe the young plants quickly make their appearance and grow away freely.—H. P.

Ferns.

W. H. GOWER.

FERNS AT CHELSEA.

These plants are too numerous at Mr. Bull's establishment to think of enumerating a tithe of them in the space of a short article, but now that the taste for these beautiful plants is again reviving a few brief notes upon some of the varieties to be found in the collection may be found useful.

Cheilanthes chlorophylla is notable as a basket Fern, its stems are naked for 1 foot or 18 inches and dark brown in colour, the leafy portion being about the same length by 9 inches or more in width; the segments are small and bright green. When well grown it forms an elegant object in a hanging basket, but it requires great attention in watering. It is a native of various parts of South America, and thrives well in intermediate temperature.

Odontosoria fumarioides.—This belongs to the section of the genus which has scandent and indefinite fronds. Its segments are small and deeply lobed, and the stem and rachises are armed with sharp prickles. This very elegant plant may be trained upon the roof, where it will act as a shade to some of the species which do not require much shelter from the sun. It is also known by the name of Davallia fumarioides, and comes from Jamaica. It requires the warmth of a stove. A better known plant is a very near relative, O. aculeata, which is larger in all its parts; this is a common plant in Jamaica and the other West Indian Islands.

Anemia rotundifolia is another rarity of the collection, and which I believe is not yet in commerce; it is a pinnate species, the barren fronds being prolonged and rooting at the ends, the fruiting fronds being erect. It is a warm house species from South Brazil, and is a pretty variation in the genus. It has been introduced by Mr. Bull.

Adiantum speciosum.—This is a handsome climbing species of Maiden-hair, and produces fronds several feet in length. It has jet-black stems and rachises; the fronds are branched. It is a handsome stove Fern, widely distributed in South America.

Gymnogramma elegantissima.—This is one of the new plants of the establishment, and it well deserves the appellation of most elegant. It is a variety of G. gloriosa, a plant which it resembles in habit, but its fronds are longer and somewhat narrower, and the pinnæ and pinnules are both more distant. It will thrive either as a pot or basket plant, but it requires stove heat.

Davallia fijiensis plumosa may be seen here in quantity and in marvellous beauty, and was originally sent out from this establishment. Independent of its beautiful, feathery, deep green fronds being such a rare ornament in the plant stove, they are also well suited for cutting to mix with cut flowers. It is adapted for cultivation in the intermediate house.

Phymatodes Billardieri cristata.—To this establishment, I believe, is also due the introduction of the crested form of this New Zealand plant, which is one of the few tasselled varieties of exotic Ferns. It resembles the normal state of the plant, except in its having a crest upon each of the tips of the segments of the frond, and is a charming variety to those whose tastes lean towards these tasselled plants. It thrives admirably in the greenhouse fernery.

Lomaria ciliata.—This is a pretty small-growing plant from New Caledonia, introduced some few years ago, but which is by no means common. It appears to be nearly allied to L gibba, but is thoroughly distinct from that species. The stem is slender, and it does not carry a large head, the fronds seldom exceeding 1 foot in length, and they are more frequently less. The pinnæ are somewhat distant, coarsely toothed, and light green in colour. It thrives in a warm greenhouse fernery.

Doryopteris ludens.—This is a grand species introduced by Mr. Bull, and it is now getting out of its immature state and is bearing large palmately-lobed, deep green, coriaceous fronds. It is a curious fact that all the species of Doryopteris produce, in the first instance, simple sagittate fronds; these, however, cannot be called sterile fronds, as they are frequently fertile, and from spores obtained from fronds of this shape I have raised young plants in abundance. One species retains the simple fronds, and is called D. sagittifolia. They are all stove Ferns, D. ludens coming from India and the adjacent islands; consequently requires stove heat.

Cheilanthes tomentosa is a species from Mexico and the Southern United States, and consequently thrives best in a greenhouse, and it does not like to be wetted overhead. It is of tufted habit, and produces ovate-lanceolate fronds, which are from 6 inches to 1 foot long and about 3 inches broad; they are three times divided, the segments being small, greyish above, woolly beneath. It is an elegant plant.

Propagating.

Deciduous shrubs.—As an illustration of the readiness with which many shrubs can be propagated by cuttings of the young growing shoots put in soon after midsummer, I may mention that out of a number put in six weeks ago and placed in an ordinary garden frame, which was kept close and shaded for a time, the Weigelas, Deutzias, and Ampelopsis are already rooted and potted off into small pots, so that in the spring they can be planted out in a bed prepared for the purpose, and will then grow away at once. This method of propagation is of great advantage in the case of any of the newer varieties, as small shoots can be employed for the purpose, and weak as they are, they will be available for planting out in the following spring; whereas if left till the autumn it would be necessary to take much larger cuttings, so that a plant would not yield so many of them, and besides this a season is gained by the summer cuttings.

Aralia spinosa, whose large terminal panicles of blossoms form such a conspicuous feature just now, can be readily propagated by cuttings of the roots taken at almost any season, as can another late summer and autumn flowering shrub, Clerodendron trichotomum.

Grafting Coniferæ.—Though young plants of the different Conifers that have been struck from cuttings are generally preferable to grafted specimens, yet this operation is often carried out, for in the first place some kinds that root only with the very greatest difficulty may be readily grafted on some allied kind, while a grafted plant will grow more quickly during its earlier stages than one raised from a cutting. The operation of grafting may be carried out at any time during this month and the next, provided plenty of stocks are at hand in the shape of small plants well established in pots. After grafting the plants must be kept very close for a time, and if a case in a propagating house is prepared for their reception it must be away from the influence of fire heat, otherwise an ordinary garden frame is preferable. The last should be in a shady spot, and yet so situated that it is clear of the drip of trees, and it should also be as nearly air-tight as possible. The stocks must, of course, be as nearly related to the scions as possible, and the best are furnished by young seedling plants that have been lifted in early spring, and after being potted plunged out of doors till they are required. When they are of the thickness of a straw to that of a pencil is a good time for grafting, especially if they are young and vigorous, as any wounds that are made quickly heal. Should the stocks be very long they may be shortened back somewhat before

grafting, but as the method usually employed is that known as veneer or side-grafting, the stock must not have all its branches removed, for it is necessary to leave enough to maintain a circulation of sap. The principal consideration is to have both stock and scion in a healthy state, and having effected as complete a union as possible, tie the graft securely in position. Should the place for the reception of the grafted plants be thoroughly air-tight, no grafting wax nor clay will be necessary on the point of union, but one great thing to be observed in watering is not to let any of the moisture run down between the stock and scion, as if this happens failure will in all probability be the result. When united a little more air must be given until the plants are gradually inured to full exposure, when the top of the scion may be removed by degrees. Care must be taken to ascertain that the union is quite complete before the ligatures are loosened.

Rhus glabra laciniata.—The characteristic illustration of this in The Garden suggests how readily it can be propagated by pieces of the roots taken early in the spring, cut up into lengths of 1½ inches to 2 inches, dibbled into pans of sandy soil, and placed in a slight heat. In the event of removing any plants of this during the winter, a look-out may be kept for a few roots suitable for propagating purposes. Among other shrubs there illustrated,

Rhodotypos kerrioides may be increased by cuttings of the young shoots taken now and kept close in an ordinary frame till struck, and the same remarks will also apply to

Raphiolepis japonica, cuttings of which will strike more readily if they are formed of the entire shoot separated from the parent plant just at its best. This last does not grow very vigorously, an entire shoot seldom exceeding 6 inches long, and generally less. The very strongest shoots do not furnish the best cuttings.

Dipladenias, Ixoras, and numerous other stove plants are usually propagated from cuttings taken during the spring and early summer months, but where press of work has prevented this being done, cuttings of the young shoots put in now will strike root, though of course it takes a longer time than would be the case if they were taken earlier in the year, and they are not in such good condition to pass the winter as spring-struck cuttings. As autumn approaches more care is necessary to prevent cuttings of a succulent nature from damping than is required earlier in the season. A little gentle bottom-heat is of service at this time of the year to hasten the formation of roots, as the more quickly they strike the stronger they will become before winter. T.

Raising small seeds.—In reply to "A. A." in The Garden, August 25 (p. 189), I have found it a good plan in the case of seeds that take some time to germinate to cover the soil with Moss. If the air can be in a great measure excluded from the surface soil, the mossy or fungoid growth will not be so likely to be troublesome. The spores are floating in the air, and if they can be kept from settling on the soil the green crust that forms on the seed-pans will not often make its appearance. My favourite way is to fill the pans to within 1 inch of the rim. The space thus left I fill up with Moss, and on this I put a pane of glass, of which I have a number cut to the size of the pots, pans, and boxes I use. Not only does this prevent the formation of fungoid growth, but the surface soil is maintained in that equable condition that specially favours the quick and safe germination of seeds. Some such plan as this must be followed with hard-coated seeds, or they do not come up well. I have no success with Cyclamen seed unless I cover the soil with some light material. In addition to the advantages above mentioned the check on evaporation, whereby watering is in a great measure obviated, should be taken into account. The less seeds are watered the more surely will they come through, that is if the soil can be kept moist without doing so. I always well moisten the compost previous to sowing, then put some fine dry soil on it, sow the seed and press it firmly. This partly buries them, so that very small seeds require nothing more than the covering of Moss. Of course, the pans must be well watched, removing the Moss the moment the plants appear, but keeping on the glass a few days longer.—J. C. B.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

August 28.

There was not a very large meeting at the Drill Hall on Tuesday last, but great interest was evinced in the things sent, and certificates to the number of twenty-four were awarded. The most conspicuous feature was the magnificent display of Gladioli from Messrs. Kelway, of Langport, which worthily merited the silver Banksian medal awarded. Hardy flowers were not numerous, but some of M. Crozy's new varieties of Cannas, sent by Messrs. Cannell and Sons, merit special notice as showing how these plants, hitherto grown for their handsome foliage, are now being improved in the size, quality, colour, and profusion of their flowers. Good as these new kinds are, we may reasonably suppose, now that the improvement of the Canna has begun, that even they will soon be surpassed by beautiful kinds as yet undreamt of.

First-class certificates were awarded as under.

To Messrs. Kelway and Sons, Langport, for the following Gladioli:—

Nicon.—A magnificent kind, with flowers of immense size, fine form, and of a soft, beautiful colour, the upper petals being flesh-white with tiny flakes of rose, the two lower petals similarly tinted at the tips, but passing to a delicate cream. This is one of the finest Gladioli we have seen for a long time.

Mago.—A rich and telling crimson-scarlet, the lower inner petal being white in the throat. A distinct and showy kind.

Magas.—This kind produces a very fine spike, and the flowers are large, French-white in colour, with a slight suffusion of lilac, which deepens in the throat. It is indeed a splendid variety.

Cebes.—A fine spike, with large and beautiful flowers of a crimson-magenta colour.

Bullion.—A distinct and pretty kind, producing large flowers of a soft yellow hue, flaked and suffused with delicate rose.

Accia.—Scarlet, suffused and overlaid with crimson.

Delphinium horus.—A beautiful variety, producing massive spikes of deep violet-blue flowers, with a white centre. Shown by Messrs. Kelway and Sons.

Gaillardia splendidissima.—This, also from Messrs. Kelway, was possibly certificated because of its being double, for there were single kinds in the same box far superior.

Adiantum versailleuse.—A new Maiden-hair of the Luddemannianum type, which kind it somewhat resembles in habit, but is very distinct. It is of dense tufted habit, with fronds about 6 inches high, the pinnules, which are a little larger than those of the common Maiden-hair and gathered together in a cluster at the tip of the frond, giving the plant a distinct and characteristic appearance. From Mr. B. S. Williams.

Dahlia (Cactus) Beauty of Brentwood.—Unlike many of the so-called Cactus Dahlias, this is the nearest approach in form to the old Juarezi of any we have seen. It is a seedling from Juarezi with petals similar to those of its parent, but in colour magenta-purple. Shown by Mr. J. T. West, gardener to Mr. W. Keith, Brentwood.

Dahlia (single) Victoria.—Pretty in colour, a velvet crimson with a white band down the centre of the petal. Distinct and free. From Cheal and Sons, Crawley.

Dahlia (single) Duchess of Albany.—This, also from Messrs. Cheal and Sons, is a distinct kind of a peculiar shade of lilac and buff.

To the following Begonias and Cannas from Messrs. Cannell and Sons:—

Begonia (tuberous) The Lady.—This is a single-flowered white form, the blooms being large, of round form, good substance, and nearly erect.

Begonia Mrs. Lascelles.—This is a double-flowered kind, free and distinct, and of a soft rose colour fading to creamy white in the centre. The individual rosette-like blooms were very large.

Begonia Mrs. Lynch.—This is also a double-flowered kind with salmon-coloured flowers.

Canna Admiral Courbet.—A distinct and beautiful Canna, producing fine foliage and a large spike of beautiful showy flowers, which are yellow with brownish markings.

Canna Madame Just.—This, like the previous kind, was conspicuous for the size of its flowers, and the abundance with which they are produced, the colour being a deep orange-yellow.

Canna Capriceux.—The flowers of this kind were distinct and exceedingly beautiful, orange-scarlet in colour, the edges of the petals bordered and fringed with deep orange.

Canna Francisque Morel.—This kind was sent by both Messrs. Cannell and Mr. T. S. Ware. The flowers are of a deep rich crimson and very effective.

Odontoglossum Karwinskii.—This was the only Orchid certificated. It was sent by Mr. W. Vanner, Camden Wood, Chislehurst. The scape was nearly a yard long and well flowered, the flowers in colour both in the green and yellow markings of the sepals and petals and the violet-tinted two-lobed lip being suggestive of those of a Zygopetalum.

Campanula isophylla alba.—This is certainly very beautiful, whether in a pot or on a warm rockery, but considering it is now a well-known plant common in many gardens, there does not appear much wisdom in certificating it. From Mr. T. S. Ware.

Mr. B. S. Williams sent a very interesting group of plants, for which he was awarded a silver-gilt Banksian medal. The group comprised good specimens of Sarracenias, Droseras, Cephalotus, Dionæa muscipula, and some Orchids, amongst which were noted Cypripedium superbiens, œnanthum, Harrisianum and its variety superbum, tessellatum, and porphyreum. Cattleya eldorado, the showy and beautiful Cattleya Dowiana, Oncidium Jonesianum, were also noticed. These things, with the aid of a few small Palms and Ferns, made a fine, instructive, and interesting group of plants rarely seen. Groups such as this might do much to popularise and draw visitors to these meetings.

Orchids, beyond what were comprised in Mr. Williams' group, were very few. Disa lacera was sent by Mr. A. H. Smee, of The Grange, Wallington, Surrey, for which he was awarded a botanical certificate. It is not, however, a mere botanical curiosity, for the peculiar Delphinium-like blue hood forming the upper portion of the flower, and the violet lip, with edges cut into a fringe, combine to form a flower of interest and with some beauty. This has also flowered at Straffan. Cattleya Loddigesi, C. Doux's variety, was sent by Mr. C. Doux, who was awarded a vote of thanks. Trichocentrum Ella, from Mr. P. T. White, Winchmore Hill, was awarded a botanical certificate. Satyrium orangeum is a half-hardy Orchid that was noted among Mr. Ware's collection of hardy flowers. As the "dog-Latin" name given to it implies, the colour is orange-yellow the flower being hooded, and, like the other Satyriums, having two spurs.

Hardy flowers were not very numerous, but Mr. T. S. Ware had an interesting group to which a bronze Banksian medal was awarded. Papaver bracteatum was shown in good form, and a nice selection of the cool-looking Iceland Poppies. Among Liliums were L. longiflorum, Batemanniæ, the Tiger Lily, and its double form, which, however, does not seem a very desirable variety, and is not far removed from a monstrosity. The Montbretias Pottsi and crocosmiæflora were well shown, and proved how useful they are for the garden, and

also for cutting from late in summer. Among a few Phloxes, a white one, named Independence, was noticeable by reason of the purity of the flowers, their size, and the profusion with which they are produced upon the spikes. A good bunch of Coreopsis lanceolata shows what a beautiful and indispensable plant this is in every good garden, for it is most useful for cutting from, and continues to flower for several months. Milla biflora with its pure white flowers was noticeable, and the great yellow heads of Centaurea macrocephala. Globe Flowers are somewhat out of season now; probably the bunches shown are the result of the peculiar season we have experienced. Malva moschata alba is always beautiful, either in a cut state or in the garden. There were in this group several nicely flowered specimens of the orange Satyrium already noted, also one of the new Gladiolus-flowered Cannas, Francisque Morel, before mentioned amongst those certificated.

Among the fine Gladioli from Messrs. Kelway, besides those certificated, Dares, a fine salmon-red, was noted, also Pompus, beautiful cerise; Olympia, a fine crimson-scarlet, with a white band down the centre of the petal; and many older, but still beautiful kinds.

Dahlias of the single pompon and decorative class were well shown by Messrs. J. Cheal and Sons, of Crawley, to whom a bronze Banksian medal was awarded, and by Mr. T. S. Ware. A box of Gaillardias from Messrs. Kelway contained, besides the double-flowered kind certificated, some excellent single sorts, distinct in colour and variable in form. One called A la Mode has a tendency to produce quilled petals, while another, named Erard, has very large yellow flowers. The same firm also had a stand of Delphiniums, two kinds, named Lycas and Balfe, being most noticeable, and both of them of deep shades of blue. Messrs. Munro and Ferguson, of Edinburgh, sent a selected form of Matricaria inodora fl.-pl., named Snowdrop, the flowers of which were larger and of a purer white than those of the type.

The group of seedling tuberous Begonias from Messrs. Cannell was awarded a bronze Banksian medal. There were some very fine flowers in both single and double forms, and the plants were conspicuous for their sturdiness of habit, and the size, quantity, and quality of the flowers. The splendid Cannas sent by this firm, the result of M. Crozy's labours, created quite a sensation.

A few seedling Carnations, not of any striking merit, were sent by Mr. J. Gate, Belchamp, Clare, Suffolk, and a kind named Juliet, a yellow ground variety of tree habit, came from Messrs. Walshaw, of Scarborough. Mr. R. Dean, of Ealing, sent some good spikes of a distinct free-flowering rosy Phlox named rosalba.

Mr. W. Roupell sent a little group consisting of Lobelia cardinalis, grown in pots, and the exquisite, though not often seen, Funkia grandiflora. This was grown in a pot, and was a very good specimen, carrying eight spikes of its sweet pure white tubular flowers. Messrs. Veitch sent boxes of the orange, lemon and striped Marigolds, fine flowers. From the same firm came a Sunflower of the annual type named Primrose Dame. It is of a soft primrose colour, and a kind that will prove useful to those who do not care for the strong and staring deep yellows.

A most interesting collection of Stocks and Asters came from the Society's Gardens at Chiswick. In days gone by they were common, yet beautiful, in English gardens, but now they are rarely seen, and we search in vain for a nice bed of Asters, although they are almost indispensable in a good garden, and what can be sweeter than a good bed of Stocks? It is to be hoped that the extensive tria's of these now being carried on at Chiswick, the proving of the best varieties and exhibiting them as here shown may help to restore two of the most beautiful of annual flowers to popular favour. Mr. Barron also sent two very fine spikes of Hedychium Gardnerianum, whose sweet perfume quite pervaded one end of the Drill Hall. Hollyhock blooms, both seedling and named kinds, were sent by Mr. F. Smith, of West Dulwich.

Fruit committee.—Though several seedling Melons were presented, no award was made, as they did not prove equal to already existing kinds. A seedling black Grape from Mr. Thomas, of Chatsworth, was not considered to be meritorious. A nice collection of fruit was sent by Messrs. Veitch, especially noticeable being some fine samples of the Sea Eagle Peach. Among early Apples Irish Peach looked about the best. This is undoubtedly one of the best of early Apples, and there are none to compare with it for briskness of flavour and firmness of flesh. It deserves to be more extensively grown, as some of the early Apples are very soft fleshed and would not be tolerated but for the one merit of earliness. In the collection was a fine dish of Jargonelle Pears, and among Plums, Denniston's Superb was noted as a good, but not common Plum. An interesting collection of Plums came from the Society's Gardens at Chiswick, Reine Claude d'Oullins being represented by a dish of very fine fruits. This is a very good dessert Plum, and belongs to the Green Gage class. Gisborne's was also noted as a nice-looking, though uncommon Plum. A seedling Apple of the Lord Suffield type was sent by Mr. J. H. Lymm, Emmeth, Wisbech, and Mr. W. Roupell was accorded a vote of thanks for a good basket of well-grown Frontignan Grapes, also some nice little bunches of the white Grape Duke of Buccleuch, grown in an 11-inch pot. Messrs. Harrison and Sons, of Leicester, sent stems of a very prolific Broad Bean named Green Emperor, and which were carrying an enormous crop of medium-sized pods.

Fruit and vegetable committee.—A meeting of this committee was held on the 21st ult. at Chiswick. The following crops on trial this season were inspected:—

1. *Potatoes.*—A collection of eighty-six sorts is being grown. With very few exceptions the tubers were found to have suffered severely from the disease, especially those of the early varieties. The following varieties proving to be good croppers and of fine appearance were subjected to the test of cooking—viz.: Governor (Dean), Lavington Conqueror (Lye), Epicure's Delight (Smith), Vegetarian (Dean), Renown (Webb & Son), Débûtante (Ellington), Castle Morton (Collins), Nelly Blue Eyes (Dean), Basford Beauty (Howard), Bluebeard (Dean), Purple Beauty (Dean), Stirling Castle (Murdoch). None of them were considered of superior quality, being somewhat watery, a result attributable to the excessively wet season.

2. *Cabbages, spring sown.*—A collection of forty varieties. The following were selected as the most desirable varieties to cultivate for use at this season—viz.: Early Etampes (Vilmorin), Early Paris Market (Vilmorin), Leeds Market (Rutley & Silverlock), Prince's Nonpareil, Early Dwarf York.

3. *Tomatoes.*—A collection of fifty-two varieties grown in pots. None of these were considered superior to sorts certificated in 1887, and now in general cultivation.

Floral committee.—A meeting of this committee was held on the 24th ult., Mr. Herbst in the chair.

The collection of Stocks and Asters on trial in the gardens was examined. Of the large-flowering Ten-week Stocks from Messrs. Vilmorin the following colours were selected as the most distinct, and awarded three marks, viz, white, sulphur, lilac, blood-red, violet, light violet. Of the same section from Messrs. Benary the white, dwarf white, brick red, and light blue received three marks; also of the Dwarf German Chamois and those of the new Giant Perfection (Benary), sulphur-yellow and light blue, received three marks, and the dark blood-red from the Novelty Company.

Amongst the Asters the following received three marks. Half dwarf: Multiflora, white; ditto, light yellow (Vilmorin); Globe Pæony-flowered, copper coloured, white edge (Vilmorin). Dwarf: Chrysanthemum, rose (Vilmorin); and ditto, scarlet-red (Vilmorin); Dwarf Queen, crimson (Benary); Dwarf Queen, white (Benary); Mignon (Benary). Pyramidal: Hedgehog or Needle, dark crimson (Benary); large flowered rose, dark scarlet (Benary); Triumph (Novelty Company). The following assortments of various colours from Benary were commended, viz., double dwarf, early flowering, fourteen vars.; dwarf bouquet-flowered (Boltzes), eight vars.; dwarf Chrysanthemum-flowered, ten vars.; dwarf pyramidal flowered, twelve vars. The later varieties will be further examined.

Conference of fruit growers at the Crystal Palace.—A meeting of the executive committee of the above conference was held in Anderton's Hotel, Fleet Street, on Tuesday last, August 28, Mr. T. F. Rivers in the chair. The principal business was the consideration of a number of communications received by the hon. secretaries, Messrs. Lewis Castle and Wm. Earley, offering papers and suggestions, and the determination of the programme for the conference. The committee now comprises about seventy of the leading fruit-growers, nurserymen, and amateurs throughout the kingdom, all of whom had expressed their hearty approval of the scheme, and their desire to assist in rendering the meeting both useful and interesting. After considerable discussion it was decided that the subjects should be taken in the following order, each paper to occupy about twenty minutes in reading to allow ample time for discussion. The conference will be held in the Crystal Palace (the place will be notified on the morning of each day) on September 7 at 3 p.m., and September 8 at 2 p.m. On September 7 the first subject will be "Fruit Culture for Profit," by Mr. T. Francis Rivers, to be followed by Mr. Coleman, Eastnor Castle Gardens, and others. The second subject will be "The Packing, Carriage, and Marketing of Fruits," by Mr. Webber, of Covent Garden, and Mr. Samuel Rawson, of Birmingham. On September 8 Mr. Tallerman will deal with "Fruit Distribution," Mr. Manning with "Fruit as Food," and Mr. Albert Bath with "Land Tenure in Relation to Fruit Cultivation." All who intend taking part in the discussion will facilitate the arrangements if they send in their names to the hon. secs., Mr. Lewis Castle, Hotham House, Merton; Mr. Wm. Earley, Ilford; or to the chairman on the day of the meeting.

Shirley Poppies.—From Mr. Ware comes a nice selection of the above-named strain of Poppies in many shades of soft and beautiful colours. Mr. Ware says in a note they have been very pretty with him for some weeks past, but are not now so good, having been battered about by recent rains.

Thalia dealbata.—I should be most grateful for advice from anyone who has had practical experience in the winter management of this aquatic. We propose to keep it in water in the greenhouse during the winter and in the spring to plant it out in the pond at such at a depth that at no time shall there be a chance of the frost reaching it. But will the plant stand an English winter in the open?—A. C. Bartholomew.

Camellia fruiting.—Will "T. C." kindly make his questions plainer, and at the same time send his address.

Names of plants.—*John Lewis.*—Clethra formosa.——*John Milburn.*—Linaria Maroccana, Ptelea trifoliata, Ligustrum japonicum.——*Edwin Jackson.*—Send fruit with specimen.——*Mr. Thompson on box.*—1, Chrysanthemum uliginosum; 2, Telekia speciosa; 3, Lythrum salicaria; 8, Gilia tricolor; 9, Phacelia congesta.——*Orchid.*—1, Saccolabium Blumei; 2, Saccolabium Blumei majus; 3, Cypripedium barbatum; 4, send again.——*H. Langley.*—Bocconia cordata.——*G. Bithway.*—1, Adiantum Legrandi; 2, A. excisum multifidum; 3, A. decorum.——*R. C.*—1, Cichorium Intybus; 2, Corydalis lutea; 3, Pentstemon pubescens; 4, Doodia lunulata.——*J. Hood.*—1, Lysimachia thyrsiflora; 2, Erigeron philadelphicus.——*G. G.*—Salvia horminum.——*E. W. N.*—Blitum capitatum (red fruit), Aster corymbosus.

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WOODS & FORESTS.

FORESTRY.

It seems one great drawback to the extension of plantations on barren ground is the erroneous impression entertained by many that planting moor ground to any great extent tends to lessen or cramp the sportsman's freedom in search of game, and in some cases to reduce to a serious extent the numbers of some species. Game and plantations are so closely associated, that those who have lived for any length of time in a well-wooded part of the country will have no difficulty in seeing the fallacy of this statement, although, at the same time, there are others who think the open moor best for grouse, partridges, snipe, &c. Granting that such is the case, it by no means disproves the utility of planting, for shelter, well defined groups of trees here and there where the ground is suitable, and when grounds are well managed in this way not only the numbers, but also the species of the birds are often increased, as many of them prefer being within easy reach of covert. In traversing a bare stretch of heather ground in search of game only a few species are generally to be found; but when the sportsman is in the vicinity of plantations he can then find game in greater variety and with less trouble, thus proving the advantage of shelter on bleak, exposed parts of the country. No doubt some species of game prefer an open run, but there is always abundance of space to be found for such on bare, rocky places unsuitable for tree growth, and in planting waste ground this should always be well defined and taken advantage of at the time of the formation. Personal observation, therefore, proves that the well-wooded districts of the country are always prolific in game, and as the timber likewise forms a valuable source of income and profit to the owners, the judicious planting of such lands cannot be too strongly recommended to proprietors.

It is to be regretted that there are no statistics in this country bearing upon this important subject. In a former paper I gave a quotation published by the Austrian Minister of Agriculture showing that that country was by far the best wooded in Europe, and as sportsmen are interested in this question, I now supplement that quotation by the following statistics from the same quarter to show that Austria is likewise the finest sporting country in Euope:—

The number of preserves in Austria alone, not counting those in Hungary, is stated at 15,764. and on these there were shot in 1887, 32 bears, 113 wolves, 24 lynxes, 9490 stags, 60,252 roebucks, 7709 chamois, 2998 wild boars, 26,411 foxes, 9729 polecats, 1055 otters, 2672 badgers, 333 marmots, and no fewer than 1,439,134 hares. Wild rabbits are scarce in this country, and are not counted in the general record, but 27,797 were shot in Bohemia, where there are most warrens. The totals for feathered game are 4498 grouse, 1300 wild geese, 102,748 pheasants, 1,336,934 partridges, 34,448 quails, 12,652 woodcocks, 7614 snipe, and 28,914 wild ducks. The birds of prey shot were 561 eagles, 38,610 owls, 1365 horned owls, and 106,353 hawks, kestrels, kites and vultures.

One remarkable feature in this record is the scarcity of rabbits, and there can be no doubt but their numbers are kept down in order to protect the wood growth and pasture as well as other crops, and it would be well if we would follow the example thus taught, for in addition to the destruction of young growth in woods and newly formed plantations, cattle and sheep never thrive upon ground that is overrun by these pests, and from what I have seen I have no hesitation in saying that proprietors in many cases are not aware of the loss they sustain from this cause alone. This is a very proper time to lay out new plantations, as it is an advantage to have them done when the proprietor is upon the ground shooting, and it likewise affords time to have the ground prepared in the way of draining where necessary, as well as fencing before the planting season sets in. In laying out new plantations upon exposed situations, all stiff formal lines should be avoided as much as possible; well defined sweeping curves with the convex side facing the blast on the most exposed points are the best, as the wind gradually exhausts itself and does less damage than when it hits a straight formal line of trees. Owing to the formation of the ground and texture of the soil, this is sometimes difficult to attain, but at any rate such should always be the aim of the planter. One great drawback to successful tree culture on exposed sites is the want of proper shelter at the commencement. No doubt the boundary line of fence if erected some 5 feet or 6 feet high will prove quite efficient on flat ground, but on hilly ground the influence of this fence for shelter is only felt a few perches from its base; consequently I have found it an advantage to erect a series of temporary hurdles with branches, twigs, Heather, or Bog Myrtle in order to break the force of the wind until the plants become established. The cheapest and most efficient fence of this description may be erected by placing a series of light posts in line and attaching say three strands of fencing wire to them; the branches or other stuff can then be woven in between the wires, and thus form an excellent shelter. For want of this simple and inexpensive precaution many failures can be distinctly traced, and none more so than in maritime situations, where the air is impregnated with salt vapour. Although the expense is a little more at the time of the formation, yet in the end I have always found it to be the cheapest and most satisfactory.

J. B. Webster.

NOTES ON THE LONGEVITY OF CONIFEROUS TREE SEEDS.

Loudon says European Larch seeds will not germinate after they have been a few months out of the cones. Our experience proves that they will germinate perfectly well eighteen months, and passably well thirty months, after leaving the cones. The belief seems to be general that White Pine seeds become rancid and will not germinate after the first season. Our experience proves that they will germinate thirty months after leaving the cones.

I think further experience will prove that the seeds of Colorado Conifers, and seeds of coniferous trees in all dry climates, will preserve their vitality still longer. We had a sack of Pinus ponderosa seeds from which we sowed five years in succession, and, to all appearance, they germinated the fifth year as freely as the first. Seeds of Picea pungens and Pseudotsuga Douglasi have germinated with us apparently as well the third year as the first. I regret that we had not seeds to try the experiment longer.

Practice has changed wonderfully during the last half century in this direction, and now, instead of keeping seeds in the cones, they are taken out as soon as the cones are gathered and dried, yet some writers on forest subjects still recommend keeping the seeds in the cones till time for sowing. But how can Fir seeds be kept in the cones? The cones fall in pieces as soon as the seeds ripen. They will hold together, it is true, if collected before the seeds are ripe, but in that case the cones will become mouldy and injure the seeds. There may be a few species of Pines which will keep longer in the cones than out, such as Pinus Banksiana, P. contorta, and P. tuberculata, which hold the hard, dry cones on the trees for many years; but these are kinds which are seldom, if ever, used, and of little value. The White and many other Pines, the Spruces and Arbor-vitæ, hold the cones on the trees for a short time after the seeds have ripened, but they shed all the seeds as soon as they are ripe in August, September, and October. I do not see how the seeds can be benefited by being left in the cones after they have ripened, nor how they can be kept as safely in cones as in bags.

It is fortunate for the forestry of this country that seeds of forest trees can be kept for years in this manner, otherwise a succession of plants could not well be kept up, for forest trees do not produce seeds every year, even when the seasons are favourable. In the year 1884 I scanned the White Pine trees closely from the head of Lake Michigan to the New England coast, thence from Rhode Island north to the Canadian line, thence through the Adirondack Mountains along the Black River, and into the White Pine regions in Pennsylvania, and saw no trees producing cones. We then sent a collector up into Northern Wisconsin and the Michigan peninsula, but he found that the trees were not producing seeds. It is often the case that when forest trees fail to produce seeds in one part of the country they are abundant in another locality; but in this case the only exceptions I heard of were one locality in the Lower Provinces of Canada, and the cultivated trees west of Lake Michigan. What is true of the White Pine is measurably true of all other forest trees, and now, when so much is written on the subject of forestry, it is surprising that so little is written on this branch of the subject. Even if the seasons are all favourable one can hardly expect a crop of White Pine seeds oftener than once in three years. One year is needed for the blooming of the male and female flowers and the fertilising of the embryo cones, the next year for the growth of the cones and the perfecting of the seeds, which draws so heavily on the vitality of the trees that they require the third year to recuperate and form flower buds to continue the blossoming of the year following. Wherever I had an opportunity to examine, as in New England, on the Adirondacks, and in the Pine belt in Pennsylvania, I found the trees all well set with embryo cones, and our collector reported the same for the region south of Lake Superior, and as these embryo cones were already fertilised we were certain of a crop of seeds the next autumn. Of course new seeds are safer and better than old seeds, and will germinate more quickly. We make it a rule to sow old seeds thicker than new, and either to sow them earlier or soften them by soaking before we sow them.—Robert Douglas, in *Garden and Forest.*

Boucherie's mode of wood preserving.—This method consists in the impregnation of the wood with the necessary substance, in a manner similar to the natural filling of the pores with sap; that is to say, the solution is introduced into the tree from its roots, and is thus made to take the place of the sap in all parts of the timber. When the tree is felled the root end is placed in a solution of the salt (sulphate of copper, acetate of iron), and allowed to remain for some days; at the end of the required time the wood will have become completely impregnated with the salt. Occasionally this method is employed in colouring woods, colouring matter being used instead of, or as well as, the salt. The Linden, Beech, Willow, Elm, Alder, and Pear tree can be treated in this manner. The Fir, Oak, Ash, Poplar, and Cherry tree do not, however, absorb the impregnated fluid sufficiently.

SHORT NOTES.—WOODS AND FORESTS.

Forestry at the Irish Exhibition.—In the article on the above in The Garden for August 25 at page 190, Mr. Richard Hartland's exhibit from the Lough Nurseries was inadvertently credited to Mr. Baylor Hartland.—Ed.

The Swiss Pine (Pinus Cembra).—Being desirous of planting a few acres of poor, stony land with Larch, and having recently been in Switzerland, I should feel obliged if you could inform me whether the Swiss Pine (I do not know its botanical name) is in commerce in this country, and where I could procure a few thousand fair-sized plants for the coming autumn. The timber appears so much more valuable than that of the ordinary Larch that I should like to know how it is that it is not more planted in this country —Swiss Tourist.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

A VISIT TO THE NURSERY GARDENS OF NANCY.

AT all times a visit to these gardens is to the horticulturist a source of much and instructive enjoyment. Nancy being the birthplace and home of many of our choicest and best florist flowers is, as it were, the "Mecca" of gardeners. But at the present epoch of gardening, when various sections of florist flowers have reached a point of perfection which a few years since would have been considered unattainable, a visit is of more than ordinary interest. Not to mention more than hybrid Gladioli and tuberous Begonias, the amateur can imagine what a field of interest lies before him, these alone being sufficient to repay one for a visit to Nancy.

The grower of tuberous Begonias finds at the gardens of Mons. Crousse a superb series of seedling double Begonias; the double white and double yellow of various shades are as yet unequalled in any other establishment. The size, perfect form, and habit of many of these magnificent flowers leave nothing further to be desired. Some of the seedlings raised this year are absolutely perfect, and make one long for the day when they will be found in the catalogue of Mons. Crousse. At this garden the Ivy-leaved Pelargoniums also are very noteworthy. Amongst those to be sent out by-and-by are several of great promise. The Cannas raised by Mons. Crozy, of Lyons, are largely grown in this garden, but in our climate they will be more generally useful for indoor culture, owing to want of continued sunshine and heat to develop them fully. (An instance of this can now be seen by any visitor to the nursery of Messrs. Cannell, of Swanley.) At the nursery gardens of Mons. Lemoine the great point of interest is the new race of hybrid Gladioli, beautiful crosses between Gladiolus Saundersi superbus and Mons. Lemoine's hybrids, made known on the exhibition table by Messrs. Veitch. Only one who has seen these exquisite flowers can have any idea of what is in store before very long for growers of hybrid Gladioli. The form, size, and markings are quite surprising, and reveal a beauty hitherto unknown amongst Gladioli. It is possible that one or two may appear in the catalogue for next year if on lifting them a sufficient quantity to put them into commerce is found to exist. The herbaceous Phloxes contain many seedlings of wonderful size and beauty, many new shades being found amongst them.

The new Montbretias, too, contain some seedlings of very much improved form and colour, and as they increase so rapidly one may expect very soon to find them attainable.

Having visited and carefully examined both these gardens last autumn, I was not prepared to find such a number of interesting novelties this year. JOHN T. POË.

Riverston.

The White Field Geranium.—*Apropos* of the White Meadow Geranium, of which I sent you some account, together with a (poor) photograph, about a month ago, I write to say that within the last eight or ten days it has sent up a fresh or what I may call a *post-obit* flower-stem (as the plant had apparently gone out of flower) on which 100 or more flower-buds have been developed. I enclose two or three of the flowering branchlets, showing what a free-flowering thing it is. From what I saw of it here this summer, I must say that a well-established plant of it is a really fine thing for the hardy flower border.—WILLIAM MILLER.

*** We think it is rather too vigorous and not constant enough in bloom for the mixed border, but a fitting place might be found for it. If people wish to cultivate Geraniums, they should begin with the prettiest, the Blood Geranium and the large armenum.—ED.

ROSE GARDEN.

MONTHLY ROSES.

MESSRS. PAUL, of Waltham Cross, remind us of the beauty of these flowers, which have too long been forgotten in the rush for novelties. They may not in size equal those of the modern Rose, but for fragrance, constant flowering, and other charms they well deserve a place. The kinds sent were Madame Breon, a soft and beautiful pinky white; Ducher, the best of all the white monthlies, and a Rose that should be in every garden. The flower has a creamy white centre, and is very sweet. Cels multiflore is a flesh-white, distinct and free. The old blush monthly was represented by a good bunch, and it is probably still the best of all. Belle de Florence consisted of great clusters of sweet flowers of a bright and beautiful rose colour. Cramoisie Supèrieure is very sweet and distinct from them all, by reason of its deep rich crimson colour. Abbé Miolan is most distinct and double, bearing great clusters of rosy crimson globular flowers. Fabvier, with its pretty warm crimson buds and brightly-coloured semi-double flowers, is perfectly charming; and Louis Philippe, rosy carmine, is attractive. A bunch of the once popular, but now neglected Mrs. Bosanquet is pretty.

This beautiful collection, we need hardly say, is not representative of the beauty of these plants, as it does not include the distinct and pretty Archduke Charles; nor did we see Hermosa, which is also an excellent kind. We think if both old and new collections were ransacked still better kinds could be found, and we hope nurserymen will ascertain and keep a stock of the very best kinds, and that gardeners also will give them more attention than they have hitherto done.

Rose Grace Darling.—This very charming Rose cannot be too much written about, as it is undeniably one of the most valuable of all the newer Roses. I made a note in June in THE GARDEN with regard to its profuse crop of early bloom, it being one of the first to flower, and now I can testify to its continuity of bloom ever since. Moreover, at the present time, when Hybrid Perpetuals are nearly flowerless and Teas have not their full late crop of bloom, the variety Grace Darling is producing an abundance of fine bloom. The other day I was in a Rose garden where really the only good blooms that could be cut were from this Rose, of which there was a fine mass. It is a strong and free grower and an abundant bloomer, the flowers being large, of admirable form, and of that delicate flesh-pink colour which everyone thinks so beautiful. Notwithstanding the several fine new Roses that Mr. Bennett has given us, I have no hesitation in calling this one of his very best.—W. G.

What is a "cut-back?"—In answer to Mr. Joseph Blis's letter, asking what is meant by a "cut-back," it may perhaps most clearly be said that a cut-back is a Rose tree that is not a maiden. When a Rose is budded in July, the plant arising from such bud during the following summer is called a "maiden plant;" in the succeeding spring (the second after the insertion of the bud) this maiden plant is cut back or pruned, and thenceforward is technically called a cut-back plant, or more briefly a cut-back. Most Hybrid Perpetuals throw very fine blooms as maidens, but in the case of many varieties, especially in a cold season, these blooms are liable to be somewhat rough, that is, to have some petals with uneven or serrated margins. Many Roses that throw rough flowers as maidens give beautifully smooth and finished blooms as cut-backs, and it is a matter of general experience that more refined flowers are obtainable from cut-back than from maiden plants. Some varieties, however, throw blooms with rough-edged petals on plants of all ages, notably Annie Wood, which for this reason has been discarded by many good growers, and, in cold weather, even Captain Christy.—T. W. G.

THE HARDINESS OF TEA ROSES.

IT is quite refreshing to have our Rose Dean (Hole) with us again among the Roses. With his usual wit and humour, too, he assures all whom it may concern that Tea Roses are perfectly hardy when doubly protected, as they so well deserve to be, first, with a panoply of earth over the budded portion; and, secondly, with a non-conducting coat of farmyard manure during the time of frost. This is something like the man who boasted of his hardiness in resisting zero under twelve blankets and two eiderdown quilts. Tea Roses are hardy enough treated as Dean Hole, Mr. Douglas, and many others describe and practise. But, nevertheless, all claim to hardiness is excluded through the thickness and strength of their double or even treble barrelled protectors; for over the earth and the manure there is frequently spread a thickness from 3 inches to 6 inches of fluffy Fern fronds, just to keep the bases of the branchlets yet more warm and cosy during the time of frost. It seems that our Rose Dean contents himself with two coats to make his Tea Roses hardy; but a good many others have added a covering of Bracken—far more effective than the other two. And without doubt Tea Roses, thus fully fortified against wind and weather, are perfectly hardy in our climate, not that the whole Rose can be even thus pulled through our winters and springs in safety; nor is such wholesale salvation essential to success, for experience demonstrates in this matter that a part may prove better than the whole. In the matter of dwarf Tea Roses, we deliberately sacrifice a part to ensure greater safety and higher beauty. We lose bulk for safety, and in pursuit of the latter we also find greater vigour and augmented strength. By treating the tops of dwarf Teas as semi-annuals but little top protection is needed. The Roses are made to renew their growth every year, and in this renewal they find new life and higher beauty.

Mr. Douglas' suggestion of raised beds which have been rather extensively adopted renders Tea Roses yet more safe from severities of weather or of climate. In these in not a few localities Teas on their own roots may almost dispense with abnormal deep planting, or earthing over of the points of union of bud and Brier, or coverings of manure. Dry root-runs alone may in warm localities or on sunny sites and light porous soils ensure the safety of the recuperative portions or vital forces of Tea Roses; but on clayey, heavy soil and damp localities it will be safer not to trust to Tea Roses proving hardy unless subjected to a dual or threefold system of protection.

But in this matter of hardiness there are Teas and Teas differing widely, as, for instance, Gloire de Dijon and Marie Van Houtte. Modes of culture may also prove a panoply of safety or a means of destruction to Tea Roses in their contest with our fickle climate, and this is a practical point of the utmost importance which has not yet received the attention it deserves. D. T. F.

Rosa rugosa.—A plant of this beautiful single Rose at Chiswick, though somewhat unduly hidden behind a big-leaved Catalpa, is carrying a lot of fine fruit, which are colouring richly. The bush in foliage alone is very pleasing; when in bloom it is beautiful, and when in fruit also it is singularly

attractive. I saw a hedge of this Rose in the Messrs. Sutton and Son's nursery recently, and the manager mentioned that because of the fondness winged game showed for the fruits it made a capital cover. That is perhaps putting it to a poor use, but it has its recommendations with some persons. Cannot the market plant growers take Rosa rugosa in hand, and produce in the autumn neat little bushes in pots, carrying a dozen or so of the richly-coloured fruits which make it such a fine feature in gardens at this time of the year?—A. D.

ROSES FOR THE SEA-SIDE.

I was glad to see Mr. Paul's communication on this subject in The Garden for August 4 (p. 95), as I have for several years past observed how Roses grow near the sea on the Somerset and Devonshire coasts. I am convinced it is more a question of shelter than of selecting suitable sorts, although the hardier they are the better. With sufficient shelter most of the Hybrid Perpetuals and Tea Roses will thrive, in some cases better than deciduous or evergreen shrubs within a few yards of the sea. The question of shelter is a serious one. In many cases it means a high wall or years of waiting while a bank of Evergreens grows sufficiently to afford protection. Where shelter exists no one need hesitate to plant Roses of all kinds along that part of the sea-coast to which I have alluded. Not many years ago I saw a very good collection of both standard and dwarf Roses in the gardens at Uphill Castle, near Weston-super-Mare, which is near the sea, but the grounds are well sheltered. There were also many climbing Roses flowering profusely. Further westward many kinds of Roses may be seen at the end of June in the cottage gardens that dip down to the sea. Some of the old Damask Roses overtop low walls or grow into the hedges, making a wonderful semi-wild display. The Evergreen Roses (R. sempervirens) are to be met with growing in wild profusion, sometimes rambling over the roof of an old building, or the branches dangling in the air from a decrepit old Apple tree Only those who are acquainted with the genial climate of that part of the western coast can realise the effect produced by this class of Rose. Many of the oldest China and Bourbon Roses may be seen in the cottage gardens, and being allowed to grow unchecked they produce plenty of flowers. It must not be supposed that these people pay no attention to the better kinds of Roses, for many of them cultivate their standards and bushes skilfully. The climate favours them, but they are often injured by the fierce winds. There is no place in England where the Hybrid Perpetuals do better when the soil is made for them than along the South Devon coast. The ground is so sandy that in some cases it requires the addition of an abundance of manure or some heavy loam to grow them well. I have known satisfactory results to be obtained where only manure has been used. The finest blooms I ever saw of Captain Christy, White Baroness, and La France were grown in a garden at Dawlish not far from the sea. In no other place have I seen any of the so-called climbing Hybrid Perpetuals making growth to justify the name Climbing Devoniensis I have seen making rampant growth and flowering well on a verandah close to the sea, although not facing it. J. C. C.

Rose Grand Mogul.—This Rose with us altogether fails to bear out the good character given to it on p. 53 of the issue of the 21st July. It was budded on both standard and cutting Briers, but the growth on either stock is unsatisfactory and the flowers poor, nor can any resemblance be traced to the reputed parent that grand Rose A. K. Williams—but there is a clear likeness to a very inferior Rose, Jean Soupert, which, though sent out by Lacharme in 1875, has only this year succeeded in obtaining a place in the catalogue of the National Rose Society. In habit of growth, foliage, wood, and flower the two appear to be identical, and reports from leading nurseries corroborate this opinion. —North Herts.

Own root Roses.—"Alf. D.'s" plan of dissecting Roses by the aid of hammer and chisel is a rough-and-ready one, but it does seem as if, without taking so much trouble, surplus suckers might very well be removed by first layering and rooting them; whilst there seems to be no reason why, when Roses on own roots are doing so well, they should be disturbed for many years. The chief work of the cultivator seems to be to remove old wood as fast as it becomes worthless, to thin out suckers or root-growths, and to fork into the soil liberal top-dressings of short manure. The pruning, which may be hard or otherwise as desired, is best done in the spring; but strong shoots, pegged down instead of being cut hard back, not only bloom profusely, but help to fully furnish the bed. The depressed form of growth assists to the breaking up of new growths from the roots yearly.—A. D.

Stove and Greenhouse.

PALMS IN SMALL POTS.

Among the plants used for indoor decoration some of the Palms are very popular owing to the fact that they are always bright and cheerful, and those that need only a greenhouse temperature may be kept in health in a dwelling-house for years, provided they are favourably situated and properly attended to in the matter of watering and sponging, when necessary. Good specimens may be grown in comparatively small pots, and this is a great advantage, for they can be placed in ornamental pots or vases, which seldom admit of a very large amount of root room. Now that Palm seeds are imported in considerable quantities, the seeds of many kinds are not difficult to obtain, and at whatever season of the year they are received, it is far better to sow them at once than to keep them out of the ground for any length of time. Even the hardier kinds, such as Corypha australis and Seaforthia elegans, will germinate more quickly if sown in a stove than in a lower temperature. They make much more rapid progress if treated during their earlier stages as stove plants, and this admits of their being thoroughly hardened off before they are required for indoor decoration. In sowing Palm seeds, good sandy loam suits most of them, adding a little well decayed manure when the plants get large. Whether the seed is sown in boxes or pans, a few broken crocks must be put in the bottom for drainage, and in filling the boxes or pans with soil, sufficient space must be left to admit of the seeds being covered with their own depth of compost. After sowing, the soil must be kept fairly moist, for if allowed to become very dry, the germinating seed often receives irreparable injury. Till the young plants make their appearance it is not necessary to put the pans on a stage, for they do just as well underneath, but directly the foliage appears above ground they must be removed to a lighter position, but not exposed to the full rays of the sun, as in all stages Palms like a considerable amount of shade. Directly the first leaf is well developed the young plants should be potted off into as small pots as possible without injuring the roots, for these last are so stout that in many cases a good sized pot is necessary at first. It will greatly facilitate the operation if the soil employed for the first potting is passed through a sieve with half an inch mesh, as the very rough portions are more liable to injure the young and brittle roots. When potted off, the more delicate kinds will be greatly assisted by a little bottom heat for a while, and if plunged they do not need to be watered so frequently as if stood on a stage, and, consequently, the soil is less liable to turn sour. As the plants progress they must be shifted into larger pots when necessary, but care should be taken not to overdo them in this respect, for a good sized specimen, if properly attended to, may be kept in health for years in a pot 6 inches in diameter.

In potting Palms it will be found in most cases on turning them out of their pots that there is a coil of roots around the bottom, while the upper half of the soil has, comparatively speaking, very few roots visible. When this is the case the bottom of the ball should not be disturbed, while some of the soil on the upper part may be removed without injuring the roots in any way. In potting, the soil must be pressed down pretty firmly, and it will be necessary to take extra precautions in order to see that there is no hollow cavity left, which may easily happen if the new pot is not much larger than the old one. Where there is not room to get the fingers properly between the side of the pot and the ball of soil, a flat piece of wood may be used for the purpose. When the pot is large enough the plant must be always well supplied with water. It is astonishing what a quantity of water a healthy plant with a pot full of roots will require if properly drained. Should there be any signs of the foliage turning yellow, or the plant appear starved, an occasional dose of some of the artificial manures will be of great service. Those with a strong smell are inadmissible in a dwelling-house. If a little of the top soil be removed, even a powerfully-smelling kind can be frequently used by sprinkling it on to the old ball after the removal of the surface soil, and covering it up with the new compost applied as a top-dressing. Should the plants be so situated that the light comes to them only from one direction, they must be occasionally turned round, otherwise the plant will draw to the light and quickly lose its symmetrical character. As a great deal of the success with plants in a dwelling-house depends upon proper watering and keeping the foliage clean, these two items must be specially attended to. In most positions the plants are greatly benefited if the foliage is occasionally sponged with tepid water in order to remove the accumulation of dust. Among the Palms that will stand in an ordinary dwelling-house for years with care, may be mentioned the New Zealand Areca sapida and A. Baueri, Seaforthia elegans, Corypha australis, the hardier kinds of Phœnix, several species of Chamærops, and above all the pretty little Rhapis flabelliformis. Seeds of this last are rarely obtained, so that it is necessary to propagate it by division, and this must be very carefully performed. Areca lutescens and Latania borbonica, two very commonly grown Palms, will also remain healthy for a very long time indoors. H. P.

The variegated Parlour Palm (Aspidistra lurida variegata).—A plant of this in a 12-inch pot, carrying between twenty and thirty large leaves, struck me as being one of the handsomest fine-leaved plants I had ever seen. There is no doubt that if this could be as readily increased as many ornamental-leaved plants, it would take rank as one of the most popular room plants, and would be largely grown for market. Being comparatively slow of growth, and having to rely upon division for its increase, it cannot be sold at a price that would place it within the reach of the million.—J. C. B.

Double Petunias.—These are very showy, but they are not well fitted for the open air in this country. They quickly feel the influence of inclement weather, and they exhaust themselves in a dry time unless well supplied with moisture and food. It must, however, be admitted that in a fine summer, and having all necessary care bestowed on them, a bed of double Petunias has a remarkably fine appearance. In a cool, airy greenhouse they are quite at home, and in their perfect doubleness and soft, pleasing tints they afford an excellent contrast to the flowering plants commonly grown under glass at this time of year. An important detail in their culture is to keep them well pinched back in their earlier stages of growth, otherwise, instead of neat, compact little specimens studded with bloom, long, straggling specimens will be formed with comparatively few flowers on them. They should not be allowed to flower until they become established after the last shift, and then, by giving bi-weekly doses of liquid manure, they will bloom all the summer through.—Byfleet.

Sabal Adansoni.—I have before noted how slow in growth this species is, and I was particularly struck with a plant of it growing in the Botanic Gardens at Rouen as being the identical specimen from which the species was originally described. The plant in question is by far the largest I have seen. It is planted out in the Palm house, and is said to have occupied this position for fifty years. It was brought here from the old garden, but how long it had been in existence before this time is unknown.

It is now apparently established at the base, and prepared to rise upon an erect stem; the petioles and leaves are about 5 feet high, and there are between thirty and forty leaves upon it, so that it is quite a handsome plant, but not likely to outgrow its present situation for another half century. This Palm is a native of Georgia and Florida. I should like to know something of the plant in its native home.—W. H. G.

WORK IN PLANT HOUSES.

GREENHOUSE.—CAPE HEATHS.—The present is a good time for potting Heaths, especially such as have reached specimen, or half specimen, size There is yet plenty of time for plants that are moved to get well hold of the soil before winter. This, Heaths will do to an extent that many hard-wooded plants are not capable of, as they keep growing later than most things. One advantage in potting at this season is that now when the weather begins to get cooler there is less danger of the plants suffering than there is in the summer. See that any to be potted have the soil in a fairly moist state. It is best to give the shift a day or two after a good watering. In this way the superfluous water has time to pass off, and the plants will be able to go for a time without being again watered. Use peat of medium texture, neither too light nor too close and heavy. The black hard material that used to be considered best for Heaths in general is not the best. It is only the slowest growers, such as the varieties of aristata and a few others of a similar nature with extremely hard wood that like hard peat. Use the material in a moderately lumpy state, mixing enough sand with it to ensure its keeping porous. Drain well, securing the crocks with enough fibrous matter to prevent the soil getting down among them. Pot firmly, using the lath sufficiently to make the new soil as solid as the old ball, but do not disturb the roots except by moving the old drainage from the bottoms of the balls. After potting keep the plants a little closer than usual, using enough water on the floor of the house to make the atmosphere somewhat moist. Shade the plants from the sun so as to prolong the time when it will be necessary to give water.

FRANCOAS.—Where cut flowers of elegant form are much in demand, the white variety of Francoa should be grown in quantity. With two or three dozen plants, kept in good healthy condition, flowers will seldom be absent through the summer and autumn. Young plants that have been raised from seed sown in the winter or early in spring, and that have since been put in suitable sized pots, will now probably require more room. There is still time for the roots to get hold of the new soil, and the shift will so far assist the plants that they will start away in spring much more freely than if the potting was delayed until then. The Francoa is nearly hardy, but it is better to keep seedlings during the first summer a little warmer than will be necessary when they get older. Large specimens that are already in pots as large as desirable may be divided, cutting them into two or more pieces as desired. In doing this there should be no more disturbance of the roots than can be avoided, simply removing the drainage and severing the stems. Put each piece intact into a pot large enough to hold it, and admit a moderate amount of new soil. After potting stand the plants in a cold frame or pit and keep them a little close, not admitting much air for two or three weeks.

CHRYSANTHEMUMS.—It is a good plan to thin moderately the buds of all the large-flowered varieties of Chrysanthemums; even the early sorts are better so treated. When all that the plants set are allowed to remain the flowers are numerous, but small. Not only are the individual flowers larger and more perfect when the buds are thinned, but they last longer even when cut. In thinning the buds it is not advisable to reduce the numbers to anything like the extent that is done when the object is to grow for exhibition. Those of the earlier blooming section, of which Madame Domage may be taken as a representative, should have their buds thinned as soon as they are fairly set, for if they are allowed to remain longer they tax the energies of the plants to no purpose. Continue the use of manure water, which, if not given too strong, they will bear every time the soil requires moistening. Attention should be given to staking and tying as the branches extend, at the same time bearing in mind that all that is done in this way beyond what is required to support the plants is objectionable. Hazel sticks, or Willows with the bark on, are preferable to ordinary painted deal sticks.

STOVE.—CELOSIAS.—Plants that flowered early will now have ripened their seed; this should be carefully gathered when ready, otherwise it will fall and be lost. These Celosias are somewhat shy seeders, and to improve or to keep up the quality of the strain, seed should only be gathered from the best feathery-formed flowers, which in addition have pleasing and decided shades of colour. If this is not attended to the plants will soon degenerate. The latest sown batch that is intended to keep their flowers fresh until the end of the year should, if not already in the pots in which they are to bloom, be potted at once. Fresh turfy loam, with about one-sixth of rotten manure and some sand, forms the best compost. For Celosias, as for most other things, when manure is used it should be passed through a fine sieve, so that it can be evenly mixed with the soil, otherwise it does not answer so well. Give the plants a genial growing temperature, but avoid keeping them too warm, as the object is rather to retard than hurry on the blooming. If enough heat is present to keep them moving slowly, it is all that is necessary.

COCKSCOMBS.—Gather the seed of plants that have flowered late as soon as it is ripe; this is usually before the combs fade. Careful selection is here also requisite, both as to the form and the colour of the combs. It is much better to be content with shapely flowers than to aim at size alone.

EPIPHYLLUMS.—Plants of both the truncatum and the larger growing section of Epiphyllums that were turned out of doors after making their growth should now be brought in, as it is not well to risk them in a low temperature. Cold, sunless summers like the present are generally followed by early autumn frosts; consequently it is advisable to get all plants that will not bear much cold under cover earlier than usual. The Epiphyllums should, if possible, be stood by themselves in a greenhouse or pit, where they will get plenty of light, which will help to further mature the growth that has had less assistance than usual from the sun. Give as much water as will keep the plants from shrivelling, but not more, as the drier they are the better they are likely to bloom. This especially applies to the fleshy-stemmed kinds, the growth of which if not made under favourable conditions before the plants were turned out of doors, will be in an unsatisfactory state.

FRANCISCEA CONFERTIFLORA.—This is the best of all the Franciscas, but it is not so much cultivated as its merits entitle it to be. It differs in its requirements from any other plant with which I am acquainted; still it is easily grown, and is a certain bloomer, giving when properly managed a long succession of flowers. Whilst making their growth the plants like a brisk heat, with plenty of light and constant shade when the weather is bright. Even when at rest, except during winter, the leaves suffer if exposed to the sun. As soon as the shoots have ceased to extend and the bloom-buds are visible at the extremities, the plants should be moved to a cool house and kept through the autumn and winter at a night temperature of about 45°. So treated the flowers go on growing slowly until spring, when they begin to open and continue in succession for five or six weeks. Plants that bloomed early and were afterwards put in stove heat, as already advised, will now be in a condition for moving into cool quarters. Shade them carefully from the sun for the next two months, and do not give more water than will keep the soil moderately moist. They must not be let get too dry, or the leaves as well as the bloom-buds will suffer. Plants that flowered late—for this species can easily be kept back so as to bloom at midsummer—will not have finished their growth for some time to come, and must be kept in heat until the last-formed leaves are fully grown and the bloom-buds visible.

FRANCISCEA CALYCINA.—There are two forms of this species, of which the major variety is the best. This kind does not bear keeping so cool in winter as F. confertiflora, but after the growth is finished an intermediate temperature will be sufficient for the winter. F. Lindeni and F. acuminata are both desirable sorts that do not usually attain so large a size as the two species first mentioned. They may be treated as advised for F. calycina as soon as they have made their growth. All these Franciscas require to be kept clear from insects, particularly mealy bugs. If the plants are affected with these to any extent they invariably suffer in the operation of cleaning. The flower-buds will not bear insecticide being applied of sufficient strength to kill the insects, and if recourse is had to brushing and sponging, they often cause the buds to drop.

HOYAS.—The different twining kinds of Hoya that require stove heat should soon have made sufficient growth to admit of their being kept drier both at the roots and in the atmosphere. The succulent nature of the leaves of these will admit of the soil being kept somewhat drier during the dormant season than that of most stove plants, but water must not be withheld so as to cause the leaves to flag. H. bella has flowers which, though much smaller than those of the various twining species, are nevertheless the most beautiful. They can also be used freely in a cut state, as through being borne on the young shoots no injury is done to the plants by cutting the flowers, so long as this is not carried too far. Plants that bloomed during the spring will now have made their growth, and will be better for having their roots kept drier, with more air and a drier atmosphere. During the winter water must be given with caution, as the roots are impatient of much moisture when there is no active growth. This is particularly so if the plants are kept cooler than they like. A moderate stove heat suits this species best whilst at rest. H. Paxtoni is a somewhat similar habited kind, but is not so good as H. bella, which is one of the best of all plants for filling hanging baskets in a warm house. Hoyas of all kinds should be kept free from insects, especially mealy bug, which if present gets in amongst the flowers as soon as they begin to form on the spurs, and they do not well bear the brushing and sponging necessary to remove the insects. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE

Streptocalyx Villerandi.—This is the name of a very pretty Bromeliaceous plant which I recently saw flowering in M. Chantin's nursery in Paris. It has large bright carmine bracts and blue flowers. It is said to be very hardy, and as these plants are largely used for windows and tables in the dwelling-house, it is a valuable plant. I wish that there was a taste for these beautiful plants in England. —W. H. G.

Agapanthus umbellatus fl.-pl.—One of the finest forms of this grand old African Lily which I have ever seen I recently noted flowering in the open air at M. Godefroy-Lebeuf's nursery at Argenteuil, near Paris. The trusses were large and the flowers very bold and perfectly double. It is a form well deserving more extensive cultivation by English gardeners.—W. H. G.

Impatiens comaroensis.—Under this name I recently noted a fine Balsam in the Botanic Gardens at Rouen, in France. In habit of growth the plant somewhat resembles I. flaccida, but is more robust, and the flowers are as large again and thick and fleshy in substance. They are of a deep rose colour, with a rich purple eye. I have not yet seen the plant in this country, but it is a desirable species for autumn flowering.—W. H. G.

Hæmanthus Katherinæ.—This plant, although a native of West Tropical Africa, may be easily grown without the aid of a stove. I have grown it successfully in a cold greenhouse for the last three years, and each year it has made fine growth and thrown up long flower-stems with large clusters of bright scarlet flowers, lasting a long time in perfection. I have written this for those who have not the aid of a stove that they may not be afraid to grow this beautiful plant.—G. GOLDSMITH.

Piper nigrum.—This plant adheres to a wall in the manner of Ivy, and makes an elegant covering for

the back of a stove. Its deep shining green leaves are very ornamental, added to which it is said to be perfectly insect-proof. I recently noted this plant treated in this manner in the Botanic Gardens at Rouen, and M. Varenne, the director, assured me that it is never attacked by any kind of insect. It is a plant which should be taken in hand by those having ugly bare walls in their houses.—W. H. G.

Campanula Vidalli.—In reference to the note on page 178, concerning this distinct and highly ornamental Campanula, I may say that here, in the immediate neighbourhood of London, I have often tried it out of doors, and always with the same result, viz., the first winter proved fatal to it. I fear, unless the locality be unusually sheltered, it must always be regarded as a greenhouse plant. Even then it well repays any little care or attention that may be bestowed upon it, for if grown on freely, and supplied occasionally with a little liquid manure, it will, during the summer, yield a large quantity of its stout, wax-like blossoms. In this way a few plants furnish an agreeable variety in the greenhouse, and it has also given me great satisfaction when planted out during the summer, for if turned out about the bedding season the plants will grow away quickly, and by August be studded with their spikes of blossoms. When treated as a greenhouse plant it will yield seed in abundance, from which young plants can be raised, and cuttings of the weaker shoots also root freely during the summer months.—H. P.

Begonia maculata corallina.—This plant is the glory of the Rouen Botanic Gardens. I first saw it in the gardens of the Comte de Germiny at Gonville, but with M. Varrenne it is magnificent. I also noted a small plant of it in the porch of the aquarium house at Kew, but its merits are evidently not known. In the Botanic Gardens at Rouen it is used to cover the walls, as a pot plant, and is also planted out in the tropical house. When planted out its growth is as free as that of the common Bamboo of India (Bambusa arundinacea). Small and large plants were alike laden with brilliant and showy clusters of flowers, and I was assured it was a perennial bloomer. The flowers are produced in very large clusters; these are drooping, the male and female flowers being in separate clusters, the female or seed-bearing flowers being by far the most attractive; the seed-pod, or ovary, is very long and is broadly winged, and is of exactly the same colour as the petals, brilliant coral-red. In addition to its showy colour, the flowers are very persistent. It appears to flower freely in pots, and if this is the case it would make one of the finest plants ever brought into the market in winter. For this purpose I commend it to the attention of our market growers.—W. H. G.

Cyrtanthus McKeni. — This little South African bulbous plant has been frequently noted in The Garden for its continuous flowering qualities, and it deserves praise, for it is almost a perpetual bloomer. In proof of this I may mention that we have a couple of pans full of bulbs that commenced to bloom just a year ago, and kept up a succession till April. They were then without flowers till nearly the end of June, when a single spike was thrown up, but after that several others quickly made their appearance, and now the pans are filled with flower-spikes. The bulb of this Cyrtanthus is similar to that of a large Snowdrop. It throws up long Grass-like evergreen leaves, while the flower-spike reaches a height of 9 inches to 1 foot, and is terminated by a cluster of flowers, generally about half a dozen together. The individual blooms are tube shaped, about 2 inches long, and agreeably scented. They are of an ivory white tint, and slightly curved in shape. It is a plant of very easy culture, succeeding well in an ordinary greenhouse, the principal consideration being to thoroughly drain the pots or pans, and to use a compost that will stand and remain in good condition for a long time, as the bulbs will flower all the better if left for years undisturbed. Fibrous loam with a liberal admixture of silver sand will suit it perfectly, and the soil must at all seasons be kept in a fairly moist condition, for the plant being naturally an Evergreen, will be injured by the drying-off process so necessary in the case of many bulbs. This Cyrtanthus produces offsets freely, and therefore may be readily propagated by this means.—T.

WHITE SPIRÆA PALMATA.

The typical bright coloured form of this Japanese Spiræa has been grown in our gardens for a considerable time, and is now employed for a variety of purposes, but the white-flowered kind is altogether scarcer, being indeed of far more recent introduction, and though certainly less showy than the commoner form, it is nevertheless a very beautiful plant. It is only when planted in a moist spot that these Spiræas are seen to advantage, for if they are at all dry at the root the foliage becomes seared, and the plant thus loses a good deal of its beauty, while the flowers seldom develop properly if the roots do not receive a sufficient amount of moisture. Neither Spiræa palmata nor the white-flowered variety can be forced into bloom as early in the season as the common S. japonica, but still if assisted with a little heat the earliest of them may be had in flower by the end of May, at which season they form very handsome subjects for the embellishment of the greenhouse or conservatory. Large quantities of S. palmata are grown in this country and disposed of during the winter for forcing purposes; and no doubt after a time the white variety will also be extensively cultivated. Plants that are bought for forcing are usually received in the shape of clumps, containing from three to six good flowering crowns as large as the top of one's thumb, and in potting them a fair space should be allowed for the roots, as when in full growth they are very vigorous. Such being the case it will be found that pots 6 inches to 9 inches in diameter are not too large, and the soil should principally consist of loam, lightened by an admixture of well decayed manure. In potting, the top of the crown should be just level with the surface of the soil, and plenty of space must be left for water, as when the flowers begin to open the plants need a liberal supply. Owing to this they are greatly assisted at that time by being stood in saucers, as it is then possible to keep the soil much moister than if simply placed on a stage. When in active growth weak manure water is also of great service. T.

Raising small seeds.—The information may prove useful to "A. A." (The Garden, August 25, p. 190) if I set forth in brief detail the method I adopt in sowing and raising plants of Auriculas, Polyanthuses, and Primroses. I use 6-inch pots, and they are filled with one-third of drainage, over this is placed a layer of coarse cocoa fibre, then some rough soil, and the last inch, forming the surface, is composed of finely sifted yellow loam, leaf mould and a good mixture of rough Bedfordshire sand. The surface is pressed down firmly and made level, the seeds are sown very thinly on the surface, a very slight sprinkling of fine white sand scattered over the seeds, and the pots are stood in ordinary clay pans in about 1½ inches depth of water. A piece of glass is laid over each pot and all are stood on a shelf in the greenhouse in full exposure. A piece of paper is laid over the glass when the sun shines out brilliantly. I never water on the surface, and simply keep the pans filled with water. If the seeds are new they germinate in quick succession; if they are a year old they occupy a longer time in doing so. As soon as the forwardest plants are large enough to handle they are pricked out into other pots of suitable soil, and also stood in pans of water. I am not greatly troubled with a growth of green upon the surface, and I find when it does come the seedling Auriculas thrust themselves up through it. Moss on the surface of the seed-pots may be kept down by watering with lime-water, a piece of quicklime being placed in the water, and when it is quite clear applied to the surface. "A. A." should have patience in raising Auriculas from seeds, as they "germinate very irregularly, some in a few days, some in a few weeks, some in a few months, some in a few years." This is the testimony of the Rev. F. D. Horner, who makes a point of keeping his seed-pans three years, so that none should be lost. I may state that I make a practice of sowing Auricula seed as soon as it is ripe, which is generally about the end of August. As a matter of course, the pots of seed are not allowed to stand in water while frost is about, and as my greenhouse is an unheated one, very little water is required during the winter. Some raisers of seedling Auriculas prefer to sow in January, February, or March, and some even later, I think that by sowing as soon as the seed is ripe time is gained and the hardest frost does not appear to injure the tiniest seedlings. Watering on the surface is to be condemned, as there is danger of the small seeds being washed away or buried deeply in the soil. About every two months or so I have a progeny of young Auriculas to prick out into pots or pans for growing on.—R. D.

FLOWER GARDENING AND ARCHITECTURE.

In a journal of wide influence there was recently published an article which wants qualifying very much, or it may tend to do harm:—

> On terrace gardens, and in formal gardens, in juxtaposition with architecture, the introduction of herbaceous plants is generally quite out of place. Their varying habits, their unequal heights, the short duration of their flowers, give them in such situations a weedy, uncared-for look, and a style of ornamentation that should be symmetrical and graceful becomes thus represented by a meaningless muddle. The truth seems to be, that in particular situations herbaceous plants can never take the place of bedding plants, used with judgment, and the converse is also equally true.

Statements of this kind are frequently repeated, and are quite wrong. It would be easy to select out of herbaceous plants a number which would be unfit for association with architecture, but there are many hardy plants of the highest value for that purpose. Among the plants I saw to-day in close association with some buildings may be mentioned Lavender, Rosemary, Tea Roses, Carnations, tufted Pansies of the cool and quiet self colours, Lilies, Sea Hollies, hardy Fuchsias, Cape Hyacinths, and African Lilies.

In a garden I see often there are hardy plants against an old stone house, and on a terrace, beds filled with them. A border against the house has been entirely filled (winter and summer) as follows: The ground carpeted with the mossy Saxifrage, a large group of Madame Lambard Rose in flower all the season, and on one side groups of tufted Pansies of the purer simpler colours, and a group of Lady Agnes Carnation near. In both summer and winter the effect of this bed is very good. The opposite of the opinion expressed in the paragraph is the truth. It is only by the use of hardy plants, in association with the best architecture, that gardens can be made beautiful to the artist and botanist, as well as to the eye of the good gardener. It is only occasionally among bedding plants, as in the case of the Heliotrope, that we meet with plants of high intrinsic beauty.

The form and associations of one small group of herbaceous plants—the Acanthus—alone should make us doubt any such assertion as the above. It clusters against the wall of many a terrace and house in Italy where the terraced garden was a necessity. Terraced and geometrical gardens of any extent can be embellished admirably by the use of hardy plants alone, including, among these, a great number of alpine and herbaceous plants from Gentian to Pæony. Moreover, it is the only way they can be done if we want the best result, both from the artist's and the gardener's point of view. The history of gardening itself should throw doubt upon the statement, because bedding-out is a thing of our own time only. If nothing else is worthy of terrace gardens, which have existed some thousands of years, these must have been very bare and very weary waiting for its coming. R.

THE CAUCASIAN WALNUT.

(PTEROCARYA CAUCASICA.)

Although large specimens of this rare exotic tree are by no means common, the annexed illustration will show that where it is thoroughly at home it is one of the finest subjects for a large lawn that can possibly be chosen. It is closely allied to the Walnuts and Hickories, but, unlike those trees, would seem to be neither common in any particular country or widely distributed. It is found in the moist valleys of the Caucasian Mountains, and although introduced into England so far back as the beginning of the present century, has not found any great favour at the hands of planters or attained where planted, except in a few instances, any considerable size. The tree forms a shapely and symmetrical head, the main limbs having a tendency to horizontal growth; the young wood is very irregular in habit and of a light brown colour, the buds being of a rich chocolate-brown. The average length of the leaf is about 15 inches; it is made up of leaflets ranging from fifteen to twenty in number; they are of a dark glossy green, and resemble somewhat the leaflets of the Walnut, but are narrower and not so deeply serrated. Both male and female flowers, of a greenish colour, slightly tinged with pink, are produced in pendulous spikes in great profusion. Both are very insignificant, but the spikes carrying the female flowers are an attractive feature of the tree. They are nearly 18 inches in length, and their colour, a pale, but bright green, contrasts well with the dark glossy foliage. The fruits are like small hard Nuts, which hang thickly on either side of the long spike, and are flanked by curious wing-like appendages. These spikes remain on the tree a long time after the fall of the leaf, giving it during the autumn and winter months a novel and unique appearance. The tree should be planted in a sheltered spot, as it is evidently somewhat tender in its infancy, but given a suitable position it grows with great rapidity, and is in fact one of the few deciduous trees a planter might live to see at its best. The particular specimen shown in the illustration (which, good as it is, can give but an imperfect idea of the symmetrical proportions and extraordinary beauty of the tree) was planted just over forty years ago, and is now 45 feet high, 12 feet in girth at 3 feet from the ground, and has a spread of branch 75 yards in circumference. I have once before called attention to two special characteristics of the Caucasian Walnut which should be known to intending planters, viz., its very early leafage rendering it peculiarly liable to be injured by spring frosts, and the length and hungry activity of its root action necessitating plenty of room if it is planted as a permanent tree; the roots are also so close to the surface as to prevent the consideration of undergrowth beneath its branches. It has been suggested, doubtless with the idea of furnishing the tree with somewhat similar conditions to those that it enjoys in its native home, that it should be planted in low-lying situations, or at any rate by the side of water, but this is directly opposed to its position here, which is in the highest and driest part of the garden, soil sandy loam with a poor subsoil, and I cannot help thinking that as we cannot supply the atmospheric influences that it enjoys in the Caucasus, it is a mistake to plant it in a deep, rich, moist soil, and so encourage luxuriant growth that would not be satisfactorily ripened. The tree may be propagated either from seed or layers of the young wood, or it may be worked on the Walnut, and Loudon suggests it might possibly gain in hardiness by such working, but this is questionable. The plant here is decidedly on its own roots. E. Burrell.

Claremont.



The Caucasian Walnut (Pterocarya caucasica) in the grounds at Claremont. Engraved for The Garden.

ASHDOWN FOREST IN SUMMER.

Ashdown Forest, now a wild and romantic district, was once a great enclosure of 13,000 acres, and kept as a deer forest. In the lawless times of the Civil Wars the enclosures were all broken down and the deer slain, and change followed change in quick succession. There were great and almost impenetrable masses of wood. In the woods of Fletching, Simon de Montfort and his army encamped the night before the battle of Lewes in 1264. Though still called a forest, all that remain are some clumps of trees upon the higher ground, many of them weather-beaten, hoary, aged monarchs, forming conspicuous landmarks for miles around.

It is in such positions that trees of the Fir tribe look best, and are seen to the greatest advantage. The landscape is exceedingly rich and varied. There are noble far-extending views north, south, east and west. People travel to foreign countries for scenery, are enraptured with the imposing and massive grandeur of mountain crags and peaks, but after all I doubt if many better prospects are afforded than can be enjoyed here. Ashdown Forest has been to me a happy hunting-ground during many a summer evening. There is much beauty unadmired. The casual observer passes along, admires the wide expanse of purple heath, but does not pause to ascertain that the heath is but a part, the most conspicuous perhaps of a pretty picture of which only the ground colour is seen.

Upon looking more closely there can be seen tufts of the cross-leaved Heath (Erica tetralix), whose soft pink flowers are enhanced in beauty by contrast with the rosy purple blooms of Erica cinerea. The Ling also is found beside the Heath. Upon the ground grey Lichens make a crisp and elegant carpet. The Fir Club Moss (Lycopodium Selago) pushes its upright shoots to a height of 6 inches or 8 inches in nestling clusters, so obscure that only the diligent searcher will find it. In other situations, upon a carpet of dwarf Moss, abounds what I think the best of all British Lycopods, L. clavatum. Few would be successful in the cultivation of this species. It rambles all over the surface of the ground, sending downwards long wiry roots, and upwards delicate green three-stalked spikes, whose tips are tinged with yellow. There is no Lycopod grown in glass-houses that rambles like this. I have gathered specimens with a centre stem 8 feet long, the side shoots spreading and rebranching, and in appearance fully justifying the name of Stag's-horn Moss, by which it is known among the "foresters," the ramifications of the branches, like tracery on the ground, much resembling the branched antlers of an aged stag. Lycopodium inundatum prefers a moist situation, but is not nearly so pretty as the other two species.

This is only one aspect of forest vegetation, and a few minutes' walk into one of the little dells that here abound will reveal something quite diverse in character. Each little dell has its own bog, where the occupants revel in perpetual moisture. Nature is sparing in the distribution of her choicest gems and appears to have specially favoured boggy situations. The commonest plant here is the Sundew, which grows in countless thousands, springing up from a carpet of Sphagnum Moss, and forming very strong plants with eight to ten large leaves. The bog Asphodel (Narthecium ossifragum), with Grass-like leaves, flowers as abundantly as Buttercups. The spikes of soft, yellow, starry flowers are so profuse, that they might easily be mown like Grass. In gardens we produce masses of yellow and other colours unrelieved. A glance at this bog will show that in so doing we have ignored the natural dispositions and displays of showy colours. The bog Asphodel is toned down by another plant brought into combination therewith, namely, the Cotton Grass (Eriophorum angustifolium). Light and airy as are the many wayside Grasses, what can excel the grace and beauty of a good colony of this variety? The large cotton-like tassels, soft as silk and of the purest white, are borne several upon each stalk. As in dry situations the Heath was the most conspicuous feature, so is this in the bog; it meets the eye at every turn. There

is another picture produced by a combination of two delicate little gems among British plants. It has been said that in the frail, yet beautiful, and very diminutive plants found upon the higher Alps, apparently "all ruggedness and roughness have been eliminated; all preciousness and beauty retained." This remark may surely be applied to such floral gems as the bog Pimpernel and the Ivy-leaved Harebell. The Pimpernel (Anagallus tenella) is, perhaps, the lovelier of the two. It is perfectly prostrate, the stems creeping all along the surface of the Sphagnum carpet, rooting as they go, but putting out little round leaves about the size of a Pea on both sides of the stem, and producing in the axil of each leaf a bell-like flower, large in comparison with its diminutive stature, and in colour a most delicate pink. The Ivy-leaved Harebell (Campanula hederacea) is the most delicate and diminutive of this genus. It is appropriately named, the leaves representing Ivy in miniature This plant also creeps about the Sphagnum, its stems, delicate as threads, terminating in little cymes of lavender-blue flowers. Both plants, though so frail and tender-looking, grow in the greatest profusion everywhere, lacing and interlacing, first pink and then blue predominating, and forming the whole season through a simple picture of lasting interest.

There are woody dales of Ferns, once graced with the presence of the Royal Fern, which grew like trees, but which, alas, has in recent years become extinct, the work of that ruthless enemy, the Fern collector. When the sun is scorching one can walk through the woody warrens, beside clear streams of water bordered with Lastreas, Athyriums, and Blechnums. Such are some of the summer charms of Ashdown Forest. It is not necessary to walk all over the forest to see them, for in many parts the different aspects combined are found in an area not exceeding some of our large gardens. A. H.

PROPAGATING.

CROTONS.—I recently saw a quantity of Crotons unusually dwarf and well coloured. This was the result of grafting some of the best tops on to good vigorous stocks. Some of them were the tops of plants that had been used for indoor decoration, and having lost many of their bottom leaves were of no further use, unless to supply cuttings. The tops, in most cases, were in good condition, so the plants were put in the stove till they recovered from the check, and directly the sap was in full operation the plants were cut down, and the tops having been grafted as near to the ground as possible, were placed in a close propagating case till union was complete. As most of the plants under notice were young and vigorous, the top was simply grafted on to its base, but where the stem was very hard another stock was taken. It matters little what mode of grafting is employed, the principal consideration being to see that the union is as perfect as possible, and the graft tied securely in its place. When kept quite close, the point of union will not need to be covered with any air-tight substance. As the great consideration is to retain as many leaves as possible, the plants must not be overcrowded at any time.

CONIFER CUTTINGS.—This is the best time of the year to put in cuttings of any coniferous plants that it may be desired to increase in this way, and in many places little bushes of the different kinds are so useful that it is an advantage to strike a few every season. One method of striking cuttings, and that which needs the least amount of after attention, is to take a shady border in a well-drained spot, and prepare a place for the cuttings by incorporating some sand with the soil of the border. As the cuttings will need to be well protected, the bed prepared for their reception should be made about the same size as the frame with which it is intended to cover them. A thin layer of clean silver sand on the top will be an advantage, for in dibbling in the cuttings a little sand will be carried down to the bottom of the hole, and the base of the cuttings will rest upon it. If handlights are used to protect the cuttings, a stretch of ground may be prepared for their reception, and the handlights arranged as closely together as possible, provided space is allowed to get at the several clusters of cuttings. Where a great number of different kinds are struck, the cuttings are generally put into pots, and stood in a cold frame prepared for their reception by being thoroughly cleansed, and if deep, filled with ashes so that the tops of the cuttings when put in will not be more than 6 inches from the glass. As the frame should be as nearly air-tight as possible, the lights must have a thorough overhauling before use. The frame should, if it can be so arranged, stood in a spot where it is shaded from the sun, but a light, well-drained situation is absolutely necessary. In preparing pots for the cuttings those 5 inches or 6 inches in diameter are very suitable, and they should be filled to within 2 inches or 3 inches of the top (according to the size of the cuttings) with broken crocks, and after that with a compost consisting of loam, peat, and sand in equal proportion, the whole being passed through a sieve with a quarter of an inch mesh. A thin layer of sand having been put on the top and the whole watered through a fine rose, the pots are then ready for the reception of the cuttings. In selecting these they should be taken from the outside of the specimen where they have been exposed to light and air, as those that have been grown in shade are liable to damp off during winter. A length of 4 inches to 6 inches is a very suitable one for the cuttings, and it is necessary that it consist entirely of the current season's growth, with a slight heel of older wood at the base. To prepare the cuttings for insertion a very good way is to strip off the branches, then with a sharp knife remove any irregularities, and cut off the bottom shoots for 1½ inches or 2 inches, in order to allow of their being inserted up to that depth in the soil. Cuttings that are to be dibbled in a border may be rather longer than for pots, and in their case a length of 6 inches to 8 inches will not be too much, when, of course, the small branchlets must be removed for a corresponding distance, in order to allow of their being buried deeper in the soil. In preparing the cuttings it will be necessary in the case of the long-leaved kinds, such as Yews, Cryptomerias, and some Junipers, to cut off the leaves before insertion, but with the smaller ones it is not needed. In any case care must be taken that the bark of the cuttings is not at all injured, otherwise decay is apt to set in. When dibbling in the cuttings it is important that the base of the cutting rest upon the bottom of the hole prepared for its reception, and that the soil is well closed around, for any cavity is likely to prove fatal. Whether in the ground or in pots the after treatment will be the same. The lights must be taken off for a little while every day or two, in order that the cuttings may be examined, and any signs of decay removed. As the frame is kept close and shaded very little watering is needed; indeed, great care must be taken not to over-water them, while injury may be done by allowing the soil to become too dry. During severe weather the frame must be covered sufficiently to prevent the soil being frozen, and with the return of spring the cuttings will root. As the small rootlets are very brittle, the best way is to first pot off the cuttings singly into small pots, and directly they are established plant them out. In such an extensive order there is a great difference in the readiness with which roots are produced, and also in the length of time they take to strike. The Retinosporas are among the easiest to propagate, and the longer leaved kinds root more quickly than those with small, scale-like foliage. Where there are two quite distinct kinds of foliage on one plant, as is especially to be found in many of the Junipers, cuttings formed of shoots clothed with the long, needle-like leaves strike root more readily than those with mature foliage. Besides the above-mentioned method of striking Conifer cuttings I have also been very successful by another mode. It is to put the cuttings in pots as above recommended, subject them to exactly the same treatment for the first month, when many of them will have callused over, and the application of a gentle fire-heat will hasten the formation of roots. By this means they strike in less time, and are ready for potting off early in the spring. T.

FLOWER GARDEN.

THE GROUPING OF PLANTS.

THE grouping system is probably the most natural mode of planting for the display of true character and the realisation of the fullest charm as well as the best test of a plant's capabilities. In a certain, but unnatural form, the system was adopted long ago in the bedding arrangements, with the prospective idea of ultimately securing a mass of effective colour either by flower or foliage.

In this case the object was gained, but from the standpoint of natural beauty the group was spoilt by reason of its geometric form. A natural group is a colony of flowers or trees without definite shape or form, varied in size, and in itself simply a reproduction on a smaller scale of the manner in which Nature displays her charms of vegetation. We have only to study Nature to realise this fact, for if we regard the world as Nature's garden, a forest is but a large group, and it will generally be found that one particular kind of tree predominates.

It may perhaps be urged as an objection that the adoption of grouping in gardens is hardly possible in consequence of the restricted area to be dealt with, and in which it is desired to have as great a variety as can be obtained. This remark might be applied to many gardens already possessing great wealth of tree and shrub life, but probably in not one of these gardens is any particular kind of tree restricted to a single specimen only. There will generally be found several in different parts of the garden which if brought together would make a group of sufficient size for the extent of the place, while the effect of the same trees in a colony would be greatly enhanced.

The adoption of this system in the formation and planting of a new shrubbery would greatly facilitate operations, and at the same time introduce simplicity of arrangement and consequently heightened effect. A shrubbery planted in this way would be a marked contrast to the present unsatisfactory system, whereby many things enter into an indiscriminate and complicated mixture. If the site for the plantation of trees and shrubs were selected, the first thing would be to consider what kinds should form the main portion of the plantation. These should be planted in large groups in the background if the site is seen from one side only, or in the centre if from both. The foreground can then be filled with groups of choicer things which it is desirable to have. Some judgment must be exercised to plant different things at proper distances sufficient for their full and unrestricted development. If there were large gaps between permanent plants they might easily be filled with temporary commoner things to be ultimately cut down. Large groups of strong-growing hardy flowers might be used to cover the bare surface of the foreground, and they would spread, keep the ground free from weeds, and obviate the necessity of annual digging. A shrubbery so formed would be permanent, and a source of interest and beauty.

The grouping of Roses has already been ably advocated in the pages of THE GARDEN, and selections of kinds given that are best adapted

for such a purpose. It may be added that any free-growing Rose may thus be planted, but no rule can be laid down with regard to the distance apart, some having a compact, others a more spreading growth. Grouping good Roses in various parts of the flower garden is a suggestion that might be adopted for the regeneration of Rose growing from the present system of planting them in nursery-like beds.

In the mixed or herbaceous border the adoption of this system would be a great improvement. Here, again, there will be found several strong tufts of one kind of plant isolated at various distances apart; but suppose the border was entirely replanted and everything grouped, it would be more beautiful, and would do away with the spotty appearance of the present medley. During the present summer we saw two long borders planted after this style, though not exclusively devoted to hardy flowers, groups of the usual bedding plants being effectively displayed. The motive was good, but the result a failure, for unfortunately every group was of similar size and exactly triangular, the borders on both sides of the walk corresponding.

Probably some have a difficulty in working without a set pattern, for it is necessary to bring much thought into requisition to avoid definite form or similarity of appearance. A selection of things naturally grouped is infinitely better than a collection mixed, and it is really surprising how interesting a garden can be made by exercising a little intelligent selection. A. H.

Helianthus rigidus, better known perhaps as Harpalium, is flowering better this year than I ever remember to have seen it. It is one of the best of this genus, which is variable enough to enable one to make a selection. We have chosen three, the best of which is a medium-sized plant, sent out by the trade under the name of H. japonicus. It rarely exceeds 3 feet in height, producing its large dark-disked flowers in the greatest profusion. The other is a tall rambling variety with large rough leaves, and suitable for growing at the backs of borders, &c. The third rarely exceeds 1½ feet, with much smaller flowers, and an absence of runners. It is the first of all the Sunflowers to bloom, and continues for a very long time in beauty.—K.

Rudbeckia purpurea.—This is a really charming plant, and when used in large clumps in the flower border, few of the North American Compositæ equal it in attractiveness. It is figured in Sweet's "British Flower Garden" under the name of R. serotina, under which we received it from the Continent, and although purporting to be distinct, we fail to separate them when growing together. It grows from 3 feet to 4 feet high, producing numerous stems, terminated with very large handsome purple flowers. An old garden plant, but a good and useful one. It forms the second figure in the *Botanical Magazine*, and probably has not been lost sight of since introduced over a century and a half ago. It ripens seed freely, and this is perhaps the best way of propagating it. It is described in American floras under the name of Echinacea purpurea.—K.

Tufted Pansies.—Countess of Kintore is an exquisite Pansy, but it has a very straggling habit, which renders it useful to intermix with something else above which the Pansy flowers would show. As evidence of the suitability of the present season for tufted Pansies, I have found Viola Yellow Boy, the earliest of all yellows, to thrive and bloom profusely in a south border where in ordinary seasons not a Pansy of any kind would exist during July. I congratulate Mr. Smith, of Newry, upon having so valuable a white Pansy as a pure sport from Blue King. It should prove a great acquisition with the market trade, and when once they can obtain it I have no doubt it will soon be grown by tens of thousands. He should let the world know that such a good thing is obtainable. I hope he will call it White King. A very beautiful pure white kind is Victoria, which Mr. Chambers, of Isleworth, has raised. I have seen it several times and it is a real gem, early, dwarf, free, and pure in colour. Whether it is so early to flower as Blue King and so generally suited for market work has to be seen. Mrs. Gray is a very good Viola, but a little sprawling and occasionally tending to become blue. However, some seedlings from it give better form, and I should not be surprised if Mr. Chambers' white Viola was not of that strain. I have one pure white self from Mrs. Gray which seems very constant. If we could forecast the seasons we might ensure having our gardens gay during the wet summers with Pansies, but when the seasons are hot and dry these things die wholesale, whilst Petunias and Pelargoniums flourish and bloom profusely.—A. D.

YELLOW CARNATIONS.

Referring to "R. D.'s" remarks (p. 180), it can, I think, only be due to some accidental circumstance that Edith has not done well with him. I have grown eight plants of it this season. It has flowered well and the growth is thoroughly sound and vigorous, the roots having gone down right through the pots. As to stock, the eight plants have given forty-eight layers.

Florence I have discarded; the growth was vigorous enough, but bloom uncertain. The year before last three of my neighbours besides myself had stock of it, and we could not get a single flower of it among us during the summer, though later on in October I saw a plant of it flowering beautifully under glass. Probably our London atmosphere is uncongenial to it, as it flowers freely and well with Mr. Dodwell and Mr. Lakin at Oxford. In the hot season of last year it grew with great vigour here, both in the pots and in the border, but the bloom was insignificant. It is the only instance I have met with so far of a persistently sulky or shy bloomer, whether among the yellows or other kinds. The best yellow self I have grown is one that was sent to me this season by my friend Mr. Henwood, of Reading, a very fine flower, the plants having a vigour of growth quite remarkable. A name has yet to be found for it. Bell Halliday is also a fine yellow self and good grower. Polly Cheetham is synonymous with King of the Yellows, a beautiful flower and grows well. I am glad to hear from "R. D." that the two new comers, Will Threlfall and Germania, are both good doers.

Of the yellow grounds, the old Prince of Orange is a vigorous grower, but a burster, and needs timely attention in tying the pod, a handsome flower and well worth this little trouble. Of Mr. Douglas' new yellow grounds I have only grown Annie Douglas and Agnes Chambers, both strong growers, as I believe are all the others of the same batch. Annie Douglas especially is a beautiful flower, a bright yellow ground heavily edged with soft rose.

I have treated the yellows just like the rest, shielding them only from rain during the winter. They had the benefit of the long frost, the air never being off the frames; they were potted in the large pots in April and were then left exposed to all the influences of the harsh, dry spring and the cold, wet summer until they began to flower, when they had the usual shelter of the canvas to save the blooms from being spoiled by sun or rain. M. Rowan.

Phlox Stellaria.—This peculiar little Phlox is one of the rarest eastern species. It was discovered by Dr. Short, of Louisville, Ky., in 1829, upon the precipitous limestone cliffs of the Kentucky River, though the exact locality is unknown. It has since been found at Fountain Bluff on the Mississippi, in Jackson County, Illinois, and by Dr. Gattinger, of Nashville, in the Cedar barrens of Tennessee, in Rutherford and Crawford Counties, growing among Sphagnum. It is a low, slender, spreading perennial, perfectly glabrous, with narrowly linear leaves and rather large scattered flowers. The specific name has reference to this resemblance in flowers and foliage to some species of Stellaria. It blooms in May or early in June. Another very similar species, P. bifida, is found on the prairies of Illinois and Missouri. It is distinguished by a minute pubescence, and by the deeper division of the lobes of the corolla into two or three oblong or nearly linear diverging segments.—*Garden and Forest.*

Liliums at Chelsea.—Amongst these fine plants now blooming in quantities in Mr. Bull's establishment, two forms of auratum are very conspicuous, one, L. a. cruentum, figured in The Garden, Dec. 27, 1879 (p. 576), with large full flowers, having the petals broadly stained throughout with crimson, and virginale, with beautifully shaped flowers of the purest white, the centre of each petal being striped with lemon-yellow. These are two exquisite forms to plant in juxtaposition in the open borders. Another beautiful and rare Lily flowering in masses in the open border was the charming Japanese L. Leichtlini, figured in The Garden, April 8, 1882 (p. 236). The plant grows about 3 ft. in height, and bears alternate, linear, lanceolate leaves some 4 inches long and less than half an inch wide. The flowers are reflexed similar to those of the Tiger Lily; the ground colour soft golden-yellow, regularly spotted with rich dark brown, which renders it very effective. Many years ago I remember a Lily similar in colour to this which was grown under the name of Loddigesianum, but it was different in shape. Is it to be found in cultivation at the present time? A large group of L. Harrisi (the Bermuda Lily) was also flowering beautifully in the open border. The flowers resemble in shape those of longiflorum, but are much larger, of the purest white, and very sweet scented. It is also one of the best and easiest to force, and should be largely grown by those who require white flowers in the months of February and March. A coloured illustration of this plant was given in The Garden, Aug, 7, 1886 (p. 124).—W. H. G.

Layering Carnations.—From the tone of "J. C. B.'s" remarks on this subject in The Garden, August 25 (p. 177), one is led to suppose he refers to Carnations cultivated in pots, a method of which the great majority of the growers of these fine old-fashioned flowers do not pursue; nor is it necessary. Very fine plants and flowers of all classes can be grown in beds or borders in the open, but to succeed well I have found it necessary to layer directly the grass is big enough, and the ratio of success I find to be in exact proportion to the time the layers are made. If in July, we secure the strongest, healthiest plants, the most prolific in bloom, and with the finest flowers. If later than the beginning of August the plants, as a rule, do not make good plants, and very few flowers are produced. The most of my plants are now ready to transplant, though rather later than I like. Some seedlings, which are considered worth keeping have just been layered, and these will not be fit to transplant before October, or perhaps spring. Scarce sorts are also layered until late in the season, but so far as the producing of flowers is concerned these are of no use. I write from a northern county, and this, doubtless, will make a difference, but I am convinced that no method of treating the plants can make up for allowing the shoots to stand too long before layering, nor can the young plants be too early in their blooming quarters in autumn. As to Malmaisons, we propagate at any season. At present we have about ten dozen well rooted, which will flower in early spring. Another batch is being layered, and we shall have another lot ready for propagating before winter. The first lot referred to will either be potted on in spring, or layered as it is seen what is required. Malmaisons must at all seasons be kept on the move. About the mechanical work of layering, nothing can beat

Simonite's lance-pointed knives. The mode of operation is to insert the point into the top of the slit to be made, cut downwards and out at the base of the layer; one cut is sufficient, and so rapidly is this effected, that one operator can keep two men pegging. When there are many hundreds of plants to go over the utility of this method is apparent.—CARNATION, *East Lothian.*

NOTES ON HARDY PLANTS.

Cornus canadensis grows and flowers well here every year; the position is sunny, the soil light vegetable mould and sand; it is, however, moist, from being close to the garden walk gutter. If newly planted specimens do not flower until the second or even third year, there need be no surprise, as the flowering buds or crowns take a year or two to mature. Still I regularly take strong runners that have matured crowns, and they flower the first year in pots, but this, done with material from the same garden where the young stock is afterwards brought on, is a very different affair to dealing with roots from a great distance and another climate, and, besides, I find that specimens taken from their wild homes are the most difficult of all plants to establish.

Saxifraga fimbriata.—This rare gemmiferous species from Nepaul proves quite hardy here—at any rate it has stood two winters. It is a most curious kind and likely to excite some interest. I do not know that it can be compared with any other species, and that is saying a deal when the large number and forms of the genus are recalled. It, however, comes near to bronchialis and our own aizoides, but at a cursory glance it might seem nearer akin to aspera, and after all it differs much from all these, and indeed from any of the nearly 400 kinds that have been cultivated in this garden. The older or fruitful stems are 3 inches to 6 inches long, prostrate, with the points erect; the ordinary and full-sized spear-shaped leaves are intermingled with the minute rosettes the whole length of the stems. The younger stems as seen at midsummer are erect, of a fresh pale green colour, with the axil buds only just visible; the flowers are a bright orange-yellow, the size of a threepenny-piece; anthers scarlet when fresh; each flower is solitary and borne on a short, black-haired stalk at the erect point of the thickly gemmiferous stems. The plant may never be showy, owing to the paucity of flowers, but the glistening quality and curious form and habit are enough to arrest notice, and render it a desirable subject especially for those who love rare and curious things on their rockeries.

Omphalodes longiflora.—Under this name I was tempted to purchase plants from a foreign source. For some time before the flowers opened a suspicion was felt that the species was an old plant under an unusual name, and so at last it has proved, for it is no other than Lindelophia spectabilis, or our whilom friend Cynoglossum longiflorum. The name may not be very far wrong, but the plant has already names enough, and one wonders what the object can be in publishing further names for such old and well-known things. I am not the only person who has been duped by the use of this nomenclature.

Primula sikkimensis.—Through the kindness of Mr. Dod some seeds labelled Kumlong have been raised here, and though the plants differ from former batches from Sikkim, they are nothing more than a variety of sikkimensis. They are, however, worth a note and special attention; for instance, plants in 4-inch pots have leaves 9 inches to 16 inches long; the scapes are 3 feet long, and the pedicels are 3 inches to 6 inches in length. What the dimensions would be if the plants were in moist open ground I cannot say, but it would not be unreasonable to suppose that they would grow taller by 18 inches, and Cowslips 4½ feet high would certainly be something new. I have plants from two other batches of Sikkim seed, but they do not compare with this for tallness and robust growth.

Dianthus Atkinsoni is the most brilliant Pink I ever saw, and at the present time the best bit of colour in the garden—stalks 1 foot long; flowers size of a crown-piece, of intense crimson, or crimson-scarlet. Each flower lasts two or three weeks, and a two-year-old plant is showy for eight weeks. Just now the plant seems all stalks and flowers, but the fear I expressed last year anent this condition proved groundless, for grass is quickly made after the period of flowering, not only from the collar, but from the joints of the old flower-stems, and the latter may be taken when in a very small state as cuttings for next year's flowering. The old plant, now in its third year, is in good condition, and does not show the slightest tendency to the biennial duration, but seems improved by age—in fact, it is the only plant bearing a few tufts of deep green foliage or unfruitful stems.

Woodville, Kirkstall. J. WOOD.

FLOWER GARDEN NOTES.

MIXTURES IN BEDDING ARRANGEMENTS.—By this I mean various species and varieties in one bed. This feature of bedding-out has been extending for some time, and is a great advance on the massing system. In a season such as this has been, it is especially worthy of adoption, for the reason that, if certain kinds of plants fail, others next to them succeed, and there is thus no real failure as regards the general appearance of the beds, but most probably improvement, owing to the loss of some plant or plants hitherto considered indispensable. This is really the case with some of the bedding mixtures we have here this season, in which were a few Pelargoniums of Henri Jacoby, a deep red, and Iresine; the first failed to flower well, and has therefore been gradually cut away to make room for those plants that were flowering, and the Iresine refusing to grow at all has given place to the stronger growers. But the strong points in connection with these mixtures are real effectiveness, novelty, and, above all, permanence, or rather such an amount of permanence as our climate warrants. Heavy rainfalls, windstorms, and early frosts are all, to some extent, defied by some of the plants, and thus the beds continue in good form to the very end of the season. Our beds of such mixtures form part of the general arrangements of a geometrical designed garden, and consequently this has to be taken into account when arranging the plants on the mixture principle. For instance, two or four beds are at equal points to each other, and though it may not be necessary to repeat the arrangement, yet it is imperative that plants very closely allied, and specially of the same height and habit of growth, should occupy the corresponding beds, or the inequality will be offensive to the eye the whole season through. I prefer to plant the beds in pairs, that is, to use the same varieties of plants in each. It is very difficult to describe the manner of arranging beds of this character, and I will not attempt it further than to say that supposing a large circular bed has to be filled, the first thing is to have a central plant, then, say, three others, and six others as standards at equidistant points in the bed, such standards to consist either of flowering plants (Fuchsias) or of foliage plants (variegated Abutilons), according to whether the bed is to consist most largely of flowers or foliage, the standards being the opposite to what I will call the groundwork of the bed. Of course, I would have plenty of flowers in each, but more in one than another, the greater amount of foliage in the one case showing up to the best advantage the flowering standards, and the opposite in the other case. The most pleasing mixtures we have this season are those that have as standards variegated Abutilons and yellow Marguerites, the dwarfer growth consisting of tuberous Begonias, variegated Pelargoniums, Cuphea miniata, Violas (various colours), dwarf Asters, variegated Mesembryanthemums, dwarf Ageratums, white and blue Lobelias, and others, the variety of plants being extended according to the size of bed. The numerous ways in which this form of planting can be varied are its greatest merits, and in gardens where bedding plants are valued because of the gay summer effect they produce, I commend this mode of arrangement as being most lasting and most beautiful.

BEDS AND BORDERS OF HARDY FLOWERS.—The sceptical with regard to the gaiety of hardy flowers for summer effect would no longer doubt could they have a sight of our hardy flower borders at the present time. I confess that at one time they had no charm for me, but there was a very good reason why. I had not given them a fair trial nor seen them well done by anyone else, but the very opposite; a few stragglers relegated to any out-of-the-way corner, and only visited when it was necessary to get together all the cut flowers that the garden would afford. What wonder, therefore, that we had no idea as to their merits, and how unreasonable it was to expect good flowers or the borders to look gay when negligence was carried to the farthest point. Revived interest in them has led to extended cultivation, and such flowers are valued on account of their real worth, and not as being occasionally useful to make up a basket of cut flowers. They will not, any more than other flowers, grow and do well of themselves, and it is unreasonable to expect it, but they will flourish and repay the cultivation tenfold more than ordinary bedding plants with but the same amount of labour expended in tying, watering, and picking over that bedding plants require to keep them in anything like respectable condition. The plants this wet season have grown unusually strong, and are flowering proportionately freely, the gayest at the present time being Phloxes, Pentstemons, Snapdragons, Japanese Anemones, Potentillas, Carnations, perennial Sunflowers, summer-flowering Chrysanthemums, Lilium auratum, and others, Gladioli, Hyacinthus candicans, Violas, and Pansies, these being supplemented with Sweet Peas, Mignonette, single Dahlias, Hollyhocks, a few Castor-oil plants and Hemps, seedling Verbenas, Petunias, and others.

ROSES.—Early in the season our plants were badly attacked with the blight that so injuriously affected the fruit crops, and consequently the flowering season was a short one and the flowers poor. We, therefore, cut away a great part of the flowers and flowering shoots with the idea of gaining a good second bloom. In this we have not been disappointed, the plants being healthy and the flowers, if not numerous, very good, and there are buds and healthy wood in plenty, so that we expect a long season of flower, in prospect of which the plants have just had applied to them a thick dusting of bone manure. The beds have also been re-mulched with Cocoa fibre refuse, which is a retainer of moisture and a preserver of neatness. W. W.

Supports for herbaceous plants.—A. Barker's suggestions in THE GARDEN would, I am sure, be useful to anyone with small specimens of herbaceous plants; but his advice to tie two or three stems to a stake would be almost impossible to carry out when there are some thirty or forty flowering stems, and would certainly not look well. For my plants, which are not much thinned out and are in huge clumps, I find the "cage" is the most secure as well as the neatest way of supporting them, though even that fails in an Irish storm. If properly done, the plants grow up inside and round their supports, and are not cramped at all; while the supports, both stakes and twine, in a good growing season are simply inevitable. Anemone japonica and Rudbeckia Newmanni, it is true, do not usually require staking; nevertheless, they are both laid flat here in some gales.—J. H. W. THOMAS.

Tiger Lilies in bloom.—The Tiger Lily is one of the most accommodating and most commonly grown of all Lilies. Such being the case, no description of it is necessary. We have two or three well marked varieties now in cultivation worthy of notice, one of which (splendens) is much superior to the type. This variety is distinguished from the ordinary tigrinum by the leaves being broader, less woolly, and of a much deeper green; the flowers larger, more brightly coloured, and with larger spots, while the season of blooming is later. The leaves, too, are even during adverse seasons retained on the lower part of the stem in better condition than those of any of the other Tiger Lilies, while the stem itself is quite smooth and almost black. This variety is often grown under the name of Leopoldi. There is also another form (Fortunei) which is more like the common kind, but it is of

taller growth and the stems are more woolly. This last character is very conspicuous in the case of the double Tiger Lily (flore-pleno), for it extends over the leaves, stems, and unopened buds. The double Tiger Lily is a very handsome flower, and the only good example of a double Lily. In the form of elegans or Thunbergianum, known as staminosum, though the interior of the flower is partially filled, it is caused by the stamens, which are more or less transformed into petals, while the Tiger Lily has the petals arranged in several rows one above the other. The Lilies of this class succeed best in a sandy loam, and should be planted so that the bulbs are about 6 inches below the surface. Where Lilies are grown in pots the variety splendens readily lends itself to this mode of treatment, for it retains its foliage well and flowers very freely.—H. P.

Torch Lilies.—Tritomas are largely grown by M. Godefroy-Lebeuf at Argenteuil. Amongst the many fine kinds pointed out were T. præcox, a kind which blooms in May, and valuable as lengthening the season in which these fine flowers may enliven the garden. There were also numerous fine seedlings, one in which the blooms commence at the top of the spike instead of the base, and one, which is said to come from Madagascar, with white flowers. It must be admitted that at present this appears but a rather poor thing, but M. Godefroy-Lebeuf seems confident of its being the originator of an entirely new race. In this we can but re-echo his desire, for these plants are well deserving of attention. To these, I am told, M. Max Leichtlin has added a yellow-flowered kind, so that the rustic name of Red-hot-poker plant will hardly be applicable.—W. H. G.

Narcissus cyclamineus.—In writing of this plant at p. 179, your correspondent "D. K." repeats the erroneous assertion that the plant is alluded to in Parkinson's "Theatrum Botanicum," published in 1640. As a matter of fact, no Narcissi whatever are figured or described in that work. N. cyclamineus was figured in the "Theatrum Floræ," 1st ed., published at Paris in 1622. Haworth in his monograph (1831, not 1838, as stated at p. 179) did not call it "Narcissus minor cyclamineus." The name used by him was simply Ajax cyclamineus (small reflexing-flowered). I always understood that Mr. Moon's drawing of the natural habitat of N. cyclamineus, in Barr's catalogue for 1887, was made from a rough sketch or oral description made by Mr. Barr, and not "from a photograph," as "D. K." asserts was the case. So long as writers on Daffodils keep on quoting without consulting the actual works or authorities of which they give the names, so long will these errors continue to appear, themselves becoming the authority for further misleading quotations.—Ajax.

P.S.—"Le Jardin du Roy" (Henry IV.) was first published in 1608, and again in 1623 (Louis XIII.), by Pierre Vallet.

Transplanting the Madonna Lily.—Where there are established clumps of the Madonna Lily that yield their annual wealth of blossoms it is a great pity to disturb them, as they will often take several seasons to recover their vigour; but where it is absolutely necessary to shift them, or some are needed for flowering in pots, no time should be lost in moving them. I find that by far the least check is sustained when transplanting is done directly the flower-stems decay, for as soon as this takes place the roots at the base are again in active operation, and consequently many are broken in moving them later on. This will apply to most Lilies, and while fully aware that it cannot be carried out in all cases (with imported bulbs, for instance), yet it might be borne in mind more often. We should then see fewer bulbs offered for sale after Christmas than is now the case, for many people do not purchase the Lily bulbs they require till they start into growth, and the result of this is many of them do not flower at all the first season. Even in the case of imported bulbs some of them reach this country in a ripened state before the same kinds grown here are dormant, and among these may be mentioned the Madonna Lily, which is imported from France, and often arrives here by the middle of August, while the tube-flowered L. Harrisi comes from America before the end of the month, and while the same variety grown out of doors here is still in flower. Such being the case, it is far better to pot or plant these bulbs soon after receipt than to keep them out of the ground, and perhaps on the shelves of a seedsman's warehouse for months. Where L. Harrisi is required for very early flowering it is absolutely necessary that it be potted as soon as possible after reaching this country.—H. P.

THE PRAIRIE SUNFLOWER.

(HARPALIUM RIGIDUM.)

The above is the name under which this plant is best known to growers, though in the "Synoptical Flora of North America" it has been placed in Helianthus. It is very near to the well-known H. lætiflorus, from which it differs chiefly in having a dark purple instead of a yellow disc. Within the last few years several really good garden varieties have cropped up, the most notable being that called H. japonicus. This variety is said to have been received from Japan, though I believe no member of this genus is found there at all. It is, however, extremely useful from its earliness, as well as from the large size and profusion of the blooms. It begins to open its flowers almost before the other varieties are showing bud, and on this account alone should find a place in the collection, being about the only good golden yellow flower at this particularly early season for North American plants. The next in succession with us is a very dwarf form, rarely exceeding 1½ feet in height, with proportionately smaller flowers. This we grow on the rockery, and find it does well, even in poor sandy soil. One of the best forms, however, is that here figured, and is about the last of the series to bloom. It is of strong growth, and forms large bushes of straggling branches with well-formed, somewhat drooping flowers. This variety readily forms large clumps, and is very useful for forming groups. Its habit suits it admirably for the wild garden, where a large bed would make a grand show. Harpalium rigidum seems to thrive best in exposed situations, and can be increased to almost any extent by division of the runners, which it forms in great quantities.

K.



The Prairie Sunflower (Harpalium rigidum).

Maurandia Barclayana on pillars.—This beautiful annual may sometimes be seen doing well in the open air in warm districts, or during a fine summer. As a free-growing and pretty flowering pillar plant for conservatory decoration it seems well adapted. It grows very rapidly and produces its tubular rosy flowers abundantly. We have seen it used effectively several times this season, and in the temperate house at Kew it looks very pretty, festooning pillars and twining up the long stems of Cordylines and other plants.

FRUIT GARDEN.

W. COLEMAN.

SEASONABLE OPERATIONS.

Root-lifting.—Fruit trees, notwithstanding the sunless summer and low temperature, have made an abnormal growth of soft gross wood and foliage, which in low, cold situations, no matter how fine the autumn may be, they will barely have time to ripen. The cause or causes of this strong growth must be sought for under several heads; the cure rests under one, or at most two, if root-lifting and root-pruning can be classed as distinct operations. As to the causes of this strong growth, the mainspring no doubt is the heavy rainfall of the passing summer upon trees which could not expend their stored-up sap last season, just as we find old pastures now throwing up enormous crops of Grass after enforced rest induced by the drought of 1887. Another powerful aid is light cropping or complete failure, but the strongest of all, in my opinion, is the unusual warmth of the subsoil, which this year set up a gentle fermentation precisely the same as an old, dry, exhausted hotbed revives after the whole mass has been thoroughly soaked with water. This being so, the warmth of the substratum of soil will force a continuous growth until the flow of sap is arrested by frost, particularly as very few persons were bold enough to check the roots of their trees by the annual and usual process of root-lifting in the face of a water famine last autumn. If this growth goes on as it did in 1860 and a very severe frost sets in the result may again be disastrous, but forewarned we should be forearmed, and now I venture to think is the time to reduce past experience to practice. Wall trees, as I have lately observed, can be greatly assisted by close pinching and training; by keeping the shoots extra thin to favour impingement of the sun, when it shines, upon the brickwork; by the reduction of heavy mulches which keep the surface roots cool and substituting them with diluted liquid when feeding full crops is absolutely necessary. Pyramids, bushes, and standards cannot be so treated, as they may not have the benefit of heat-reflecting walls; consequently, our only remedy is timely root-lifting before the leaves fall.

Root-lifting, experienced writers say, may be performed at various seasons, but in general the safest and best is that which corresponds with planting. This, however, is an extraordinary season, and for this reason I must uphold the late Mr. Thompson's opinion, that any time after the end of July and before the leaves fall is the proper time to operate upon fruit trees that have no crop upon them. Of these, this year, unfortunately, there are a great number in all parts of the kingdom, and the sooner they are taken in hand the better. Others carrying fruit, as a matter of course, cannot be disturbed for the present, but these, if at all strong, should receive the annual check as soon as the crop is gathered. Gardeners who have reduced root-lifting to an annual or biennial system know when and how to check a tree without jeopardising the next year's crop, and yet it never gets too strong, but many amateurs, even in this fast-closing nineteenth century, I am sorry to have to say, make a very poor hand of the work, and not unfrequently apply for advice when the roots of their trees are mutilated past recovery. For their benefit I may say root-lifting is preferable

to root-pruning, and it is safer to do too little than too much, especially where the trees have not been so treated, and the feeders are working a considerable distance away from home. In cases of this kind, especially where the trees are of large size, the operation should be performed piecemeal, that is to say, the roots on one side of the bole, including the tap root, should be lifted, not cut through a foot or two from the stem, as is too often done, carefully divested of faulty portions, and relaid in a horizontal position. The operation, no matter how carefully it is performed, will destroy many of the extremities of the fine, hair-like roots, and these, as a matter of course, must be shortened back with a sharp knife, for the two-fold purpose of getting rid of injured parts which might perish or throw up suckers, and securing a relay of fresh fibres nearer home. If the drainage is unsatisfactory, it must be corrected, the roots being kept moist and covered from sun and air the while, the compost in like manner renovated or replaced with new, made firm by ramming or treading, and when raised to the proper level, the nearer the surface the better, each root must be laid out in a horizontal position, slightly covered with at least a few spadefuls of new loam, and watered home. If the work is to be done extra well, 6 inches of new compost may be placed over the roots in lieu of the old, as an inducement to the formation of a mat of fibres close to the surface, and so within the influence of solar heat and light, genial rain, and digestible food from the mulching. A gross tree treated in this way now (September 1) will hardly droop a leaf, but growth will be arrested, buds and wood will harden and ripen, and it will be capable of carrying a full crop of fruit next season. When this crop is gathered, the other half of the roots may be lifted and re-laid in the same way, and the future fertility of the tree will be secured, as roots once brought to the surface, well mulched and watered in dry summers, will never descend from a warm, genial larder into a cold, crude subsoil.

These remarks apply to large neglected trees and not to young ones a year or two planted on strong, deep soils and now growing freely. Such trees, by judicious cropping, pinching the strongest shoots and general lateral as well as vertical extension, may go on well through several seasons; in fact, they may produce excellent crops until an adverse spring destroys the blossom, when a growing season will destroy the balance, and a piecemeal operation like the preceding must be resorted to. To prevent this, every young tree should be lifted at the end of the second year in the autumn and re-planted, as I have just observed, with all its roots in a horizontal position. If well drained and planted in the first instance, the first need not be disturbed, and the compost, it is more than probable, will be quite rich enough; but in the event of the soil having deteriorated or become inert, a little fresh soil may be placed about the roots, especially above them. October is not a bad month for lifting and re-laying the roots of young trees, as rampant growth by that time has pretty well ceased, but wall trees which are more advanced and have a certain amount of shelter may be operated upon in September.

Knowing how closely the amateur clings to the knife and rich manure, a word in conclusion upon the use and abuse of these may not be out of place. When the lifting of trees, be they young or large, has been decided upon, they should not be pruned, as every leaf and twig contribute to the formation of new rootlets. When the tree has been lifted and replanted the knife should be kept in the sheath, certainly until new growth sets in in the spring, as shortening back robs the roots not only by the removal of a portion of the stored-up sap, but also by producing wounds more or less acted upon by frost and a moisture-absorbing atmosphere. When trees have undergone a sharp pinch I give them a year's grace, and prune into form the following autumn. This, however, is an extreme case, and applies generally to trees fresh in from the nursery, whilst others which have been two years under one's own care can be lifted at any time after July with impunity.

Manure, like the pruning knife, is extremely useful, indeed, indispensable in every garden, but unless the soil is extremely poor it should not be used in the preparation of new compost for fruit trees. I once knew an old gardener who placed several barrow-loads of rich manure beneath the roots of his young Peach trees, and invariably had the gross growth killed by the first severe winter; indeed, so certain were deaths from this cause alone, that he told me he had given up trying to grow Peaches. The same wall at the present moment contains trees 40 feet across them from tip to tip literally loaded with fruit, and there is not a faulty shoot or blistered leaf upon them. Had loam and lime rubble, pure and simple, been used for the roots, and a portion of the manure as a summer mulch, the best of fruit might have been grown upon these trees, which would have lasted a lifetime. Example being better than precept, I need say no more, as the veriest tyro will gather that it is better to have sound sweet compost too poor rather than too rich, as weakly trees can always be fed by the application of surface dressing or diluted liquid.

MADRESFIELD COURT GRAPE NOT COLOURING.

I was gratified to learn that my remarks anent the cause of Grapes cracking were so fully in accord with Mr. Blomfield's experience, and if I can assist him to improve the colour of his otherwise fine Madresfield Court Grapes I shall be pleased.

In the first place, Mr. Blomfield's treatment of the tops seems sound and productive of good results so far, from which I infer the cause of his Grapes failing to colour must be sought for at the roots, especially as he states they have free access to the outside through the arches in the front wall, but he does not say whether they have travelled into a prepared border or simply the natural soil. Any way, I am inclined to think they have rambled into uncongenial pastures, not bad enough perhaps to injure the health of the Vines, but either too cold or wet to allow of that difficult process of colouring to come to perfection. If such be the case, Mr. Blomfield must find out their whereabouts and bring them under control. This should not be a matter attended with much difficulty, seeing there is an inside border to the vinery, nor need the operations of renewing the outside border or forming a new one affect the next season's crop; in fact, if carefully done at the right time, it will in all probability be improved thereby. The best time to commence operations is soon after the Vine is cleared of fruit and before the foliage commences to turn yellow, which we will suppose is about the end of September or the beginning of October. First prepare sufficient suitable compost for relaying the roots, then proceed to examine the border by taking out a trench several yards from the front of the vinery and carefully working towards the arches, forking out the soil and preserving all the roots possible. If any are discovered to have rambled away they must be followed as far as practicable and severed, preserving as great a length as convenient for relaying again. When all the soil has been thrown out up to the wall of the vinery, and the roots covered up with mats and damped, take up, clean, and relay the drainage, which should be about a foot thick and resting on a base of concrete.

A border 6 feet wide and 3 feet deep will be ample to re-make at one time, the front being supported by a temporary wall, and when after about three years the roots require more room and a little fresh compost, this wall may be taken down and the border extended. Relay the roots in the new compost as soon as possible, keeping them near to the surface.

If I am right in thus supposing Mr. Blomfield is not well acquainted with the whereabouts of the roots of his Vines, and will adopt the above measures to bring them more fully under his control, I think he will see his Grapes improve next year, which will encourage him to examine the inside border at no distant date.

In the case of the Mrs. Pearson—the fruit of which is wanted to hang longer on the Vine—being the next neighbour to the Madresfield Court, the operations to the roots must be delayed for a time; but if the early kinds are located at the opposite end of the house to the late ones, one half of the border may be done before the other.

Hindlip. A. Barker.

GOOSEBERRIES.

At the meeting of the Royal Horticultural Society on the 14th ult. hardly fifty persons saw the very interesting collection of Gooseberries that was staged. It was a pity that so few persons should have seen these fruits, as there can be little doubt but that the Gooseberry is hardly so well favoured in gardens as it merits, and an exhibition of some 100 varieties, including fruits of all the best kinds, might materially help to popularise sorts which seem to be grown by a few, but neglected by many. Articles on the Gooseberry are constantly being written and selections recommended, but somehow the needful interest in one of the very best of hardy fruits fails to be excited. Possibly seeing samples, tasting them, and thus learning to recognise their many excellencies would materially help to their extended cultivation. The collection referred to was made up by contributions from Messrs. Paul and Sons, Cheshunt, Mr. J. Walker, of Thame, and Messrs. Veitch and Sons, whose samples especially were not only very fine and clean, but comprised in all some 100 kinds. It may be of interest to state that the splendid samples of fruit sent by the latter firm were not grown on bushes ordinarily, but upon a couple of shoots left tied up to fruit on each of the stock stools at the Langley Nursery, that course being occasionally needful to ensure that the various sorts remain true to name. But added to the interest found in the fruit samples were some specimens of pyramid and cordon culture in pots which enabled inquirers to realise how admirably Gooseberries, and especially choice varieties, may thus be grown. The pyramids were about 3 feet in height and fruiting profusely. The cordons were some 30 inches high, and also fruiting freely. The production of pyramids and cordons is not difficult. One stout young shoot is selected and tied up erect; all others are cut back; but whilst for pyramids three or four leaf-buds are left to form side shoots, for cordons only about one leaf-bud is left, all the pruning being with the view to preserve the form of growth purposed, and at the same time to produce fruit-spurs or buds as densely as possible. The pyramid is a capital form of training, as the fruits are so easily gathered and freely exposed to sun and air. Cordons seem best suited for walls and fences, or they may be trained to stakes in rows, and thus be protected from birds by netting. Obviously the fruits on cordons are finer and better ripened than are those on ordinary bushes, and especially on dense bushes. The plan of culture is specially commended for kinds which, whilst small fruited, are yet possessed of high flavour, and need such form of culture as will at once produce fine, well-coloured fruit and at the same time develop the high flavour. Practically, the growing of Gooseberries for the dessert table seems to be the weak feature of garden cultivation. Somehow few fruits when good are more highly appreciated, few fruits are more wholesome, and Gooseberries on the table in their season offer a most

welcome variation to hothouse fruits. In some gardens where Gooseberries are cared for it is a very common practice to place one or two dishes of fruits on the breakfast table, and this fruit in the early morn is very enjoyable, being small and specially suited for consumption by children.

Gooseberries deserve a high place as dessert fruits. Like so many other fruits, the richest flavoured Gooseberries are the smallest, and the poorest flavour is found in the largest. The huge Leader, or Roaring Lion, produced at great trouble to ensure a prize at some Lancashire show, is after all little better than a bag of sweet acidity, whilst a tiny berry of the Ironmonger or Pitmaston Green Gage is delicious. Big Gooseberries may still help to furnish news paragraphs, but small delicious ones are the best for eating. The pride of place must be given to the really good-flavoured dessert kinds. A selection of a dozen is given that the best may not only be understood, but it is hoped widely grown. This selection is not made simply from the sorts exhibited at the Drill Hall; it is rather based upon the recommendation of Messrs. Veitch and Son's foreman at Southfields, Mr. Morle, who is able to speak from experience. Green kinds—Hedgehog, Early Green Hairy, Pitmaston Green Gage, and Green Walnut. Yellows—Yellow Champagne, Rumbullion, Rockwood, and Golden Drop. Reds—Ironmonger, Champagne, Keen's Seedling, and Warrington. It is noticeable that all the best flavoured fruits are hairy, so that it would seem as if these two characters were in the Gooseberry essentially associated. Turning now to varieties most suitable for ordinary bush culture and for cooking, the following is an admirable selection: Crown Bob, Lancashire Lad, Highlander, Whinham's Industry, Lomax's Victory, and Speedwell, reds; Railway, a fine sort, and Leader, yellow; Antagonist and Lady Leicester, white; Telegraph and Matchless, green. In this case reds predominate, being the best all-round varieties. For cooking it is important to have those which furnish green berries early, and those in the selection above given do so, not only early, but in great abundance. Then with regard to large-berried or exhibition sorts, the following half dozen rank high amongst the heaviest berried producers: London City and Matchless, green; London, red; Trumpeter, yellow; Lady Leicester and Antagonist, white. There is yet another selection to be presented, and that is of kinds which make good pyramids, as some varieties seem much more amenable to that form of training than others. These comprise Keen's Seedling, Jolly Angler, Leveller, Whinham's Industry, Leader, Alma, Antagonist, Red Champagne, Yellow Champagne, Green Walnut, and Crown Bob. With respect to cordon culture, almost any kinds may be made available for that form of growth, although erect growers adapt themselves to it the most easily. Where north walls and fences are available, especially those too low for Plums and Morello Cherries, such areas can hardly be better employed than in producing fine fruits of Gooseberries, either as single or multiple cordons. Where no such convenience is found, a quarter in the garden should not only be specially allotted for the culture of choice dessert Gooseberries, but it should be protected by wire or netting during the season of ripening. A permanent wire top to the framework with netting to hang round the sides would probably prove the most serviceable, except where the bushes suffered materially from birds during the winter, when it will perhaps be found wisest to enclose the bushes with a permanent wire protection. A. D.

Early market Plums.—Rivers' Early Prolific is a favourite in the market, and having regard to the fact that it is ripe enough for cooking early in August, it is a wonder that it is not far more widely grown. Those of my neighbours who have it speak in high terms of its cropping qualities, and its value because so early, and yet there are very few who grow the Plum. This year the great bulk of late fruits is looked for from Victoria, which will be fully a month later than Rivers' Early in ripening. The Victoria Plum crop will be a very heavy one, for trees are being almost torn to pieces by the immense weight of fruit. Just now there is not a local Plum to gather, except where there may be a few Orleans grown, but the assured cropping qualities of the Victoria have caused that kind to be planted in the proportion almost of twelve to one of any other kind; hence, even in good average Plum years there is rarely any good succession between Rivers' Early and Victoria. Presently Victorias will flood the market, so much so in fact that they will often be sold for a mere song. Such is the unhappy position of Plum growers when a big crop of this universally grown kind results. It must be remembered that, whilst we have many good Plums which do well in gardens, and especially on walls, we have but few which can be classed as really profitable market varieties. Next year, probably, we shall find Victorias a poor crop, and some other sorts now thinly cropped may have their chance, but it is too often the market grower's experience that there are many Plums or none.—A. D.

FRUITS UNDER GLASS.

Peaches.

In late houses, to which fire-heat has not been applied, these will now be swelling freely, and possibly some of the midseason varieties will be ripening, or approaching that stage. In either case it will be necessary to discontinue syringing, as too much moisture renders the flavour of the Peach flat and insipid, and causes the Nectarine to crack, especially if it contains the slightest trace of the Stanwick breed. The Stanwick Nectarines, no doubt, are most delicious, but we now have an abundance of first-class varieties which do not crack, and these, I need not say, should have precedence of them for culture in cold houses. The old Pitmaston Orange and Pine-apple still occupy the front row amongst yellow-fleshed varieties, and Humboldt, a seedling from the latter raised by Mr. Rivers, is equally good, but coming in a fortnight later it forms an excellent succession for use through the month of September. If these three are preceded by Elruge or Violette Hâtive and succeeded by Victoria, I question if any other five varieties can match them for ripening up with dry sun heat in a well-ventilated late Peach house. As companions, Prince of Wales, Barrington, Sea Eagle, Walburton Late Admirable, and Raymacker Peaches are not only worthy of a place, but they will keep up a supply of extra fine fruit until midseason varieties upon walls in ordinary seasons are over. This, however, is an extraordinary season from beginning to end, not only for swelling and colouring, but also for ripening Peaches in late houses and upon open walls; but whether this touch-and-go year will touch the hearts of the penny-wise-and-pound-foolish who hitherto have disregarded my advice with regard to hot-water pipes remains to be seen. A flow and return pipe attached to a three-guinea portable boiler will produce conditions favourable to setting the fruit, no small detail last spring, and to ripening up the fruit and wood, no matter how cold and sunless the autumn.

Midseason houses from which all the fruit has been gathered will require good syringing and copious watering, especially where the roots are confined to internal borders, and in the event of any of the trees having been overtaxed, some generous liquid may be given with advantage. Many growers mulch exhausted trees with rotten manure, but the compost, good sustaining loam, being right, the liquid answers best, as it is quicker in its action, and the surface roots have the full benefit of solar influences. A free circulation of air, of course, is imperative, and a little fire heat may be of use to vigorous young trees trained upon the extension principle, whilst others which do not make strong wood should ripen perfectly without it. Under any circumstances, the wood and buds must be thoroughly matured before the leaves fall, otherwise next year's crop will be extremely uncertain. So soon as the trees have been cleansed and the borders restored to a thorough growing condition, the ripening process must be facilitated by careful pruning. When every bit of useless or superfluous wood has been cut out, it will be necessary to untie and re-arrange some of the shoots to let in light and air, at all times an important operation, especially so at the end of this adverse season. The great fault amongst amateurs and young beginners is delay in pruning, and then leaving in too much wood, 5 inches to 6 inches apart being quite close enough, and equally vital is the common practice of dealing out driblets when they ought to give drainage-reaching supplies of water. The culture of next year's crop really and truly commences now, and those who would spare themselves the heart-burning which bud-dropping brings should thin the shoots well, ripen them thoroughly, and see that the roots never feel the want of water. The trees in

Early houses intended for starting in November or December will now be sufficiently advanced to admit of lifting, root-pruning and renovating with fresh compost. The best compost for all stone fruit trees is heavy calcareous loam, lime-rubble, burnt earth, and bone-dust, which cannot be used too dry, at least in reason, as it will then stand any amount of ramming and beating without becoming pasty. Water, however, should be given as soon as the work is finished, and the weather being bright and light frequent syringing for a week or two will be essential to the preservation of the old foliage. If a true Peach soil is not at hand and lighter loam must be used, the latter can be corrected and made to produce good crops of excellent fruit by the addition of one-fifth of its bulk of dry, finely broken marl enriched with bone-dust or very old cow manure. When thoroughly incorporated and ready for use, efficient drainage, a very important factor, must be secured, the depth left for the reception of the new compost being regulated by the texture of the materials used. Borders made of heavy loams need not be more than 2 feet in depth, whilst others of a lighter nature may run 6 inches to 9 inches deeper, and then the roots will require enormous quantities of water. Young trees growing strongly or showing a tendency to grossness should be worked round and slightly checked by shortening and raising the points of the strongest roots, when they may be relaid possibly in the same compost. A semi-circular trench a foot or so in width is soon taken out and rammed in again, and although the foliage may not flag or falter, a seasonable check or stitch-in-time very often ensures a balancing crop of fruit where otherwise the flowers might fail when the trees next year will be found quite unmanageable. Old trees, on the other hand, as I have just observed, require good stimulants, and sometimes derive benefit from full exposure to the elements through September and October. This year, however, being exceptional, stripping, unless the roof lights require repairs and paint, should not be thought of.

Strawberries.

If this cold, wet weather continues, pot plants, early and late, should be placed thinly in lines or blocks where water can pass freely away from the crocks and the crowns will have full exposure to light and air. Last year watering formed a very heavy item; this season the watering-can lies idle, and, judging from present appearances, it is to be feared that absence of the conditions which render daily watering necessary will tell unfavourably upon the crowns and roots of the plants. Pot plants, those especially which have not been overdone with soil, have made plenty of roots and leaves, but in order to secure good trusses of flower and fruit these must be thoroughly ripened before they are stored away for the winter. In ordinary seasons it is a great mistake to attempt too much in the formation of gross plants which do not always ripen their crowns, for whenever this happens they split and throw up several inferior stems, which do not rise above the foliage and never produce fine fruit. In extraordinary years like the present the stickler for small pots will have the best return, as he will secure plump single crowns which will not break, and having root-bound balls beneath them, he will be able to ripen them fairly well by the beginning of October. In his case even, the absence of sun will necessitate placing the pots upon tiles, boards, or dwarf walls, where the crocks will be secure from worms, and full exposure will sometimes enable him

to give the roots a good soaking with clear diluted liquid. Larger pots will not yet be so full of roots, but by constant attention to the removal of weeds and runners, freshening up the surface soil, and turning about the pots, good progress may yet be made, especially if the prophets are correct in the prediction of a brilliant autumn. If not already planted out, early plants from which next year's stock is to be secured should now be placed in well-prepared soil where they will have the benefit of every ray of sun and not too far from the supply of water. We sometimes plant single lines a few inches beyond the stone edgings of the walks and stand the fruiting pots upon the gravel when the time arrives for layering in the spring. By divesting each plant of its flower we get very early runners in abundance without going into the fruit-bearing beds. The position of the pots upon gravel circumvents our greatest enemy, the worm. Every operation is performed without treading upon the soil in wet weather, and last, but not least, the plants are close to the eye and hand when they require water.

Cherries and Plums.

The first will now be clear of fruit, the wood fairly ripe, and unless very lately potted, the whole of the portable trees will be safest and best in the open air. Being as hardy as it is precocious, the site selected for the Cherry should be quite open to sun and air, well faced with ashes or lime rubble to keep back worms, and not too far from water. If the foliage is fresh, clean, and good, the buds will now be quite safe, no matter how freely the heavy rainfall supplies the roots with water, otherwise the pots must be well covered up and protected, as an excess, followed by a fine warm autumn, may cause prematurely defoliated trees to push their prominent buds, when the full extent of the injury will be felt next season. Permanent trees trained upon trellises must be kept clean and free from insects by an occasional dash with the syringe, and, the better to maintain a moist and cool condition of the soil, the roots must be well mulched with some light, but not over-rich non-conducting material. The shoots, too, may be loosened and allowed to hang down from the trellis, where they will be much cooler than within a foot or so of a fixed roof, if such an ill-constructed forcing Cherry house exists, when ample ventilation will keep them quiet until the buds are past danger. If any of the trees require root-pruning, renovating, or replacing, now is the time to set about the work, as new roots must be formed before the leaves fall. The best compost for all stone-fruit trees, I hardly need repeat, is strong calcareous loam, burnt earth or lime rubble, and crushed bones, in the proportions recommended for Peaches. It should be used moderately dry, as it must be well rammed or beaten in beneath the roots, and made very firm about and above them. The roots do not require an extensive run; indeed, the trees do best when they are confined to a limited space; which, by the way, should be thoroughly drained, for, much as the Cherry enjoys plenty of water, it soon goes wrong where this element cannot pass freely away from the compost. The simplest and perhaps best mode of managing the roots of Cherry trees in internal borders is planting in brick pits, 3 feet to 5 feet square, more or less, according to the width of the house and space each tree is expected to fill. In course of time these compartments containing a cubic yard of soil become one mass of roots, which can be mulched and fed to the heart's content. Also they can be renovated every year by taking out a slice a foot in width, roots and all, along one or two sides of the pit, and filling in with good compost. By cutting out the corresponding sides the year following changes may be rung upon the roots, when trees of the largest size and great age may be kept most vigorous and fruitful for any length of time, and that at a minimum expense, as every ounce of food, solid and liquid, is given when and where wanted. The syringing of

Plums may now be reduced, if not entirely discontinued, as many of the best dessert varieties will now be ripe, and water will destroy the bloom if it does not crack the fruit. Feeding and watering, too, will require more care, as the trees, especially in in pots, cannot be kept altogether without; neither will the fruit hang for any length of time where it is too freely used. To economise labour and prevent the trees from becoming too wet or too dry, the pots after a good soaking may be covered up with some light non-conducting material, including Bracken or litter, which may be damped over on bright days and kept quite dry when external conditions are unfavourable. No time must be lost in re-potting trees so soon as they are cleared of fruit, cleansed and thoroughly soaked with tepid water. If they have been kept in a semi-dry condition for any length of time it is a good plan to turn them out of the pots and place the balls for a few hours in a tub of water, as potting a tree with a dry ball is one of the most certain stepping-stones to failure. When potted the trees should be kept indoors for a fortnight to restore root action, otherwise they may be turned out as the crop is gathered and receive the treatment recommended for Cherries. Golden Drop and other late-hanging varieties will require plenty of room, careful watering, and full exposure to sunlight to ripen and colour the fruit. When fine autumns succeed bright summers we sometimes set Golden Drops against west walls and drop a net over them to keep out the birds. The fruit, however, does not keep so long, and for this reason we give preference to a house, if it is nothing more than a glass-roofed shed.

Figs.

Early forced trees from which the second crop has been gathered must be thoroughly cleansed, divested of all fruit larger than a marrow Pea, and well watered to fit the balls for reducing and making up again with fresh compost. If bug, scale, or spider have attacked the trees an insecticide of some kind must be brought to bear upon the wood and foliage, or hot water at a temperature of 120° may be plied pretty freely with impunity. If very badly attacked, no uncommon occurrence, and the roof lights are portable, the latter may be removed for a few weeks to facilitate washing from above as well as below the trellis either with Gishurst compound, 4 oz. to the gallon of water, or paraffin, a wineglassful to the gallon, care being taken that the borders are well covered to prevent the oil from reaching the roots. In this way the worst enemy, mealy bug, can be checked until the leaves fall, when the trees must be untied and well washed, the house and trellis painted, and the walls scalded preparatory to coating with hot lime and sulphur. If trees growing in brick pits, divided into sections with cross walls, are growing or likely to grow too strong another season, now is the time to give them a check by the removal of 6 inches to 9 inches of the soil from the extremities of the balls, by shortening back the roots with a sharp knife and refilling with fresh compost, which cannot be too firmly rammed from the drainage upwards. If the compost is very dry it may be watered to settle the points of the roots; otherwise the ordinary rainfall will suffice through the autumn. If pots trees have rooted into the bed or mulching, and still persist in making growth, they may now be drawn up to dislocate the strongest roots, or, better still, a sharp paring-iron run round each pot a foot or so distant will produce the desired effect.

Late trees now bearing ripe fruit will require liberal ventilation, and most likely a taste of fire-heat to prevent the Figs from cracking or spotting, as often happens when the atmosphere is cold, damp and stagnant. As these trees should not be allowed to mature more than one full crop of fruit, all intermediate Figs too forward to stand and too late to ripen must be rubbed off at once, as nothing larger than a Pea can be of any use for another year; the roots, so long as the trees are carrying fruit, must be kept properly moist, but once the last Fig is gathered the walls or borders may safely be left to take care of themselves. Figs in cold houses and wall cases are later than usual; they are plentiful, nevertheless, and a fine autumn will bring forth a profitable and most useful return. Plenty of dry sun-heat is the most important factor in ripening and colouring the fruit, and this in years gone by could always be secured by closing early without the syringe on fine afternoons. Trees on open walls at one time laden with fruit are now showing unmistakable signs of suffering, brought about by cold drenching rains, absence of sun, and an unusually low night temperature. Many of the most forward fruits upon the hardy Brunswick are now turning yellow, and will drop, no matter how favourable or rapid the change to better weather may be. Brown Turkey, supposed to be a shade more tender, and certainly more prolific, has not as yet shown this tendency to fruit-casting.

W. C.

Garden Flora.

PLATE 665.

BICOLOR DAFFODILS.

(WITH A COLOURED PLATE OF N. HORSFIELDI.*)

The great popularity these Daffodils have attained, even within recent years, and which we are told is ever on the increase, is certainly well deserved. Hardly any class of plants in the whole series of hardy flowers gives such a variety of pleasure in the early spring months. The addition of new varieties is ever lengthening the time of flowering, well nigh three months elapsing between the advent of the flowers of N. pallidus præcox and the finish of the Pheasant's-eye varieties. Their great, and in numerous instances exquisite beauty, together with their hardy nature, endears them to all true lovers of Nature, and although we may not see them in a wild state, as in the older days, we have no excuse for excluding them from our gardens, as they are now within the reach of all. The important industry being developed in the supply of cut blooms for the London market is being fast monopolised by our home growers instead of by the foreigner, as hitherto. There are few positions in the garden unsuitable for some, at least, of the varieties of this great genus, and no plants are more worthy of being well cared for; the variety in the size of the flowers is great, in the range of tints immense, orange-yellow and white being predominant, but so arranged and blended as to suit the most fastidious tastes. Their cultivation is comparatively easy, most of the varieties growing well in ordinary garden soil, which should, however, be enriched with plenty of well-rotted manure for the stronger and robust growing sorts, such as those of the bicolor, lorifolius and other groups. For planting in semi-wild places (such as our illustration shows), in the pleasure park or by the woodland path, we have found Pseudo-Narcissus and its forms odorus, poeticus, ornatus, &c., and also many of the moschatus group, do well. The carpet of bright green in spring studded with "fair Daffodils" is a pleasant sight, the bulbs requiring no attention whatever after being planted. Hybridisation or cross-breeding with Daffodils, as with all other flowers, is a very interesting and fascinating employment, and although a great deal has already been done, much yet remains before we obtain the scarlet Daffodil. With the bicolor section Horsfieldi was the first break, so far as we know at least, and at the present time we have thirty distinct named sorts. Emperor and Empress, says Mr. Burbidge, fertilised with poeticus grandiflorus resulted in hybrids of the Nelsoni and Backhousei types. Such curious results cannot but fascinate those interested in the development of the Daffodil, and in all cases, whether artificially fertilised or not, seeds of all kinds of Daffodils should be sown as soon as gathered, and we have no doubt that many curious results will be obtained.

N. BICOLOR.—This handsome plant is placed before N. moschatus by Mr. Baker, in his recent

* Drawn for The Garden in Messrs. Barr's grounds, at Tooting, by H. G. Moon, April 24, 1888. Lithographed and printed by Guillaume Severeyns.



work on the Amaryllideæ as a sub-species, under N. Pseudo-Narcissus, but it is so well known in gardens as N. bicolor, and is, moreover, the type of a goodly number of forms, that it will, perhaps, be better at present to give our attention exclusively to the bicolor section. Salisbury, on the cultivation



Daffodils in the wild garden.

of rare plants, in the "Transactions of the Royal Horticultural Society," vol. i., pp. 346-7, describes the present plant as Ajax bicolor, with the following note: "It is a truly alpine plant with short, broad leaves, increasing fast in any soil, especially chalky loam, with some of which still adhering, bulbs were brought into this country from Montpellier, in 1781, by Broussonett. It had, however, been long in the Oxford garden and at Londesborough, in Yorkshire, to which it was sent from Sherard's celebrated garden at Eltham. Doctor Uvedale, one of the most eminent horticulturists of his time, gave it to Sherard, having received the roots from Magnol in 1690, as appears by a manuscript catalogue of exotics in his garden at Enfield." N. bicolor is considered, and we have no doubt rightly so, as the type of Horsfieldi, Empress, and all belonging to this set, the first break being probably N. Horsfieldi, but whether a seedling or the result of a cross is not clearly ascertained. Be that as it may, N. bicolor, whether it be the bicolor of the last century or not, is too good a plant to be lost sight of, with its snowy white segments and widely expanded rich yellow corona. Southern Europe.

N. Horsfieldi, the subject of our coloured plate, is to our mind the best of this group, and was raised by a Lancashire weaver, John Horsfield, and at his death, Mr. Burbidge tells us, his stock of bulbs, twenty-eight in number, were sold for 1s. 6d. each. The flowers are smaller, and nearly intermediate between those of Empress and bicolor. To judge of the exquisite beauty of this flower it must be seen in a mass; the broad strap-shaped, upright, slightly glaucous leaves, with the blooms towering above, make up a grand picture. The plant has a free-blooming habit, and is more easily managed than any of the allied forms. Alfred Parsons is a very distinct dwarf-habited plant with white segments and yellow trumpet. J. B. M. Camm is also distinct, the trumpet primrose, segments white. W. Robinson, sulphur segments with a yellow trumpet; Michael Foster, the old sulphurescens, has large, sulphur-white segments and rich yellow corona; bicolor maximus is near to Horsfieldi, the segments pure white, the trumpet full yellow and finely imbricated; Empress, with pure white segments of good substance and rich yellow trumpet, is doubtless one of the best, the flowers lasting a considerable time in water, perhaps longer than the others. Others are J. A. Dorrien-Smith, Sims Reeves, Sir R. Peel, Harrison Weir, Mrs. H. Weir, Peabody, James Walker, Duchess of Edinburgh, Dean Herbert and many others—altogether about thirty. All of them may be grown in pots for the decoration of the greenhouse, &c, and are amenable to a gentle forcing heat. D. K.

Chrysanthemums.

E. Molyneux.

Selection of Buds.

If there is one phase in cultivating plants of Chrysanthemums for large blooms of more importance than another it is the selection of buds. It is most difficult to explain to those persons who are not well versed in this technical term to make them understand what is meant by "taking" the buds. Some persons may think it means pinching off the flower buds, but that is not so; it is the removing the growth shoots which form around the flower-bud. These shoots are caused by a temporary check to growth through the formation of a flower-bud in the point of each branch. While this is being formed other growths spring from each node below the apex, and by the time the flower-bud has formed and can be plainly seen the growths will be from half an inch to 1 inch long. These growths are taken off, thus throwing the whole strength of the plant into the development of the flower-bud. This is what is meant by "taking" the bud. Directly these new growths commence to spring from the nodes below the seat of the bud the experienced cultivator knows then that a flower-bud is being formed; if he decides to take this one, he lays his plans accordingly. Before operating he must know whether this particular bud on a particular variety is formed at the right moment to develop into a perfect bloom, or whether the time is not suitable for this especial kind. Some sorts will develop the finest flowers from buds taken at one date, while another variety taken at the same time will not develop a presentable flower at all. This is

why the taking of the buds is so important to cultivators of Chrysanthemums for large blooms. The difference between knowing when and when not to take the buds means success on the one hand or utter failure on the other.

I find that this year the plants show an early tendency to form the flower-bud which is generally known by the name amongst growers as the crown bud. This is supposed to produce the finest flowers. Especially is this noticeable in the Japanese section, but in the incurved section flowers produced from this bud will be of little service to the exhibitor, particularly if he resides in the southern counties of England. Flowers from crown buds formed at this stage of growth of the Queen type, for instance, are large in diameter, loose in the petals, flabby, and instead of incurving, as they ought to do, the petals reflex, show two or three centres—in fact, are generally so deformed through a superfluity of florets and centres and reflexed instead of incurved florets, that the blooms are useless. Such flowers as these early crown buds produce cover space enough, but they are devoid of those essential points—depth and solidity—that are so welcome to an exhibitor and a judge. Many people not having experience with the various sorts of incurved Chrysanthemums take the buds too early; disappointment is sure to follow where quality is of the first importance.

No hard and fast line can be laid down as to the time when every plant shall show its proper bud. As a general rule plants that are grown on what is termed the large bloom method show three buds during the season of growth. If the plants were struck at the time advised and the plants grown on in the orthodox manner the first break is made from the middle of May to the middle of June. Sometimes buds will form in July; these must in every case be considered useless, and should, of course, be removed. The next bud in the ordinary way which is formed after the first break in May or early in June is set from the 1st of August to the end of the month; this is what is known as the crown bud. If this particular bud is set at the right time for each variety it will develop into the best flower; if this bud is formed too early, that bud must be removed, allowing fresh growth to take place; when that has been accomplished another bud will set at the point which is known as the terminal bud, because it is at the termination of the growth of the plant, as no more growth is found on any plant after this stage. This bud (terminal) produces in some varieties, such as Queen of England, the finest flowers; the colour, breadth of floret, and depth are quite as different from those of flowers produced from crown buds set the first week in August. Terminal buds will not show before the early part of September upon plants which set their crown buds about the 1st of August. And, strange as it may appear to some, buds formed early in August will not develop their flowers much before those plants which set their buds (terminals) a month later. As before stated, a knowledge of the varieties must be gained in some way, so that they may be gauged according to their natural manner of flowering. When naturally late-flowering kinds, such as grandiflorum, are grown, they must have the flower-buds formed early, as they need the longest time to develop into perfect blooms. Take, again, any early flowering variety, such as Bouquet Fait; it would be useless to take buds of this early, in the hope of securing good blooms at the same time as many other kinds. Late sorts must have early bud selection, while the reverse must be the case with early flowering varieties. It is most difficult indeed to lay down exact rules to suit all localities, even in England only.

Some buds may be selected too late to allow time for the plants to develop large blooms to be placed on the same level as those who do select the same variety at the correct period of growth. All other things considered, growers in the north and midland counties of England have a decided advantage over growers in the extreme south of England; in the former locality the crown bud may be selected to produce the best blooms, and the time will suit this class of bud in that particular locality; whereas in the southern parts of England if the crown bud was selected, even if the flower developed properly, it would be over before the time came round for the shows. Thus it will be seen that an advantage may be secured by northern cultivators over their southern brethren. There is a difference of quite a fortnight, and in some cases a month, between the seasons of buds showing in the south and north of England. Crown buds ought to be taken earlier in the northern counties than they can with safety in the south. Japanese varieties, in the main, require more time to develop than do the incurved varieties. By the time these lines are in print any Japanese varieties forming buds must not be neglected, but the buds must be taken at once, particularly the late flowering varieties, as grandiflorum, Meg Merrilies, Ralph Brocklebank, Edwin Molyneux, Avalanche and any of those late sorts. If these are allowed to grow past that stage the flowers produced from the buds formed at the next break will be small, and in some instances hollow-eyed, which will render them useless for exhibition. The incurved varieties, such as Eve, Mabel Ward, Barbara, Lady Carey, and such of those that bloom late naturally should have their flower-buds retained as fast as they are formed, while such as the Queen family, Prince Alfred and its sport, Lord Wolseley, would be useless if selected at this time; these must have the buds rubbed out, and the next one formed must be depended upon for the best blooms, which will not be so large, but they will be fresh, compact, and deep, while if crown buds were selected it would be found that they could not be retained at all.

As a general rule, crown buds which set from the 18th of August to the 1st of September are the most likely to produce the best results. Those persons residing further north will have the buds showing a little later, some perhaps at the same time, while in the extreme north many plants will not set their buds till later. Some varieties of Japanese will require to have their buds set earlier than the date named, as they require longer to develop thoroughly. In addition to those previously named, I add Boule d'Or, one variety that certainly needs early bud-selection, that the flowers may be presented in good condition, as this variety carries much weight with good judges when staged in a perfect manner. The best manner to proceed when taking the buds is as follows: Select the morning for the removal of the shoots, as owing to the dew upon the plants the shoots are brittle. If the stem is held secure in the left hand, and the young growths which are intended for removal be bent suddenly down, one at a time, they snap off. After a little practice this method of taking off superfluous shoots is more expeditious than cutting them off with a knife, but if the operation is effected during the middle of the day when hot and dry, the shoots are quite tough, and the risk of damaging the flower bud is much increased. When the growths are taken off, the whole of the energy is concentrated in the flower bud. Some growers allow one shoot to remain at the point for a time as a safeguard against accident in the manipulation of the buds and shoots; but except in the case of any doubts arising in the mind of the cultivator that the bud is at all deformed it is not necessary nor wise to allow the growth shoots to remain for even a short time after the bud is perfectly formed, as the growth is divided between the bud and the shoot retained, and the latter must to some extent rob the former of its due amount of sap. If the operation be carefully performed, as it will be after a little practice, no fear need be entertained on that score. Much depends upon the first swelling of the buds whether they be large and perfect, as without large buds large flowers cannot be expected. It very rarely happens that after the bud is thoroughly formed insects attack it, but if any signs of this are visible in the smallest degree, it is useless to expect a perfect bloom, as any irregularity of the bud in ever so slight a degree is sure to develop unfavourably later on when least expected. In that case rub out the bud and reduce the growths to one on each branch, waiting then for the terminal bud.

MINIATURE CHRYSANTHEMUMS.

Where plants of Chrysanthemums in flower in small pots are required for filling vases for the rooms or for low side stages of the conservatory or even the amateur's greenhouse, no time should be lost in preparing the necessary stock of cuttings if the best results are to be obtained. Useful little plants, each measuring from 8 inches to 15 inches high and carrying one bloom about 5 inches across, may be grown in 3½-inch pots. Chrysanthemums grown in this manner are not seen nearly so often as their merits deserve. Little trouble is required to have them as described if a few simple instructions are carried out and the varieties with short peduncles selected for the purpose. Some sorts—Novelty, for example—are so weak in the peduncles as not to be able to support their own flowers in an upright manner. Now is a good time to insert cuttings, which should be about 4 inches long, and may either be formed of the extreme points of the main shoots which have been cultivated with the idea of producing one large flower to each stem or by growing a sufficient number of plants in any spare piece of ground out of doors for the production solely of cuttings for these dwarf plants. It often happens at this time of the year where a large collection of plants is grown on the large bloom method that the tops of some plants become broken from heavy rains, winds, or other accidents. Cuttings formed of these answer well; but it must be borne in mind that none but leading growths are of any use; side shoots will not develop a bloom worthy of the little trouble incurred. Insert the cuttings singly in pots 2½ inches in diameter, removing only the bottom leaf from each cutting; all other foliage should be preserved, as much of the beauty of the plant when growing or in flower is lost by having defective foliage. It can be easily preserved with careful cultivation in the first stages of growth. Plunge the pots in a gentle hotbed, shading them from bright sun, so that the leaves do not flag at all seriously. Syringe the foliage every afternoon on bright days, and by keeping the frame nearly close, roots will be formed in about a month, when more air should be gradually admitted, increasing the supply until the plants will bear full exposure without flagging. Much depends upon how the plants are treated in their early stages, whether they are dwarf when in flower or not. If they are drawn up weakly by overcrowding or insufficiency of air, the growth is weakened, the leaves are small, and the blooms correspondingly small also. When the plants will bear full exposure remove them from the frame to a shelf in the greenhouse close to the glass where they will have light, air, and space. As soon as the pots are full of roots

transfer them to 3½-inch, or even 4½-inch pots if large blooms are wished for and the varieties be naturally large. To the soil add a small portion of dissolved bones or any artificial manure which is recommended, choosing that which acts quickly, as the time for the plants to grow and flower is short. When the pots are well filled with roots, occasional waterings of some stimulant to assist in developing the blooms should be given. The blooms should be restricted to one on each stem, removing all other buds and side growths as fast as they appear. Mildew often attacks the leaves of these plants when they are kept close in the frame during the time roots are being formed, and spoils the appearance of the plants if allowed to spread unchecked. Abundance of light, air, and water is all that is needed from the last stage of growth until the flowers are expanded. When the foundation has been well laid—that is, stout cuttings carefully struck, well watered, and kept clean—it is surprising what large deeply formed blooms will be developed upon these little plants.

Towards the end of the month or early in September will be early enough to take the cuttings of single varieties, the bright colours of which are very effective. The cuttings of single varieties should be made 8 inches long, inserting five cuttings in a 5-inch pot, or nine cuttings in a 6 inch pot. In these pots they will flower without being disturbed.

E. M.

Chrysanthemum nudicaule.—I thought last year that this member of the great Chrysanthemum family, perhaps the dwarfest of all, was a specially good dry weather plant, it stood so well during the heat and drought, and flowered profusely. I find that it is even a better wet season plant, for from the first blooming till now it has seemed absolutely unmindful of weather; the plants are large, some fully 12 inches across, and literally covered with clear single yellow flowers. These are about the size of a penny-piece, are of flat petalled form, and borne on stems from 6 inches to 7 inches in length. As a bedder, judging from the way it is blooming here, it ought to stand at the very top of all yellow flowering plants. I hope someone will be induced to try it. The plant creeps close to the ground, and is, when in bloom, only about 8 inches in height, and presents a literal mass of flower. It seeds freely and comes quite true. I sow seed in a frame, as the seedlings transplant readily; still the thing is so hardy that it should come very freely if sown outdoors. One good result from the transplanting seems to be that the plants get more room, and they like it. I should specially advise planting some of it on rockwork, where there was ample depth of soil and the position sunny, as the flowers open most fully where there is ample light.—A. D.

KITCHEN GARDEN.

KITCHEN GARDEN NOTES.

Celery.—Latterly dull weather has prevailed, but the rainfall has not been heavy. At such times it often happens that the Celery is allowed to become much too dry at the roots, this resulting in a serious check to its full development, and not unfrequently leads to its premature bolting or running to seed. Celery ought when eaten to be crisp and sweet, and not pithy and indigestible; no other vegetable needs or better pays for liberal treatment at the roots. The earliest rows ought now to be well advanced and nearly or quite moulded up. Successional and later crops should also be growing strongly, but these ought not to be crippled by early and heavy mouldings. All should at the first have the suckers and small leaves pulled away from them, this being followed by a good soaking of some kind of fairly strong liquid manure. Failing this, plenty of either soot, guano, or some kind of artificial manure should be washed in. If one good watering is not sufficient to well moisten the soil in the trench, give more in the course of twenty-four hours, or in the evening of the following day. After this each plant should have the leaf-stalks well gathered up together and either held or tightly tied with matting, while about 4 inches of soil is chopped down from the sides of the trench and levelled about the plants. Subsequently the ties ought to be removed. The aim in every case should be to keep the soil away from the hearts, and also to encourage the free growth of the plants. Three or even four light mouldings up are preferable to one or two heavy ones; a heavy mass of soil pressing against the leaf-stalks effectually checks the growth of the heart and causes bulging and splitting at the base. More soil may be banked up against the Celery according as the heart advances, the precaution being taken each time to fasten or hold the leaf-stalks together. The system of bandaging the leaf-stalks or stems with folds of brown paper and banking up with soil in the ordinary manner has much to commend it, and Celery also turns out of large draining tiles very clean and good. In either case worms and slugs are not so troublesome, and blanching could be effected without the aid of soil, but it is advisable to bank up with the latter in order to preserve the Celery from severe frosts. Those who have been tempted to grow the White Plume under the impression that no blanching will be needed, will find that unless it is moulded up similar to the rest it will be neither hardy nor eatable.

Onions.

Spring-sown Onions have formed far too much top, and promise to be very late in ripening. In many instances mildew has spread through the beds, with the result of checking growth and causing early maturation. This is by no means an unmixed evil, but, on the contrary, ours so affected are ripening off well, and are quite large enough. If not allowed to remain on the ground after the top is dead, but instead of this are well harvested in a dry vinery or in any sunny position under cover, the bulbs will keep as long and perhaps better than those not so checked in growth. A thorough ripening of the bulbs being imperative, it is advisable to hasten this in the case of all that are still very green and erect. These should have their necks, or that portion of the stem next the bulb, roughly twisted so as to bring the top down to the ground. It is quite useless to merely pass a rake over the beds, as the tops soon recover from this temporary levelling. Twisting down encourages the bulbs to swell more quickly as well as favouring early ripening, and no time should be lost in attending to it. Not only is it wise to hasten ripening, but it is also of importance that the ground be cleared as early as possible, there being no better site or one which requires so little preparation for a Cabbage bed. The Tripoli and autumn-raised Onions generally are also very late in arriving at maturity. Twisting down ought long since to have been resorted to, as it is very certain that none but the most perfectly ripened will keep any length of time. Use the greenest and the white-skinned varieties, the red and straw-coloured sorts, if well harvested, keeping much the longest.

Late Peas and Beans.

These are very promising, and probably were never more so at this time of year. Very little water ever reaches the roots of the rows of either Peas or runner Beans, and as both absorb much moisture from the ground, they ought to receive liberal supplies at the present time. Fairly strong liquid manure would not be thrown away on them, and, failing this, the least that can be done is to give as much soft water as will be found necessary to moisten the soil to a good depth. The watering-pot or hose has not been much used this season, but a close examination of the strong rows of Peas and Beans will or ought in most cases to lead to their being requisitioned. Small birds, notably tomtits and sparrows, are very troublesome among late Peas, these, if not checked, spoiling the greater portion of the crop. It is almost impossible to scare them off in any way, and the only remedy is to trap them. We use a good number of small iron spring bird or mouse traps, these being baited with a Pea and fixed among the haulm. It is the only way of clearing the garden of these troublesome visitors, and must be resorted to or no Peas be obtained. Runner Beans were late in yielding pods, but are now flowering freely and bearing well. If the pods are kept closely gathered, a plentiful supply will be obtained until frosts intervene.

Loosening the Ground.

Frequent and very heavy rains have had the effect of rendering the surface of heavy soils or any at all clayey very hard and close. In this state warmth is excluded, and cracking inevitably follows upon a few hours' sunshine. Unoccupied land may well be dug up roughly or trenched at the first favourable opportunity, but any cropped (and there ought not yet to be many vacant spots) should have a good surface stirring. If this cannot be effectually done with flat hoes, either "hack" it with heavy or half-mattock hoes, or else loosen with a fork. This surface stirring keeps down weeds, destroys slugs, and otherwise greatly benefits all advancing crops. Where the weeds have gained the upper hand many will have seeded before they are pulled up and burnt. Hand-weeding should, therefore, be followed by hoeing whenever the tiny weeds appear, or otherwise a much greater amount of labour will have to be expended on the ground later on.

W. I. M.

NOTES ON VEGETABLES.

Lettuces for late summer.—In walking through a market garden a few days ago, I noticed that the labourers were busy planting out Lettuces for a late summer crop. Lettuces planted out late are apt to bolt instead of form nice crisp hearts, and, therefore, the market gardeners heavily manure the land in order to make the Lettuce plants grow as fast as possible and turn in quickly. To aid a rapid development, the ground is well manured and the plants are placed out in showery weather, and they may be said to draw root at once. Good crisp, young Lettuces are about the most wholesome thing that can be eaten in the way of cool, refreshing salad; but a rich soil and a rapid growth are necessary to make Lettuces sweet and succulent. A poor soil cannot be expected to bring salads into anything like a fit condition for table. But how few Cabbage Lettuces find their way into the London markets compared with the Cos type. The London market Lettuce is generally what is known as the Fulham White Cos, apparently a somewhat hardy selection from the Paris White Cos, which it most nearly resembles. Sometimes this Lettuce is put out in the autumn to stand the winter, but more often the seed is sown in frames in February, and the plants put out in early spring as soon as it is convenient to do so.

Undoubtedly the best of all winter Cos Lettuces is the old Black-seeded Bath Cos. It is a good hardy, large-hearting variety, and useful alike for winter, spring, and summer. The Sugar-loaf Bath Cos is a selection from this, with the leaves folding inwards and forming a kind of cone, but it is said not to be so hardy as the old type. Hicks' hardy White Cos comes very near to the Fulham Cos, but it is greener in colour and very hardy. The Bath Cos and Hicks' hardy White Cos are, no doubt, the two best winter Lettuces grown.

Salads in general.—Salading is not nearly so much consumed as it should be during summer. No doubt there has been less demand for salads this summer owing to its being so wet, cold, and cheerless. If only fresh salading could be obtained at a cheap rate by the working classes in our large cities and towns, I think it would be gladly welcomed. It is comparatively easy to produce, but it is difficult to distribute in an effective manner what is produced. Take that favourite salading, Radishes. In how few gardens would a bed of Radishes be found at the present time? and yet, if a little seed of Turnip Radish were sown in suitable ground at intervals of a fortnight or so, a supply could be had daily. It is not necessary to sow much seed at a time, and it should be sown very thinly.

In how few gardens can one meet with the Australian or Broad-leaved Cress. It should be sown thinly in drills in the same way as Parsley seed generally is; the plants should be thinned out a little, and when they have grown large enough

the leaves should be picked for eating, as one would pick Parsley for garnishing. I can assure amateur gardeners who have not grown this Cress that it makes an excellent salad. Mustard and the curled Cress can be similarly treated and successional crops raised. A little seed goes a long way, and what is a better relish to cold meat in summer than fresh, sweet salading? In cottage gardens salading does not find a place, and where it does, only to a small extent. Cottagers evidently are not alive to the dietetic value of salading.

And it is a very easy matter to grow Watercresses without water, provided there is a proper place on which to sow the seed. A gardener of my acquaintance keeps the family he serves well supplied with Watercresses through the autumn, winter, and spring months by simply sowing a little seed on a moist piece of ground under a north wall. The sun rarely finds its way there, but at this season of the year he sprinkles a little fine rich soil over the surface and sows the seed very thinly, and there he leaves it. The plants soon appear above the surface and grow into size, and then he begins to gather the points for eating. I have frequently tasted these Cresses and find them remarkably good. Given, therefore, a wall facing the north and a moist soil that will not grow much else, and there is an excellent site for a Watercress bed.

I am afraid this will prove a disastrous season for Tomatoes in the open air. Not only are the plants late in producing fruit, but the Potato disease is attacking them severely in places, and this means ruin to the crop. But those who have Tomatoes on walls as yet free from the disease should look well after the plants, removing lateral growths and giving the developing fruit all the sun and light possible. When the plants have produced three or four clusters of blossom the tops of the leading shoots should be pinched out and all lateral growths kept cut away, so that the energies of the plants may be directed to the proper maturation of the fruit.

R. D.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Ribes (Currant).—The favourite old Crimson-flowering Currant (Ribes sanguineum, see illustration) is typical of the few among the many species of Ribes that come under the term ornamental shrubs. This shrub is so common that I need only allude to the several fine varieties of it that are to be obtained from the best nurseries. Deeper and richer in colour is the variety atrorubens (called also splendens), though the flowers and racemes are smaller. The colour is a deep crimson-red and forms a striking contrast with the variety named albidum, whose flowers are almost white, being slightly suffused with pink. The double sort (flore-pleno) is an admirable shrub, the flowers being very double, lasting a long time in perfection, and, moreover, expanding later than the common kind, therefore prolong the season. The botanical variety glutinosum is distinguished by the clamminess of its foliage and large, pale rosy pink flowers, but this as well as other botanical varieties are difficult to procure from nurseries.

The Yellow-flowering Currant, or Buffalo Currant (R. aureum), is a very beautiful shrub, and one that deserves to be more commonly grown. It is a different looking shrub from R. sanguineum, the leaves being smaller and more deeply lobed, and of a paler green. Its flowers are larger also and of a rich yellow, produced about the end of April or beginning of May. The variety præcox, so named because it flowers earlier than R. aureum, is a most desirable shrub on that account, and the variety serotinum is valuable because it flowers late, and is even finer than the type.

R. Gordonianum is a hybrid variety between R. aureum and R. sanguineum, and is intermediate in growth as well as flowers, which are of an orange-red colour, therefore distinct and showy. It is also known under the names of R. Beatoni and R. Loudoni, and is an old and



The Californian Fuchsia Currant (Ribes speciosum).

tolerably common shrub. Of the numerous other species of Ribes there are none so fine as the Californian Fuchsia Currant (R. speciosum, see illustration), whose flowers so much resemble miniature Fuchsia blossoms that it goes by the name of R. fuchsioides in some places. In growth and foliage it resembles the common garden Gooseberry. The blooms are deep red with protruding stamens, and hang in clusters of two or three flowers from the leaf axils. A densely flowered bush of this Ribes is extremely pretty and lasts in perfection a long time. Though quite hardy enough to be grown as an open bush in the milder parts of England, it is usually seen grown against a wall, and certainly there are few more elegant wall shrubs.



The Crimson-flowering Currant (Ribes sanguineum).

Grown thus it reaches from 6 feet to 8 feet in height. Most of the other varieties of Ribes have inconspicuous flowers, but one or two are worth growing for the sake of their autumn foliage which dies away in various shades of crimson. The Missouri Currant (R. floridum), called also R. missouriense, is one of the best of these, and is a stock plant in some of the largest nurseries. The Flowering Currants are really an important group of shrubs and deserve the best attention, and instead of being crammed in the usual shrubbery mixture, some plan of grouping them by themselves should be aimed at. A tasteful planter would produce a beautiful effect with these shrubs as an isolated lawn mass intermixed with some well-chosen tall tree or shrub to give to it a varied outline.

Rubus (Brambles).—Some of the Brambles are very beautiful flowering shrubs, and must be included among the choicest selections. With the exception of the forms of our native Bramble, all the important garden kinds are North American, the finest of which is unquestionably the Rocky Mountain Bramble (R. deliciosus, an illustration of which we give), than which there are few lovelier hardy shrubs. It is quite unlike an ordinary Bramble, being without spines or prickles, and more resembling in growth and foliage the edible Black Currant. It makes a rounded, spreading bush about 4 feet high, and in June bears a profusion of large flowers of snowy whiteness, about the size of and resembling in form those of the Dog Rose. It is quite hardy in most English gardens where the soil is light, and in cold localities it may be grown against a wall, which it clothes quickly with a beautiful growth, and flowers more abundantly than when planted as a bush. It is worthy of the best attention, and should certainly be more frequently planted. The three

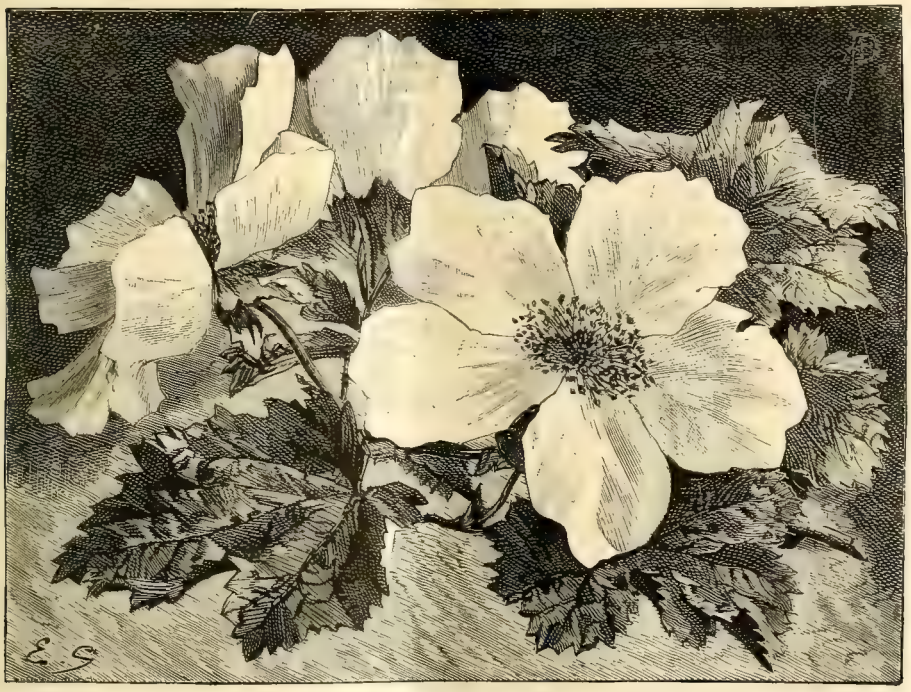


Rubus odoratus.

other North American species of Rubus worthy of general culture resemble each other in growth, foliage, and flower.

R. odoratus (the Purple-flowering Raspberry, see illustration) grows from 3 feet to 8 feet high, has large lobed leaves, and from June till August bears large clusters of rich purple flowers of bold form. It is an extremely robust growing shrub, and requires a deal of space to develop itself properly; therefore should never be crowded by others of a different growth. It associates well with its relative, the White-flowering Currant (R. nutkanus), which strongly resembles R. odoratus, except that its growth is weaker and its flowers are white instead of purple. The two should be planted near each other, and in time would make a beautiful mass. The Salmon Berry (R. spectabilis), from North-west America, is not so important as the other two, though its flowers, which are generally produced singly, are large and bright red. It may be used with good effect planted in the rougher parts of a rock garden or in the wild garden, and the other two may be dealt with similarly. The White-washed Bramble (R. biflorus, or R. leucodermis), from the Himalayas, is a singular and not unattractive shrub. Its tall, wand-like stems, which often reach 10 feet or more in height, are whitened with a mealy substance on

the bark. Its flowers are white and not particularly showy, and are succeeded by Raspberry-like fruits, pleasantly acid and edible. The very curious R. australis, from New Zealand, is hardy enough for wall culture. It is devoid of true leaves and is excessively prickly. In warm situations it grows several feet high, and being so curious always arrests attention. The beautiful R. rosæfolius, or Rose-leaved Bramble, from the Himalayan region, is scarcely hardy enough for open-air culture except in the most favoured spots or against sunny walls. The double variety (coronarius) alone is worth growing. It has large and very double pure white flowers, borne in loose clusters. It is often grown as a greenhouse shrub on account of its profusion of white bloom. Among the multitude of forms of our native Brambles the only kinds that can come within our notice here are the double-flowered varieties of R. fruticosus, which are exceedingly beautiful and particularly valuable for the garden, as they flower in late summer, when very few shrubs are in bloom. There



Rubus deliciosus.

are the double pink and the double white, both of which are known under various names. The names generally applied to them are pomponius flore-pleno (see illustration, p. 234), bellidiflorus, or Daisy-flowered, but for practical purposes, double pink and double white are sufficient. As they are forms of distinct species or varieties, they differ in habit, the double pink being much the strongest and flowering most freely. Under favourable conditions it makes a wide-spreading mass like the common Bramble does, and from the middle of August till autumn produces an abundance of bloom, every flower being a perfect rosette composed of delicate pink petals. The double white is a form of R. tomentosus, and has its flowers larger, but less double. The two should be planted together or near each other, and are admirable for clothing banks or associating with bold rocks, natural or artificial. Another fine Bramble which is worth attention is the Cut-leaved, or Parsley-leaved Bramble. It bears a profusion of white bloom, succeeded by delicious large fruits, and its growth and foliage are elegant. Some of the so-called American Blackberries, such as the Lawton and Kittatinny, are not without value as ornamental ramblers, and a skilful planter will always find an appropriate place suited to their growth.

Ruscus (Butcher's Broom).—The common Butcher's Broom (R. aculeatus) can scarcely be called an ornamental flowering shrub, since its flowers are small and inconspicuous, but it is sometimes seen studded in autumn with large bright red berries, and is then truly ornamental. It is an Evergreen with curious prickly leaves, or rather substitutes for leaves, and grows about 2 feet high. It is a capital shrub for planting under shady trees where little else will flourish. The Double Tongue (R. hypophyllus and hypoglossus) may also be put to a similar use, and there are few more graceful small evergreen shrubs than the Alexandrian Laurel (R. racemosus), see illustration, from South Europe, which is one of the best plants for a partially shaded spot, and thrives admirably on the chalk.

Vitis indivisa is a vigorous growing plant with stems 15 feet or 20 feet long, climbing by means of tendrils. The leaves are 4 inches or 5 inches long, heart-shaped, sharply serrate, but not lobed. The panicle of flowers is small and loose, and the berries barely exceed a Pea in size. It is a native of West Virginia and Ohio southward.—*Garden and Forest.*

Golden variegated Retinosporas.—The inclement weather that has this summer marred the beauty of so many things has had quite a contrary effect on the yellow-leaved Retinosporas. Last summer they had a very unhealthy appearance, in some places looking as if they were going to die, but now they are growing freely again, and glow like gold in the sun. Conifers that are distinguished by a more or less white variegation are generally too feeble in their nature to be of much decorative worth, but the yellow-leaved kinds are sufficiently vigorous to render them very ornamental when the situation is to their liking. In the light soils of Surrey they seem to be quite at home, the yellow tint being more pronounced than on heavy lands. The finest coloured specimens I ever saw are in the gardens of St. George's Hill, Byfleet. Until they became too large for the place, they stood in a group on the Grass near the dwelling, and during the winter



The Butcher's Broom (Ruscus aculeatus); showing flowering shoot.

months they had a very cheerful appearance. They were perfect in foliage down to the ground, and well coloured from the base upwards. In many instances the yellow tint is very faint and much of the foliage drops. This is generally owing to the want of light and a free circulation of air around



The Alexandrian Laurel (Ruscus racemosus).

them. The Retinosporas cannot bear crowding; there must be a clear space round them, and a rather elevated position, where they do not catch

the full force of easterly winds, seems to suit them best. As helping to give variety of colour to the garden in winter the Golden Retinosporas are useful. —J. C. B.

TREE AND SHRUB NOTES.

WHEN at Down House, the residence of the late Charles Darwin, I was much struck with the stately proportions to which a specimen of the Ailantus, or Tree of Heaven (Ailanthus glandulosa), had attained. The stem at 2 feet from the ground measured 6 feet 9 inches, while the well-rounded head and healthy foliage clearly testified that the tree was suitably placed both as regards soil and situation. For its large pinnate leaves this tree is well worthy of a place wherever hardy subjects of a similar kind are in demand. It does not dislike shade, for we have it here thriving with almost unusual luxuriance where partially hemmed in by taller and more rapid growing trees. The flowers are in long, compact, and erect panicles of a greenish white colour, and emit a rather disagreeable odour.

A LARGE YEW TREE. — Conspicuous in the churchyard at Down is a large and picturesque specimen of the common Yew, and which at 1 yard from the ground is 28 feet in circumference. The stem is hollow and crumbling gradually away, yet for all this the well-branched and bright-foliaged head measures 45 feet in diameter. From the village side in particular this patriarchal specimen has a most picturesque appearance, the hollowed stem helping to impart that old and hoary characteristic for which one always is in search of in old trees. Such trees are well worthy of respect and care, and if a chain or band can assist in keeping decayed and decaying hollow stems and heavily foliaged branches together, by all means let such be applied, for the expenses so incurred are only of secondary importance.

THE PURPLE BEECH (Fagus sylvatica purpurea) is remarkably variable as regards leaf colouring, some having the foliage of a deep coppery colour, while others, again, are almost of a bright scarlet. The latter is by far the most ornamental as well as rarest form, and it would be well did our nurserymen, in choosing grafts, select these from the best and most distinct kinds. One of the finest, indeed the finest, specimen of this pinky-leaved form that I have yet seen is growing in the pinetum here, and what renders it perhaps particularly attractive is its juxtaposition to a dark-foliaged Douglas Fir. This is a grafted tree, the scion having been worked on a 6 feet high clean stem of the normal plant. On the sloping ground to the south-west of Holwood House grows a giant specimen of the purple-leaved form, the stem at 3 feet and 5 feet girthing 11 feet and 10 feet 11 inches, while the height is fully 50 feet, and the branch-spread 75 feet in diameter.

THE CUT-LEAVED ALDER (Alnus glutinosa laciniata) is a tree that can ill be spared from our lake and river sides. For its finely cut leaves it is well worthy of far more extended culture than it has hitherto received in this country. It must be admitted by everyone who has seen a goodly sized specimen of this particular Alder that it is, so far as ornamental qualities are concerned, not surpassed by any other hardy deciduous tree in cultivation. Growing on the banks of the Hollydale lakes are two unusually fine specimens of the Cut-leaved Alder, the largest being nearly 50 feet in height, with a stem girthing at 3 feet and 5 feet, 6 feet and 5 feet 2 inches, while the branches cover a spread of 45 feet in diameter. As a lawn tree, particularly where the soil is strong and damp, it is much admired, but unfortunately in such a position it is far too seldom seen. Being a rapid grower, it wants plenty of space for the perfect development of its long and lithe branches.

THE TRAVELLER'S JOY or OLD MAN'S BEARD (Clematis Vitalba) is at present ornamenting in a most graceful and conspicuous way many of the Kentish mounds and hedges. To-day I could not help admiring in an old chalk pit the way in which this pretty native plant festooned with its myriads of supple branches and by no means inelegant creamy white flowers the sides of an almost perpendicular cliff, and from which it clambered to an adjoining neglected Thorn fence, and then, rising to a height of nearly 20 feet, draped it with garlands of drooping spray and the richest of bloom. Had I an old quarry or rubbish pit to render sightly with plants and creepers, the Traveller's Joy would find a first and best place. Then in autumn and during the dull winter months, what can be prettier or more ornamental than an old fence rendered conspicuous for a long distance off by the feathery awns of this plant, and from which the name of Old Man's Beard is derived.

THE LONG-RACEMED PAVIA (P. macrostachya) is undoubtedly the handsomest shrub that at present adorns our woods and grounds. To see a well-developed specimen during late August and early September, and when studded over with its long racemes of white flowers, rendered the more conspicuous by the pinky-pointed stamens, it is truly beautiful. Some of the Pavias in the grounds at Holwood have attained to about 16 feet in height, and have a branch spread of fully that extent, and are at present literally covered with flowers. Individually, the flowers are small, but this is at once dispensed with by the great abundance with which they are produced, one 10-inch spike which I counted this morning having fully 170 blooms, half of these perfectly developed, and scenting the air with their rich fragrance. The Pavias are readily enough propagated, for by bending down the lower branches and pegging these to the ground, as one would do a Privet or a Rhododendron, plenty of young and strong plants may be procured. No special soil is required for the tree under consideration; indeed, in judging from those at Holwood, they would seem to flourish well in that of very opposite description. One of our large standards is growing in a stiffish clay, and where moisture must be superabundant.

SQUIRRELS AND TREES.—I doubt very much whether the good done by these nimble little animals counterbalances the evil. This season, at least, Fir trees in particular have suffered most severely from their depredations. Cones and shoots have been ruthlessly gnawed and destroyed on the Pines, Lime tree bark torn from the stems and branches, while the foliage and flower-buds of the Horse Chestnut have in many instances been cut as clean out as a carpenter could do with his gouge. The cross-bill (Loxia curvirostra) is another enemy to our Fir trees; but, fortunately, the forests of North Ireland are preferred to those in England and Scotland.

What about the starling? Is it injurious to our forest trees? Some time ago the question was mooted by that veteran horticulturist, Mr. Webster, of Gordon Castle, in the pages of the *Gardeners' Chronicle*, but the *pros* and *cons* were about equal.

Rats and mice injure trees by gnawing the stem bark, but their depredations are as nothing compared with those of the squirrel. A. D. WEBSTER.
Holwood Park, Kent.

Olearia Haasti. — When recently visiting the Aigburth Nurseries of Messrs. R. P. Ker and Son, Liverpool, I saw several good specimens of this choice hardy shrub in various parts of the nursery, and Mr. Ker said not only was it perfectly hardy, but it also makes an excellent town plant, doing well in Liverpool and its district. It was becoming so much in demand, that they were propagating it largely, and it appeared to strike freely from cuttings placed in the open ground. I noticed that many of the young rooted cuttings, though only 3 inches or 4 inches in height, were flowering freely, and this appeared to be the case through all the sizes of the plants. Some good sized bushes were completely smothered in blossom. I have been trying to grow the Olearia as a cold greenhouse plant in pots, but only with indifferent success. I think it is too hot for it in summer, as it seems to pine for the open ground. Plants in pots in my house have been frozen hard for days together, but no injury has come to one of them. It is, therefore, a thoroughly hardy plant.—R. D.

THE FRUIT CROPS.

SCOTLAND.

Dunrobin Castle Gardens, Sutherland.—Fruit crops in this county will be from a fortnight to three weeks later than average years. Strawberries are an average crop, but the deficiency of sunshine has hitherto prevented the fruit from acquiring the proper flavour. Black and Red Currants are an average crop. Gooseberries promise to be a good crop. Plums are over average. Cherries are over average, and of excellent quality. Pears are under average. Apples are a very thin crop. Last year the crop was unusually heavy, so that a light crop was looked for this year. Kitchen Apples do best here; among our most reliable kinds are Keswick Codlin, Lord Suffield, Stirling Castle, Mannington's Pearmain, Warner's King, Duchess of Oldenburg, Emperor Alexander, Echlinville, &c. Dessert Apples are usually rather deficient in flavour—Sutherland being rather far north for the production of fine flavoured Apples. The kinds we find do best are Kerry Pippin, Cox's Orange Pippin, King of the Pippins, Paradise Pippin, Blenheim Pippin, Mannington's Pearmain, and Warner's King. Dunrobin is close to the sea-shore, sheltered by woods and rising ground to the north, north-east, and north-west, open to the sea winds on the south, south-east, and south-west. Climate equable, neither very hot in summer, nor very severe frosts in winter.—D. MELVILLE.

Milne Graden, Coldstream. — The fruit crops here and neighbouring district are average in quantity, but owing to the unusually cold and excessively wet weather which has prevailed during the past six weeks, they are at the present time in a very backward state indeed. Peaches and Apricots are now below an average crop, quantities of fruit having dropped from the trees owing to the absence of heat and sunshine. A noticeable fact regarding Apricots this wet cold season is their immunity from the mysterious branch disease which they are so subject to. Pears are the crop of the season in this locality, nearly every variety we have here bearing heavily. Plums are numerous, the coarser kinds especially so. Cherries, Raspberries, Gooseberries, and Black and Red Currants are bearing rather above an average crop, but very late in ripening. Strawberries have been very indifferent, both in quantity and quality. I find Vicomtesse Héricart de Thury the most reliable variety grown here. The Apple crop is a partial failure in this part of the country, attributable, I believe, to the prolonged drought of last season, the varieties bearing the best crops in the gardens here being as follows, viz, Ribston Pippin, King of the Pippins, Thorle Pippin, Blenheim Orange, Small's Admirable, Warner's King, Brabant Bellefleur, and Echlinville Seedling. Amongst Apples I notice those that bore heavy crops last season are a complete blank this year. I consider the Apple as grown in the usual manner in this country, viz., as standard or in bush form, to possess qualities commendable to a secondary position only as dessert fruit. The following I think to be the best flavoured in their various seasons, viz, August—Devonshire Quarrenden, Irish Peach, and Early Julien; September—Thorle Pippin, Summer Strawberry; October—Kerry Pippin; November—King of the Pippins; from December to March—Ribston Pippin, Small's Admirable, Northern Spy, and Blenheim Orange.—J. GRAHAM.

Terregles Gardens, Dumfries.—The fruit crops are very disappointing, and not so good as they promised to be early in the season; late spring frosts and heavy gales of cold east winds prevented the blossom from setting and with one or two exceptions the crops are much under the average. Bush fruits are a very poor crop with us; in some gardens near here they are very good. Strawberries are fully three weeks late, and the heavy

rains and low night temperature have rotted some and prevented many of the fruit from swelling. Some sorts are quite a failure. Garibaldi and Sir J. Paxton are the best. Raspberries are a very heavy crop and good. Morello Cherries are also good. Plums are a very thin crop; the Victoria is the only sort doing well. A few varieties of Pears have a fair crop of fruit, but will require plenty of sunshine during the autumn to ripen them to the same degree of perfection as last year. Apples are a very poor crop in this district. Although there was plenty of blossom many trees are quite fruitless. It is only in very good seasons such as last that we have a crop of dessert Apples worthy of the name. The following varieties are our best and surest bearers, and succeed each other in the order named: Irish Peach, Duchess of Oldenburg, Worcester Pearmain, Kerry Pippin, King of the Pippins, Blenheim Pippin, Fearn's Pippin, Adams' Pearmain, and Ribston Pippin.—ALEX. CHALMERS.

Newbattle Abbey, Dalkeith.—Our prospect of a good year of hardy fruit was very promising this spring before the respective kinds burst into blossom, but the long spell of easterly winds and want of sunshine, with a remarkable low temperature all the time the trees were in bloom, caused a good many of our most constant bearing Apples, such as Manks Codlin and Lord Suffield, to drop their fruit. In some gardens these are a complete failure. However, taking all crops together, we will have an average crop and no cause to complain of the quality, as fruit is clean and healthy. The following sorts we use for dessert, and are a good crop: Early Strawberry, Oslin Pippin, Golden Pippin (good flavour), King of Pippins, Kerry Pippin, Red Astrachan, Ribston Pippin (fine flavour), Cox's Orange (extra fine flavour, best winter dessert Apple), and others; but these are good dessert Apples. The following are some of our best cropped trees: Echlinville, Irish Peach, Tower of Glamis, Cox's Pomona, Stirling Castle, Sturmer Pippin, Dutch Codlin, Beauty of Kent, Yorkshire Greening, Duchess of Oldenburg, Wellington, Alfriston, and Warner's King. The above sorts carry the finest crops. Pears on walls are good. Among the finest are Marie Louise, Beurré d'Amanlis, Beurré d'Aremberg, Louise Bonne of Jersey, Glou Morceau, Beurré Bosc, Winter Nelis, Beurré Diel, and Autumn Bergamot. These carry a heavy crop, and are good quality. Plums are all on walls here, and we have a good crop of Victoria, Jefferson's (Green Gage scarce), Coe's Golden Drop, and Kirke's. Cherries (sweet sorts) were a heavy crop; Morello average crop, badly damaged with maggots. Apricots are a good crop; the fruit is clean and fine. Peaches and Nectarines in some gardens in this county are extra fine this season. Strawberries are a heavy crop, but badly damaged with the rain. Some Strawberry growers complain that there will only be half a crop, so many having rotted on the ground. Gooseberries are a heavy crop and good. The same applies to Red, White, and Black Currants; also Raspberries. Everything is three weeks late, and only ripening slowly and in small quantities.—J. W. MACHATTIE.

Dalkeith, Midlothian.—This has been a trying season for the fruit crops, but, on the whole, there is a fair crop of most kinds, and all are above the average in quality. Apples are a moderate crop of very fine, clean fruit; but some of the most regular bearers have this season almost failed, while others that seldom bear a heavy crop are now laden with fine fruit. The best and most useful dessert Apples are the following in their usual order of ripening: Irish Peach, Oslin, Thorle, Worcester Pearmain, Kerry Pippin, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Blenheim Pippin, Court of Wick, Claygate Pearmain, and Duke of Devonshire. In regard to their flavour and qualities as dessert fruit, they are the best in their respective seasons, and need not be compared against each other on their general merits. The following is an approximate estimate, beginning with the best: Cox's Orange Pippin, Ribston Pippin, Court of Wick, Blenheim Pippin, Claygate Pearmain, Duke of Devonshire, Thorle, Kerry Pippin, Worcester Pearmain, Oslin, King of the Pippins, and Irish Peach. But soil, climate, altitude, and many other local circumstances have great influence on flavour, not to mention individual tastes. There are many other varieties of useful and prolific dessert Apples besides those named, some of which have special merits for certain localities or are favourites of long standing, but the list given is those that are most likely to give general satisfaction in private gardens. Pears are a fine crop, and the fruit large and clean. If the autumn is favourable for bringing them to maturity, they will be better than we have seen them for many years. Plums and Cherries are also above the average; and although early Cherries were much cracked and spoilt by the heavy rains last month, the rest of the crop is very fine. Damsons and Morello Cherries are also good crops and fine fruit. Peaches and Nectarines on the open walls are a very fine crop and have not suffered to any extent from the cold and wet of July, so that we may expect them to come to good maturity during the autumn. The first of the Peaches are just ripe—Amsden's June and Alexander, both bearing good sized fruit and of excellent quality. Apricots are a moderate crop, and the fruit clean, large, and first-rate. Small fruits of all kinds are abundant crops, but about a fortnight later than usual; and the Strawberry crop has been much damaged by the heavy and continuous rains in July.—M. DUNN.

Melville Castle Gardens, Lasswade, Midlothian.—The spring being cold and wet retarded the flowering period. The buds being thoroughly ripened the previous autumn, in early spring there was every prospect of an abundant fruit crop of all kinds. Late spring frosts, however, did much damage, especially to late varieties of Apples and Pears. Small fruits of every kind are very abundant, but of inferior quality, owing to the continuous rains and want of sunshine. With a good autumn, Apples, although in many cases a thin crop, should be of average size and quality. It is now too late in the season to look for Pears on standards coming to maturity, but on walls with a south aspect and plenty of sunshine they may in our district yet ripen.—GEO. MACKINNON.

Tyninghame, East Lothian.—The fruit crops this season vary considerably, some kinds in one garden being a good crop, and in others in the close neighbourhood the same kinds turn out very badly. No doubt one chief reason for this was the severe frost in the beginning of summer, which told heavily in some gardens, while in others comparatively no damage ensued. To particularise: Apricots are in general a poor crop, but occasionally a good one. The fruit, however, will be late in ripening. Peaches set a wonderfully large crop. These also are late. Strawberries, in the case of the earlier sorts, were quite failures. Later fruit, however, is not so bad—a fair crop, but rather deficient in flavour. Cherries are very good and a big crop. Plums a very poor crop. Pears fairly good, but lacking in size; Jargonelle, Glou Morceau, Williams' Bon Chrétien, Passe Crassane, Knight's Monarch, Marie Louise, and Winter Nelis are the kinds bearing good crops. Of small fruit, Black Currants are deficient in some cases; Red Currants the same. Gooseberries a poor crop. Raspberries good. Apples are generally a poor crop. Ours are good, but little thinning required. The fruit is, however, small, and will require a warm and long autumn to enable the trees to bring their crops to perfection. The finer varieties will most likely be deficient in flavour. The most generally acceptable sorts for dessert are Irish Peach, Kerry Pippin, Ribston Pippin, Margil, Sturmer Pippin, and Cox's Orange in good seasons, but, as a rule, the latter requires wall culture. The following, when caught at the right time, are also of value: Margaret, Reinette du Canada, Cox's Pomona, Red Astrachan, and King of Pippins. Duke of Devonshire is a very good late sort. Some kinds which are favoured as dessert fruits do not succeed as such here.—R. P. BROTHERSTON.

Falkland Palace Gardens.—At the beginning of the season there was the prospect of an abundant fruit harvest, but the subsequent continuous rains and want of sunshine have destroyed anticipation. The Strawberries, when in flower, were much damaged by late frosts; however, a fair quantity of bloom set, but many of the finest berries rotted before they ripened. Gooseberries and Currants a good average. Raspberries large and plentiful, but flavourless. Cherries and Plums under the average. Apricots on sheltered wall half a crop. Peaches almost a failure. Pears a fair average. Apples a thin crop; trees much damaged by caterpillars. Dessert varieties grown and mostly prized here are Irish Peach, Cox's Orange Pippin, King of the Pippins, Golden Pippin, and Ribston Pippin.—A. DEWAR.

The Gardens, Balmoral Castle.—The blossoms suffered so much from the effects of frost and snow in June that the fruit crops are almost a failure, with the exception of late Strawberries which promise to be a fair crop should the weather become favourable to ripen them. Crops of every description are quite a month late for an average season.—WILLIAM PATERSON.

Dunkeld Gardens.—Apricots under average, but very good; Plums under average, good; Cherries over average, very good; Peaches and Nectarines over average, very good; Apples under average, very good, but will be very late; Pears under average, good; small fruits good; Strawberries average, very good.

Vegetables are all good excepting French Beans, which will be late. Potatoes are better than I anticipated. Peas are a splendid crop, but filling slowly, owing to cold weather.—P. W. FAIRGRIEVE.

The Gardens, Alloa Park.—The Apples, as also Pears, Plums, Peaches, and Apricots, are under average. Cherries average, good quality. Nuts under average. Small fruits such as Gooseberries, Strawberries, Raspberries, Currants, &c, are all very good crops and of good quality. In reference to the Apple as a dessert fruit the undermentioned varieties are best for quality and flavour: Blenheim Orange, Cambusnethan Pippin, Cox's Orange Pippin, Early Margaret, Eve, Golden Harvey, King of Pippins, Oslin Pippin, Ribston Pippin, Astrachan, Duchess of Oldenburg, Coral Pippin, Sam Young.—T. ORMISTON.

Glenbervie.—The Apple crop in the gardens here is very deficient owing to the severe frost we had in May. The low-lying gardens, especially those with a south-east exposure, have suffered most in this neighbourhood, while those with a south-west exposure have a very abundant crop of Apples, Pears, Plums, and Cherries. I have very good crops of Currants, Gooseberries, Strawberries, and Raspberries.

Vegetables of all kinds are doing well now, but crops are fully three weeks late.—A. CRUICKSHANK.

Balgownie House.—The fruit crop in this neighbourhood is, on the whole, very unsatisfactory as regards quantity. Apples, with few exceptions, are not half a crop. Pears are under average. Plums are poor. Apricots very thin. Dessert Cherries are a poor crop. Morellos are bearing a heavy crop, and generally do well here. Raspberries small. Black, White, and Red Currants are abundant. Gooseberries are plentiful in some gardens around here, but with us they are very scarce, owing to the birds taking the buds in winter. Strawberries an average crop, but with very little flavour; Vicomtesse Héricart de Thury is the favourite here both for dessert and preserving.

Vegetables of all kinds are looking well, though very late. Potatoes light crop, but good in quality.—J. G. HENRY.

Marchmont.—The frost on the 28th of May (14°) and the frosty mornings in June made sad havoc with all our fruit crops in this locality. Strawberries bloomed well, but nearly all were destroyed, and they are only quarter of a crop. Red and White Currants are half a crop. Black Currants and Raspberries medium crops. Apricots, Plums, Apples, and Pears only a few here and there on the trees, and they are not swelling as they ought to do, and it is questionable if they will ripen this year, but this is not an Apple-growing district, and few are grown. We are quite a month later this year. This morning (August 14) the

thermometer registered 35°, and there has been a wonderful absence of sunshine—July only 104½ hours, while we had 5·13 inches of rain and twenty-one wet days.—Peter Loney.

Scone Palace, Perth.—The fruit crop in this locality is on the whole rather a poor one. Strawberries are under the average, very late, and owing to the long-continued wet, cold weather they are poor in quality. Apples and standard Pears, notwithstanding the fine show of blossom in spring, are under the average, and unless we have a very fine autumn they will be small in size and poor in quality. Bush fruits are a fair crop, but very late. Plums are under the average. Apricots, Peaches, and Cherries are over an average crop. Apples generally succeed well in our climate, but the fruit as a rule is smaller, not so well coloured, and more acid in flavour compared with those grown in the south. The kinds best suited for dessert in our locality are Early Harvest, Irish Peach, King of the Pippins, Worcester Pearmain, Kerry Pippin, Blenheim Orange, Ribston Pippin, Gravenstein, Cox's Orange Pippin, Golden Pippin, and Court Pendu Plat.—A. McKinnon.

Eglinton Gardens, Irvine.—Small fruits are plentiful, but much spoiled with the rain, and quite three weeks later than last year. Plums are a fair crop on walls; very few on standards. Pears are almost a failure, both on walls and standards, and at present date are very small, and unless we get much finer weather they will be worthless. Apples are very thin and small, the cold, wet weather keeping them back. We had a fine show of bloom, but very little of it set, and the maggot almost cleared many of the trees of foliage. The Apples also canker very badly in the gardens here; many of the finer sorts die out in a few years, and as a dessert fruit is worthless. We are planting some of the finer sorts on walls to try them. Bedfordshire Foundling and Grenadier are the two sorts that suffer least from canker, and always bear more or less fruit. Some local sorts do well enough, but the quality of the fruit is only third rate.—W. Priest.

Abercairney, Crieff.—The frequent hail showers in May and several frosty nights in June, the glass registering in some districts as much as 6° of frost, blighted the prospects, to some extent, of an abundant crop of fruit this season, which the exceptionally dry warm summer last season led fruit growers to expect, fruit buds being so fully matured. Still, in most districts there will be a good average crop. Wall fruits, such as Apricots, Peaches, Nectarines, Plums, and Cherries, are a good average. Bush fruits in some districts are under an average, while in other more favoured localities a good crop is being gathered. Early Strawberries suffered much by late frosts; the later varieties are yielding good crops. The Pear crop is a good average. The Apple crop, however, may be set down as below an average; a fair sprinkling may be seen on such varieties as Echlinville, Lord Suffield, Stirling Castle, and most varieties of Codlins. The finer varieties of dessert Apples, when not on walls, are scarce. Here we have on walls such as Ribston Pippin, Cox's Orange Pippin, King of Pippins, Duchess of Edinburgh, Red Astrachan, Worcester Pearmain, &c., bearing good crops of fine fruit, the same varieties on standards a failure. The ingathering of the Apple crop will be three weeks behind last season, and owing to the cold season will not have the fine finish of last year's crop.—James Brown.



The double white Bramble (Rubus pomponius flore-pleno). See p. 231.

Duff House, Banff.—As regards the fruit crop in the vicinity of Banff, it is the poorest we have had for many years in the neighbourhood. Fruit of all sorts is far under the average, with the exception of Victoria Plums, which are heavy on standard trees. In the gardens here Jargonelle Pears, Victoria Plums, Gooseberries, Red and Black Currants are better than usual. Raspberries average crop. Apples of sorts under average, except Lord Suffield, which is extra good. Strawberries, as also Cherries and Apricots, are under average.—Joseph Brander.

Urie House, Stonehaven.—The fruit crops in this district are four weeks late, owing to frost nearly every night all the season. Apples, such as Lord Suffield, Cellini, Stirling Castle, Echlinville, Cox's Pomona, and Early Margaret, are above the average. The Pear crop is deficient. Plums, such as Golden Drop and Victoria, are a heavy crop. Cherries are very good. Apricots are almost a total failure. Raspberries, such as Baumforth's Seedling, Carter's Prolific, Fastolf, are above the average. Strawberries looked well at first, but swelled badly. Gooseberries a very heavy crop. Black, Red, and White Currants fairly good.—Alexander Reid.

The Glen, Innerleithen.—We have heavy crops of small fruit, very good crop of Strawberries, but a large quantity destroyed by the wet weather. A fair crop of Plums, but not nearly ripe. Our climate does not suit Pears, except the Jargonelle. Apples are very little grown as a dessert fruit in this neighbourhood; they are mostly grown for cooking, and the kinds I find most suitable for that purpose are Lord Suffield, Stirling Castle, Hawthornden, Tower of Glamis, Cellini, Echlinville, Warner's King, and Keswick Codlin. The most useful for dessert in a good season are Red Astrachan, Kerry Pippin, Irish Peach, Summer Thorle, and Ribston Pippin.—Malcolm T. MacIntyre.

Blair Drummond Gardens.—Of all small fruit there are good crops, although three weeks later than last year. Strawberries are under an average; so much wet weather during July rendered a great many of them entirely useless. Cherries are a good crop, especially Morellos. Plums good average. Pears very good on walls. Apples, with a very few exceptions, are very scarce. The following have good crops here: Hawthornden, Lord Suffield, Melrose White, and Yellow Ingestrie. The under noted are best flavoured: Golden Harvey, Gravenstein, Margil, Kerry Pippin, Sturmer Pippin, Ribston Pippin.—J. King.

Carron House, Falkirk, Stirlingshire.—This untoward season will long be remembered for cold, easterly winds and night frosts, which have been almost continuous since March. Early in the season there was a great promise of all kinds of fruit, Apples, Apricots, and Plums especially. Much disappointment has been experienced throughout this district. Many dessert fruits on walls are so late that they will not ripen, but may be of some use for cooking. Of Apples, there are fair crops of such kinds as Stirling Castle, Codlins of sorts, Northern Greening, Warner's King, King of Pippins (all the trees of this kind are well cropped, but very late), and Seaton House. The last-named is the hardiest and most productive Apple I know, and never has been known to fail. It is in use from October till April and an excellent cooking kind, not so large as Stirling Castle, but of better quality and keeps much longer. The finest flavoured dessert Apples in the district are Margil, Ribston Pippin (these two are worthless, except on walls) King of Pippins (excellent on cordons), Devonshire Quarrenden, Kerry Pippin (for walls only), Irish Peach, and Worcester Pearmain (attains excellent colour). Pears are a poor crop generally, but the coarse early kinds mostly confined to the district are plentiful.

Cherries are a fair crop. Morellos on an easterly aspect are a heavy crop, while on a north wall they are only half a crop. Apricots set abundantly, but most of the fruit perished during the "blizzards" so remarkable during April. Plums are mostly confined to Victoria, which is the most productive and useful kind in this district. It does well as a dwarf standard, but attains a great size on walls, and fruits very abundantly. Peaches and Nectarines are not grown on walls, but under glass we never had them do more satisfactorily for colour and quantity of fruit especially. All small fruits are a heavy crop and large in size. Strawberries have suffered much from wet, President being the heaviest cropper.—M. Temple.

Dalmeny Park Gardens, West Lothian.—Peaches Royal George and Stirling Castle, both inside and out, good crops, but late; Princess Louise just ripening a fine crop of fruit. Nectarines rather indifferent. Shipley and Moorpark Apricots, on a south aspect, heavy crops. Apples a fair crop on some trees. Pears a better crop than we have had for some years. Dessert Plums on east aspect very indifferent; Victoria on same aspect a good crop. Morello Cherries on north aspect very thin, although in the district on south aspect I have seen some good crops. Strawberries, both early and late, promised an abundant crop, but early sorts have done little. Bush fruits of all sorts have a fair average crop. Black Currants, Gooseberries, and Raspberries heavy, but everything quite a fortnight late.—John Moyes.

Dupplin Castle, Perth.—The prospects of a good crop of fruit were very promising, but the severe frosts in May and June thinned the fruit considerably. Apples and Pears are almost a failure, only a tree here and there carrying anything like a crop, and so late I am afraid they will never ripen. During the past three weeks the fruit has been dropping off the trees, no doubt through the continued cold, too much rain, and want of sunshine. Plums are under an average. Apricots about an average, but too late to ripen well. The foliage of Apples, Plums, and Apricots was badly infested with caterpillar, but the trees are now cleansed and begin to look more healthy. Strawberries are the worst crop I remember here, but within a short distance there are some heavy crops. Raspberries are a heavy crop and very fine fruit. Gooseberries are a good crop, but are small and badly flavoured. Currants are about an average. Cherries are under the average, with the exception of Morellos, which are a good crop and fine fruit. Cob Nuts are a good crop.

The Potato crops in fields in this neighbourhood are looking well, but I am sorry to say disease is spreading rapidly in the garden here.—J. Browning.

Altyre, Forres.—I never saw fruit blossom look so promising as it did early in the season. Being about a fortnight later than usual, we considered it safe from frost. This, however, was not the case. The spring and early summer were cold, with winds mostly between north and east, and although we had generally bright sunshine during the day, we had often sharp frosts at night. July has been a very backward month. We had plenty of rain, which with sunshine and warm weather would have done good, but with little or no sun and cold north-east winds during the day with occasionally a touch of frost at night, crops made very little progress. Since the 1st of this month (August) we have had a lot of rain, and the weather has been much warmer, with a fair supply of sunshine, which has done a deal of good. We will require warm weather and bright sunshine during autumn to ripen fruits. On the 29th of May we had 12° of frost, while snow fell the greater part of the day on 3rd of June, followed by 9° of frost on 4th of June. This caused fully two-thirds of the Apricots and Pears to fall off after being well set. Apricots are now about a third of a crop and about three weeks late. Cherries and Pears similar. Peaches a splendid crop, very late, but healthy, and will require good autumn weather to ripen. Plum blossoms also destroyed by frost, and with the exception of Victoria a poor crop. Apples almost a failure, not a fourth of a crop, and very small. Strawberries, with a few exceptions, a poor crop over this district, fruit small and late, flavour spoiled by rain. Bush fruits a good crop generally, and of average size, though deficient in flavour. I consider the following the best dessert Apples for a regular supply during the season for this district: Devonshire Quarrenden, Oslin, Worcester Pearmain, Kerry Pippin, King of the Pippins, Golden Pippin, Ribston Pippin, Blenheim Pippin, Court Pendu Plat, Sturmer Pippin. The flavour and quality vary according to the season. In a good season the foregoing can generally be relied on for size and flavour.—Andrew Chrystal.

Gordon Castle, Fochabers.—The fruit crops in the gardens here are, on the whole, pretty good, with the exception of Plums on walls, which I attribute to the dry state of the ground last year. The Apple crop, with the exception of a few sorts, is very deficient, owing to a fall of snow and frost when the trees were in blossom. Fruit is also backward for the want of sun and heat. Peaches are a good crop. Apricots are not a full crop on all the trees, and are so late that it is doubtful if they will ripen perfectly. Pears generally are a good crop; also all kinds of small fruit on bushes. Strawberries are a full crop and well flavoured. The rainfall here for the past seven months is a little under the average for each month. The following is a list of the kinds of dessert Apples best suited for growing in this district: Kerry Pippin, Gravenstein, Manning-ton's Pearmain, King of the Pippins, Cockle Pippin, Blenheim Orange (requires a wall), Ribston Pippin (best on a wall), Margil, Worcester Pearmain, Bringewood Pippin, Cellini, and Sturmer Pippin.—J. Webster.

Balcarres Gardens, Fife.—The fruit crops in this district are quite a month later than last year and three weeks on the average. Apples are very poor, the trees having suffered much from the Apple maggots and late spring frosts when in blossom. I find late-flowering varieties are bearing the best crops, particularly Golden Winter Pearmain. We have fair crops of Lane's Prince Albert, Worcester Pearmain, Ribston Pippin, Cox's Orange Pippin, and Blenheim Pippin on walls; Irish Peach, Alfriston, and Tower of Glamis on standards. Pears—Jargonelle, Williams' Bon Chrétien, Passe Colmar, and Louise Bonne of Jersey on east walls good. Plums—Victorias, Kirke's, and Jefferson's about half a crop. Apricots very few. Peaches a fair crop. Cherries, both early and late, are heavy; and the same may be said of Nuts. Gooseberries are heavy and very large. Black, White, and Red Currants, also Raspberries, are plentiful. Strawberries—King of the Earlies, Black Prince, and Garibaldi, as early varieties, only half a crop, and very small; the only late variety we grow is Elton Pine, and this is first-class.

Potatoes are late and small, but as yet free from disease.—Edward Tate.

Broxmouth Gardens, Dunbar.—The fruit trees here, while in blossom, notwithstanding the thorough maturity of the wood of the previous year, have suffered from the cold east winds and wet weather very much this spring. Apricots are a good crop and seldom fail with us. Plums are under average except Victoria, and I intend to plant more of it, as year after year I find it most reliable for kitchen or even dessert use. Early Cherries are a light crop, and Morellos average. Apples never looked more promising, and as a rule do exceedingly well, but this year they are under average. Our best cooking sorts are Warner's King, Lord Suffield, Hawthornden, Stirling Castle, Hollandbury, and Keswick Codlin; and our best dessert kinds are Red Astrachan, Oslin, King of the Pippins, Blenheim Orange, Duke of Devonshire, and Sturmer Pippin. Pears are a very good crop, especially Jargonelle, Old Crassane, Louise Bonne of Jersey, Beurré Rance, Beurré Diel, and Early Beurré on walls; Van Mons Léon Leclerc, Beurré Bosc, Beurré d'Aremberg, and Napoleon on espaliers; and Beurré d'Amanlis on standards. Strawberries usually are a light crop on our soil, but the heavy rains we have had have caused them to swell out to a plentiful crop, especially Vicomtesse H. de Thury. Raspberries and Currants are abundant, but Gooseberries are scarcely half a crop owing to the cold, wet spring.—Wm. McKelvie.

Bamff Gardens, Alyth.—Apples not much grown, as after attaining a certain size the trees go off with canker. Black Currants very good. Red Currants fair. Strawberries under average. Raspberries very good. Plums, Pears, Cherries, &c., not much grown. Early Strawberries round about here and Blairgowrie, where they are extensively grown, not half a crop.—Wm. Shaw.

Dumfries House, Carnock.—The fruit crops, especially the Apple crop, are very poor in this part of the country this season. We grow a few, such as Lord Suffield, Ringer, Echlinville, New Hawthornden, Duchess of Oldenburg, and Golden Spire, for kitchen use. Pears a fair crop on walls. Strawberries excellent. Cherries very good. Gooseberries good. All bush fruits are fair.

Vegetables very backward.—N. McKinnon.

Drumlanrig Gardens.—Apples and Pears a total blank. Strawberries very plentiful, but much damaged by incessant rain. Gooseberries, Black and Red Currants, Raspberries, Cherries, and Plums good crops, but everything is fully three weeks later than usual. On July 31 the thermometer was down to 35°, and the following morning to 31°, with ice as thick as a sixpenny-piece on the glass of the frames.—D. Thomson.

The Gardens, Munches, Dalbeattie.—The fruit crop here is not so good this year. Pears are an average on some varieties. Plums an average crop, very heavy crops in cool orchard house. Cherries average. Strawberries average crop, but greatly damaged, owing to so much rain. Gooseberries, Currants, and Raspberries are a fine crop. The Apple crop is thin; Lord Suffield and Stirling Castle are the only ones that have a crop; the first-named never fails; Echlinville Seedling is pretty fair, and Ribston Pippin does very well.—John Jeffrey.

Cawdor Castle, Nairn.—Old standing Apple trees are loaded, but very late. Young trees in all situations very poor. The following are varieties we have for dessert, viz., Astrachan, Red and White, Oslin, Juneating, Jenny Sinclair, Blenheim Orange. Pears—Jargonelle, Beurré d'Amanlis, and Moorfowl Egg good crop, other sorts half a crop. Plums almost a failure, Victorias on standards good. Nearly all the Cherries have dropped. Apricots very poor. Strawberries, Raspberries, Gooseberries, Currants are all plentiful.—J. Maitland.

Wemyss Castle, Fife, N.B.—Owing to the very cold weather which has prevailed in this district since the middle of February, the temperature being frequently at or below the freezing point in May, June, and July, Apples, Pears, and Plums are much under an average crop. Unless we are favoured with extra good weather, I am afraid the meagre crop on standards will never ripen, and it will be very inferior on walls. Gooseberries, Currants, and Raspberries are a good average crop. Strawberries were an excellent crop, but much destroyed by the heavy continued rains. Altogether crops have been very disappointing.—J. Clark.

Blackadder, Chirnside.—The fruit crops here and in the neighbourhood are above the average as regards Gooseberries and Currants. Strawberries poor, and not ripening for want of sun. Cherries good, especially White Heart and May Duke. Peaches and Apricots, where protected in spring, a heavy crop, but very late, scarcely finished stoning; they have very little chance of ripening now. Apples, a few on trees on wall; 8° of frost on June 5 destroyed all the blossom on standard trees. With reference to the best Apples for dessert in their season, we find the following good: Irish Peach, Thorle Pippin, King of the Pippins, Cox's Orange Pippin, and Ribston Pippin.—F. Hacker.

IRELAND.

Belvedere House, Mullingar, Co. Westmeath.—Apricots under average. Plums under average. Cherries over average. Peaches under average. Apples under average, and many sorts quite a failure. The following sorts have an average

crop: Royal Pearmain, Worcester Pearmain, Ribston Pippin, King of the Pippins, Cox's Orange Pippin, Margil, Warner's King, Echlinville, Lord Suffield, Manks Codlin, Cellini, and Crofton. The trees are making fine clean growth, and there are no signs of the caterpillar that has done so much damage in England. Pears are quite a failure. Currants, Gooseberries, and Raspberries a splendid crop. Strawberries under, Damsons over average. Nuts good.—JAMES BAYLISS.

Brook Lodge, Half-way House, Waterford.—The Apple and Pear crops will be very short with me this year, and I do not think the samples will be up to the size of those of last year. The best baking Apples with me are Dumelow's Seedling, Alfriston, and an old common kind the name of which I do not know. The first two will keep well up to the end of April. Blenheim Orange and Ribston are splendid for dessert.—C. PERCEVAL BOLTON.

Curraghmore, Portlaw, Waterford.—Strawberries, a very heavy crop, especially Black Prince and Héricart de Thury, more fruit, in fact, than the plants could bring to a useful size. In consequence of continued wet, the flavour was not quite up to the mark. Bush fruit of every sort is a very heavy crop; the bushes are much disfigured with the weight of the crop. Raspberries, the heaviest crop I ever saw, fruit large. Gooseberries very fine and an even crop on every variety. Currants, Red, White, and Black, literally bending to the ground with the weight of fruit. Pears are very satisfactory, but the earliest varieties have the best crops. Plums are almost a failure. Apples in this locality are a good crop, and at Curraghmore the best that has been known for many years. This I attribute to the absence of frost in the flowering season. This being a low district close by a river, the Apple crop is often destroyed. The fruit is swelling to a good size, and the trees seemed to gain strength from the extra heat and well ripened wood of last summer. Cooking Apples are the heaviest crop, and have more than the trees can carry. Lord Derby, Keswick and Manks Codlins are the best for this district, but Northern and Winter Greenings seldom fail to have a sprinkling. Dessert Apples: King of the Pippins is certainly one of the most reliable; Ribston and Kerry Pippins ought to be in every collection, Devonshire Quarrenden bears here when many others fail; Hoary Morning is a good Apple, but seldom has a heavy crop. The Russets are very shy bearers here, but the trees are old and some of them covered with Moss.—E. TUCKER.

Powerscourt Gardens, Co. Wicklow.—Apples a fair crop generally. Dessert varieties scarce, but good. Kitchen varieties, such as Echlinville, Lord Suffield, Tower of Glamis, Warner's King, Alfriston, Blenheim Orange, and Golden Noble, very full. The above are sure croppers in this district. Our reliable dessert Apples are King of the Pippins, Cox's Orange Pippin, Irish Peach, Ribston Pippin, Adams' Pearmain, Dutch Mignonne, Sam Young, Margil, and Early Harvest. Many other good kinds grown here and in the neighbourhood are much below average. Pears below average and poor generally, except, perhaps, Williams' Bon Chrétien, Citron des Carmes, Beurré Diel, Napoleon, and Hacon's Incomparable. Plums average on walls, Victoria and Prince Englebert our best; on standards a thin crop. Damsons blank. Apricots below average here and in district. Peaches very scarce outside. Cherries average, but splitting badly here; Morello below average. Strawberries half a crop generally, and ruined with continued wet; no flavour. Raspberries good crop generally, large, but deficient in flavour. Gooseberries plentiful and large, but late and watery. Currants, Red, White, and Black, very full crops, and of large size. Filberts above average crop. Nuts generally very plentiful. Medlars good crop.—D. CROMBIE.

Charleville Forest Gardens, Tullamore, King's Co.—Apples below the average; some Ribstons are fairly well cropped; Cox's Orange Pippin thin; Blenheims, some fairly cropped, others thin; Irish Peach, some trees fair, others below average; Orange Pearmain good; Golden Noble good; Echlinville good; Hawthornden very fair. Of Ribstons we have a good supply from trees on walls, pyramids and old trees in orchard. Cox's Orange Pippin is shy with us, but that and Ribston are favourites for dessert; also the following: Margil, Blenheim Orange, Irish Peach, Keddleston Pippin, and Claygate Pearmain. These are our best dessert Apples. Cherries below average; a few trees of May Duke good, others failed when setting; Bigarreau class, some good, others bad; some of the latter do best on a north aspect; an abundance of bloom was shown. Pears much below average; Pitmaston Duchess good. Like Apples, Pears are a very partial crop; one tree will have a fair crop, others of the same sort none at all. Plums below average, but some trees are good, others bad; common Plum, standards poor. Damsons, although a fine lot of trees, young and healthy, no crop. Bloom was abundant, and there was every prospect of a fine harvest of fruit, but the bulk of the bloom fell off in spring. Peaches and Nectarines will not succeed here on the open walls. After two or three years they succumb to blister, mildew, &c. Morello Cherries good crop. Nuts good (Cobs and Filberts). Strawberries below average, but we had some fine fruit. Crop not quite over as I write (August 3). Sorts grown principally: Keen's Seedling (as good as any yet out), British Queen, President, Sir Joseph Paxton, Vicomtesse Héricart de Thury, The Captain, King of Earlies, James Veitch, Oxonian, &c. There was a good show of bloom, but, like fruit trees, failed in setting; hence a thin crop was the result. Bush fruit abundant crop, large and fine. No failures under this head.

POTATOES good crop and free from disease, and all other garden vegetables equally good, Peas especially, except Carrots, which suffer from the maggot.—J. ROBERTS.

Castle Upton, Templepatrick.—Your reports of our fruit crops this year will vary more than usual. Here Apples, Pears, Plums, and Cherries are a small crop. The following Apples are, however, carrying a fair crop: Cox's Orange, Strawberry, Wellington, Irish Peach, Keswick, Northern Greening, Striped Beaufin, May Bloom (local name), Keen's Seedling, Ribston, and Summer Quoining. Great quantities are dropping. The trees are oddly cropped this year; with same varieties side by side, one or two trees are nicely fruited, others have none. How is this, as conditions are exactly alike in root and branch? Pears are best represented in Green Chisel, Bon Chrétien, Autumn Bergamot, Hessle, Green Achan, Doyenné d'Eté, Seckle, Napoleon, and Beurré Sterckmans, all on walls except Hessle and Green Achan. Plums—Prince Englebert, Bryanston Gage, Sultan, Victoria, Kirke's, and Winesour are good. The first is an excellent bearer. Sweet Cherries bloomed and set well, but dropped seriously. Morellos are half cropped. Except Strawberries, all small fruits are excellent. Currants of sorts enormously cropped. Gooseberries heavy. Raspberries and Strawberries here bloomed well, but many of them were weak and blind; the small numbers of fruits welling were rotted by continual wet. I attribute a fair share of the irregular cropping to the drought of last year. We had a late and cold spring, and the continued cold is seriously against vegetable crops as well as the fruit. We had 7° and 5° of frost on August 1 and 2 respectively, hurting tender vegetable crops terribly.—S. KEVAN.

Vice-Regal Gardens, Dublin.—Fruit crops in this neighbourhood are rather disappointing this year, due no doubt to the exceptional nature of the weather. Low temperature, continuous east wind, and frequent cold rains have resulted in a very thin crop, combined with over-cropping last year and want of moisture in the autumn, which affected surface-rooting things, such as Strawberries. The Apple crop is very light here; about half a dozen sorts only have a moderate crop, some sorts a mere sprinkling; other varieties which we reckon sure croppers, such as Echlinville, Golden Spire, Emperor Alexander, Gravenstein, Blenheim Orange, have completely failed. Pear crop is also very partial; a few sorts moderate, the remainder few or none. Stone fruit showed well and seemed to set, but much of it fell to the ground, notably Apricots, which are a very poor crop. Plums are under the average. Cherries are light. Peaches out of doors very much affected with blister and mildew; crop nil; small fruit heavy crop, Strawberries excepted, which is the lightest we have had for many years.—G. SMITH.

Phœnix Park, Dublin.—Apples in the kitchen garden are a very poor crop; there has not been so few here for the past seven years. The only kinds bearing half a crop are Irish Peach, Kerry Pippin, Warner's King, and Echlinville. Cox's Orange Pippins, that were plentiful last year, are scarce this season. With reference to the dessert sorts, Early Margaret should have a place in all collections, as it comes into use so early. Irish Peach is a good useful sort, but of short duration. The old King of Pippins is excellent, being both handsome, well flavoured, and a good keeper. Blenheim Orange makes a very handsome dish. Ribston Pippin, I find, soon shrivels unless well ripened before being picked; and the same may be said of Cox's Orange, which is better as a dessert sort than the former. The one that takes the lead for flavour here is Cornish Gilliflower. Although a not very handsome variety when growing with its knobby outline and dark green colour, yet when picked and laid in the fruit-room until after Christmas it becomes a beautiful orange-yellow, and is very pleasing to look at. The flavour is certainly superior to that of Cox's Orange Pippin, or any other variety with which I am acquainted. Pears are an average crop. Apricots are not nearly so good as last year. Moorpark is a pretty sure bearer in our variable climate, but this season Hemskirk is carrying most. Plums, too, are light, Victoria bearing best. Peaches on the outside walls are an entire failure, the trees only making sufficient foliage to help them on for another year. I attribute this to last season's long drought. Gooseberries, Currants, and Raspberries were very fine, and a heavy crop. Strawberries were bad; a couple of borders here failed to fruit, although only about three years old. I noticed that old Apple trees that have not been subjected to pruning are carrying a fair crop.—ROBT. MCKENNA.

Kylemore Castle, Co. Galway.—The fine warm summer last year put fruit trees of all kinds into splendid bearing condition, and the prospect of a good fruit crop early this season was very encouraging. The spring here continued wet with a very low temperature, causing the blossom to be a fortnight later than usual, and so increased the chances of a good set of fruit. But the weather did not improve as the season advanced; the frost at night and the sharp hailstorms which passed over here in the end of May and beginning of June did serious damage to fruit trees generally, and the result is that there is hardly an average crop of Apples. The varieties which are bearing the best crops are Echlinville, Keswick Codlin, Lord Suffield, Hawthornden, Alfriston, Blenheim Pippin, Warner's King, King of the Pippins, Marshall's Seedling, Ribston Pippin, Worcester Pearmain. There is a very fine crop on Oslin, Irish Peach, Kerry Pippin, Fearn's Pippin, and Red Hawthornden. On Apple trees in pots under glass there is an excellent crop of Ribston Pippin, Cox's Orange Pippin, Marshall's Seedling, Red Hawthornden, Oslin, Irish Peach, and Kerry Pippin. Pears are under the average. The best crops are on the following varieties: Williams' Bon Chrétien, Beurré Diel, Beacon, Beurré Hardy, Passe Colmar, Marie Louise, and a very heavy crop on Louise Bonne of Jersey. On pot trees under glass, the following varieties have a heavy crop of very fine fruit: Beacon, Williams' Bon Chrétien, General Todtleben, Madame Treyve, Clapp's Favourite, Souvenir de Congrès, Beurré Hardy, Marie Louise, Pitmaston Duchess, Marie Louise d'Uccle, Beurré Giffard, Conseiller de la Cour, and Fondante d'Automne. Apricots, Peaches, Nectarines, and Cherries are a very thin crop, and Plums, although more plentiful, are not abundant. Strawberries have been a good crop, and late varieties, such as Frogmore Pine, Loxford Hall Seedling, and Elton Pine, have kept up a good supply. There is a very heavy crop of Nuts, and bush fruits are, on the whole, a good average crop. The cold, wet season seems to have favoured Raspberries and Gooseberries, as

they are an abundant crop. Under glass the fruit crops are good all round this season, Grapes, Peaches, Nectarines, Figs, and Melons being exceptionally good.

Early summer vegetables were very late this year. Dry, warm weather is much needed. Early Ashleaf Potatoes are very fine in the gardens, and field crops are as yet free from disease, promising to give a very good return.—JOHN MACKINNON.

Ramsfort Park, Gorey, Wexford.—Apples here and throughout the district are not more than half a crop, and although the trees have not suffered from blight or insect pests, the fruits will be very small and deformed, owing to the extremely cold, wet, and sunless summer. Irish Peach and Devonshire Quarrenden are much grown in this district; the former is of fine quality, both varieties never failing to carry a crop. Red Astrachan is very handsome, but for flavour alone the following kinds stand first: Kerry Pippin, Golden Pippin, Cox's Orange Pippin, Ribston, and King of the Pippins. Plums are a thin crop, although they seemed to set well, the weather being very favourable when they were in flower, but half of them dropped. All our trees are on walls, and the drought of last season, I believe, accounts for the failure. So many things required water, we had not time to pay proper attention to wall fruits. Pears are a fair crop, but fruit will be small, and many of the late varieties I am afraid will not ripen. Cherries have been a good crop. Gooseberries and Currants have been extremely heavy and the fruit very fine. Strawberries with us were a good crop, but the flavour was very inferior; generally throughout the district the crop has been light and in every case much injured by continuous rain.—T. SCOTT.

Ballywalter Park, Co. Down.—This district is by no means favourable for fruit growing, as being situated on the north-east coast we suffer in spring from cold winds, which not only damage the blossom, but wither up the foliage, cripple the young growth, and encourage the attacks of insects. When fruit sets it is late in swelling, and, except in fine seasons, neither fruit nor wood ripen well. No Pears do well as standards, and only a few as pyramids. Of Plums, only Victoria succeeds as a standard, and in the hot, dry season of 1887 Coe's Golden Drop barely ripened on east and west walls. This season we had a good bloom and fair set of everything, except Pears. Cold winds, however, continued almost without interruption till late in June, and Apricots, Cherries, and Plums nearly all fell off. Since then the weather has been wet and cold, and I hear that in many places Apples are falling largely. Apples are a good crop, but late. For dessert, the best for this district are Sugarloaf Pippin, first-class and free, Irish Peach, Red Astrachan, Kerry Pippin, Gravenstein, King of the Pippins, Blenheim Orange, Cox's Orange Pippin, Claygate Pearmain, and Ribston Pippin. Apricots, Cherries, Pears, and Plums are very scarce. Strawberries are scarce and inferior. Currants, Gooseberries, and Raspberries are abundant, but late, and deficient in flavour.—W. CRANE.

Dromoland, Clare.—Apples on some trees are very abundant, on others none. They are small, and will not be up to the standard of late years. Eve and Early Harvest are very small. Pears, like Apples, are scarce, and most of the trees have none. What we have are small. Plums in this locality are almost a failure; one tree only of Red Mogul has a fair crop; trees of Orleans, which generally have heavy crops, have none. They were crowded with bloom in the spring, and when the bloom fell almost all the young buds and leaves fell with it. Peaches are a poor crop, especially late kinds; the only ones that have succeeded fairly well are Royal George and Hale's Early. They have a fair crop, but small. Late kinds have not yet recovered, and I am afraid never will. Of Gooseberries, Currants, Raspberries, and Strawberries there has been an abundant crop, and very fine fruit. Figs outside look well, but late. Filberts are an abundant crop here, and the nuts look fine. Spring frosts are mostly blamed for destroying our spring bloom. I doubt it, for I have called attention of late years to sharp frosts when trees were in bloom, yet they did not seem afterwards to have suffered. Cherries are about half a crop, except Morellos, which are abundant.

PEAS and all other vegetables have done exceedingly well. Potatoes seem to have got blighted about here earlier than usual, and their quality is not very good.—W. WILSON.

Downshire Gardens, Hillsborough Castle.—The fruit crops in this district are below the average. There is a fair crop of Pears, but many of them, I am afraid, will not come to maturity, they are so late. The following Apples do best here: Cox's Orange Pippin, Golden Pippin, Ribston Pippin, Echlinville, Peasgood's Nonsuch, Keswick Codlin, and Margil. Cox's Orange is most appreciated as a dessert Apple. Plums and Apricots are below the average. Cherries are good. Raspberries and Currants are abundant. Strawberries promised a good crop, but did not ripen well for want of sunheat, and between the snails and constant rain we gathered very few.—T. BRADSHAW.

Baronscourt, Newtown Stewart.—Apples are about half a crop. Pears are poor on the whole, although trees of Bon Chrétien are carrying good crops. Small fruits of all kinds except Strawberries have done very well, the crop being heavy and quality fine. The Strawberries had the finest show when in bloom I ever saw, but they went blind at setting time, so that together with that and the unfavourable summer for ripening and harvesting the crop, the return has been small. Victoria Plum, the one chiefly grown here, is carrying very heavy crops. We do not grow many varieties of Apples here, as the soil is very thin, resting on gravel; consequently, many of the kinds are subject to canker. Ribston Pippin does well with us, also Duchess of Oldenburg, Worcester Pearmain, and Cox's Orange Pippin; for kitchen use we depend chiefly on Echlinville, Keswick Codlin, and a good late kind called Northern Dumpling.

POTATOES have every appearance of being badly blighted this year, many of the early-planted fields being nearly destitute of haulm already. Other crops are all looking well since the change for the better in the weather about three weeks ago.—A. DICKSON.

Straffan House, Co. Kildare.—Our fruit crops are very much under average, wall fruits being almost nil. As bloom was plentiful, the failure might be attributed to the tremendous hail-storm on May 2, which lasted for half an hour and nearly stripped the trees of both leaves and flowers. I think the real cause lies with the hot dry summer of 1887, for while the trees made but little growth, they set an immense quantity of bloom-buds, which were poor and thin, and the rain came too late in the season to swell them up. Apricots none, and the trees have lost nearly half of their branches from the cold, ungenial spring. Apples are fairly good, some kinds carrying a heavy crop, and this in many cases on trees that bore a heavy crop last year. For dessert we have nothing worth eating before Irish Peach comes into use, and this is followed by Kerry Pippin and Golden Reinette. For November and December, Blenheim Pippin and Cox's Orange Pippin are the best. Besspool takes us through the first three months of the year, followed by Golden Pearmain and Cockle Pippin. For flavour we have nothing to touch Besspool and Cox's Orange Pippin. Of Pears we have next to none, except Williams' Bon Chrétien on bush trees. Plums are scarce, but there are fair crops on Kirke's, Victoria, Washington, and Prince Englebert. Strawberries gave promise of very heavy crops, but were spoiled by mildew. President and Vicomtesse Héricart de Thury were the best; we had no blind plants. Bush fruits of all kinds bore very heavy crops, but lacked flavour, owing to the wet, cold, and sunless weather.—T. BEDFORD.

Fota Island, Cork.—The fruit crops generally are under the average. Apple trees flowered profusely in most places, but in consequence of the inclement weather when in flower and the heavy crops and drought of last year, they failed to set much fruit, although in places there are average crops. The following are our best kinds: dessert—Irish Peach, Kerry Pippin, W. E. Gladstone, Autumn Pearmain, Herefordshire Pearmain, King of the Pippins, Cox's Orange Pippin (the best flavoured we have), Wyken Pippin, and Sturmer Pippin (our latest); kitchen—Pott's Seedling, a heavy cropper, the finest for cooking, and the tree a splendid grower; Lord Suffield, a free bearer, but the tree not so healthy as Pott's Seedling; Cox's Pomona, a free bearer of fine fruit; Old Hawthornden should be in every garden for its free-bearing quality; Blenheim Orange, good both in kitchen and for dessert, but not such a free bearer as many others; Dumelow's Seedling, Golden Noble, Lady Henniker. The above named are the best we have, but in some districts others are equally good. Pears, an average crop, but the extreme wet and cold of June and July caused much of the fruit to fall off. The trees are looking very healthy. Beurré Hardy, which is one of our best Pears, has not lost its fruit, like many other kinds. Plums, an average crop, but, like the Pears, much of the fruit has failed. Peaches, Nectarines, and Apricots under glass copings are average crops; the trees have not made so much wood as usual. Strawberries much under an average crop, and plants in many places half dead from the great drought of last year. Gooseberries in some gardens a total failure, as here, where we have not known a want of fruit for over twenty years. In other gardens not far off there are good crops. Cherries an average crop. Currants and Raspberries good crops. Nuts a heavier crop than has been for many years.—W. OSBORNE.

STANDARD APPLES FOR BRITAIN.

1. ALFRISTON.
2. BESSPOOL (NEW).
3. BLENHEIM ORANGE.
4. BRAMLEY'S.
5. CLAYGATE PEARMAIN.
6. COX'S ORANGE PIPPIN.
7. DUTCH MIGNONNE.
8. FLANDERS PIPPIN.
9. LANE'S PRINCE ALBERT.
10. MERE DE MENAGE.
11. NORTHERN GREENING.
12. REINETTE GRISE.
13. RIBSTON PIPPIN.
14. STONE'S.
15. STURMER PIPPIN.
16. WELLINGTON.
17. WINTER QUEENING.

Early Apples.—Carlisle Codlin, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Devonshire Quarrenden, Irish Peach, Oslin, Early Margaret.

Fine-flowered Apples.—Emperor Alexander, Hawthornden, Lord Suffield, Hambledon Deux Ans, Blenheim Orange, Court Pendu Plat, Orange Goff, Kirke's Incomparable, Sharp's.

Little Apples.—Golden Harvey, Pearson's Plate, Beachamwell, Keddleston Pippin, Ashmead's Kernel, Pine Golden Pippin, Pitmaston Pine-apple, Lucombe's Pine-apple, Sam Young, Lodgemore Nonpareil.

Cider Apples.—Fox-whelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Jocby Crab, Styre Wilding, Eggleton Styre, Royal Wilding, Black Wilding, Pym Square, Mumm's Red, Bran Rose, Red Styre, Tremlett's Bitter, Ellis's Bitter, Slack-my-Girdle, Pound Apple or Sweet Buckland, Red Cluster, Sweet Albert, Holmcote Sweet, Cat's-head, Sweet Portugal, Red Bosberry, White Bosberry, Tom Putt, Kingston Black, Greasy.

Brightly-coloured Apples.—Incomparable, Hanwell Souring, Cox's Pomona, Brabant Bellefleur, Bauman's Red Reinette, Rymer, Red Hollandbury, Alexander, Hoary Morning, Tom Putt, Tyler's Kernel, Striped Beaufin, Fearn's Pippin, Cumberland Fillbasket, Duchess of Gloucester, Worcester Pearmain, Cellini, Mère de Ménage, Adams' Pearmain, Scarlet Nonpareil, Red Astrachan, Norfolk Beaufin.

Our readers will remember that last year we raised the question of the needless number of Apples, and the necessity of confining ourselves to the best kinds if we are to have the best results. We need do no more than call our

readers' attention to the many articles that appeared last year. Our list stands as above. As the season of early Apples is now at hand, our readers may be interested in the matter once more. It will always be open to improvement, but not to great increase of number.

Orchids.

SEASONABLE ORCHID NOTES.

Cool house.—Not much has been done in the way of repotting plants in any of the Orchid structures during July and August, unless seeing to any plants that really needed repotting. Although this has not been a favourable season for the development of insect pests, still the plants have not been entirely free from them. In the cool house we are rarely troubled with thrips or red spider, but the plants are seldom altogether free from green-fly, which might easily be destroyed by fumigating, if both Masdevallias and Odontoglossums were not so sensitive to tobacco smoke. As a rule the tobacco smoke does more permanent injury to the plants than to the green-fly. We now find that the best way to destroy this insect is to dip the plants quite overhead in a solution of soft soapy water, 2 ozs. to the gallon. The water is also most effective when used rather warm. If thrips or red spider are on the plants, some tobacco water must be used with the soft soap. In dipping the plants avoid wetting the live Sphagnum, as the soapy mixture kills it. When dipped lay the plants on their sides to allow the water to drain off and to prevent its running down amongst the roots. About an hour after dipping, sponge the leaves with clear rain water.

The question of repotting any plants that may require it now arises. I have recommended the early spring months in preference to September or October, and I am supported in this by many good growers; others who have been equally successful say the work should be done in the autumn, and it therefore behoves us not to be over-confident in our own system of management. A plant may remain in the same pot for two years; therefore it is well to do the work carefully, using the best fibrous peat and clean Sphagnum, keeping the material open by a liberal admixture of clean potsherds and charcoal. The pots ought to be half full of drainage, and in no case ought the plants to be overpotted. Any decayed and sour matter should be carefully removed. The well-known Odontoglossum crispum and the elegant O. Pescatorei are the most useful of cool house Orchids, and they can also be obtained at a very cheap rate. They are also the most easily cultivated. The handsome Oncidium macranthum and O. Marshallianum do remarkably well placed near the roof-glass of this house, and with them may be named the very distinct Odontoglossum Edwardi, three plants that are quite as often seen in poor condition as the contrary. I find they like as much water as most species of Odontoglossum, and when they make roots outside the potting material these should be dewed over with rain water from a fine syringe daily. The new Odontoglossum Harryanum is now doing well in the cool house, but in two or three weeks these with other species requiring warmer treatment will be removed to the Cattleya house. The Chamæroid group of Masdevallias will require looking to, as they may be infested with red spider, which frequently attacks the under sides of the leaves. Up till now the ventilators have been open back and front, a little at night and quite freely by day.

Cattleya house.—In the matter of ventilation this house may be treated very much the same as the cool house. The temperature is kept higher by artificial heat. It is a grave error to keep the ventilators close and to drop the fires even in August. Years ago Orchid cultivators were afraid to allow the wind to blow upon their plants, and the result was attenuated growths with poor flowers for a time, and later the plants were not strong enough even to throw a flowering sheath, and they soon dwindled and died out altogether. We now give more sun, ample ventilation, and a warm temperature during the growing period. Amongst Cattleyas, the free-growing and useful C. Gaskelliana has given a plentiful display up till now, and C. Dowiana, moderately common in collections, is most gorgeous at this season, to be followed soon by C. eldorado in variety. Any species, such as C. Trianæ, completing or that have completed their growth should have more light and less water, and the original C. labiata, which is now a very common species, ought to be kept as dry as possible, but enough water should be given to prevent the bulbs from shrivelling. Large plants may not require any water for two or three weeks, smaller ones once in a week. The question is sometimes asked, How often should Cattleyas be watered? and no clue is given as to the size of the plants, the state of the roots, &c., but even with all the information possible the most experienced cultivator cannot safely answer such a question; in fact, he would not try, so much depends upon the stage of the plant's growth. A Cattleya just forming its pseudo-bulbs should never be allowed to become very dry. In that stage of growth an error may soon occur from over-dryness; whereas a Cattleya after it has made its growth would start again if kept too wet, and thus both growths might be unsatisfactory; in fact, the only way to become proficient in watering Orchids is by practical experience, and those who have any real interest in their plants soon learn. We have managed to get flowering sheaths on the white forms of Lælia anceps by placing the plants near the roof-glass where they obtained plenty of light when the growths were being made.

East India house.—The warmest house is that where Dendrobiums have not yet completed their growth. It is shut up early in the afternoon, and with sun heat the temperature may rise to 100°, with plenty of moisture; it does the plants no harm to syringe them overhead early in the afternoons of sunshiny days. On the other hand, too much syringing may be injurious; the water runs down the stems, settles at their base, and sometimes causes the young growths to rot. A plant that succeeds well with us in this temperature is Oncidium ampliatum majus; it makes very strong growths now. When the growths of this, and indeed of all the occupants of this warm house, are fully developed, the plants must be removed to another house, where it is cooler, drier, and more airy. If this is not done most of the Dendrobiums will start into growth again, when there will be no chance whatever for the second one to ripen. D. Wardianum, the most esteemed species in the genus, has this habit of making a second growth much more than any of the others. As soon as growth is completed it starts immediately, unless the roots are kept on the dry side, and the plants also placed in a cool house.

We are getting more bloom from half a dozen plants of Oncidium Jonesianum than from any others at the present time. There are always Cypripediums in flower at this time, and some of the Angræcums, such as A. Ellisi and A. articulatum, invariably flower with us in September, lasting through the month. Here, as in the other departments, the plants must have as much light as possible; the shading ought not to be used except during very bright sunshine, and even then it ought to be removed early in the afternoon.

J. Douglas.

Saccolabium cœleste is a gem of a very beautiful genus of East Indian Orchids, and one that stands out distinct from its congeners in a remarkable way, for no other possesses flowers of a like, or even similar colour. In habit of growth and foliage it reminds one of the commoner dwarf species, S. curvifolium, for instance. The dense flower-spike is cylindrical, from 3 inches to 4 inches long and borne erect. The flowers are about half an inch across; the sepals and petals are waxy white, with the incurved tips purple-blue; while the labellum is of a rich sky-blue. It is, therefore, an extremely pretty plant, and lasts in perfection for several weeks. There is now in the Kew collection a fine specimen of it carrying four spikes, and it is the admiration of the visitors. It is a very rare species, and though it is without doubt a native of India, its exact native locality is known to a few only.

The broad-leaved Helleborine (Epipactis latifolia) is now grandly in flower in many of our Kentish fields and woods. What surprises one most is the diversity of colouring in the flowers, some being almost pure white, others a greenish yellow, while others, again, have a pretty rosy tinge, but all the flowers on the same plant are similar in colouring. What a pity the flowers droop (this is the chief distinctive character between Epipactis and Cephalanthera), for did they stand erect and show off the interior, the plants would be very showy, the racemes being long and thickly arranged. It is of the easiest culture and increases rapidly.—A. D. Webster.

The Frog Orchid (Habenaria viridis).—For a couple of beautiful specimens of this somewhat rare and locally distributed Orchid, I have to thank Miss Holland, who collected them at Steyning, in Sussex. It is not by any means a pretty Orchid, the yellowish green flowers being only relieved by a purplish dash on the labellum. Of low growth, rarely more than 4 inches, and almost of the same hue as the Grass amongst which it is found, this little Orchid is, I fear, often passed by unnoticed.—A. D. Webster.

Cypripedium californicum.—This species of Lady's Slipper, from the Pacific coast, is notable for its large leafy bracts and for the number of its flowers. The stem is sometimes 2 feet high, with numerous leaves, which continue to the top, with little reduction in size, the upper bearing in their axils a single, nearly sessile flower. The sepals and petals are greenish yellow, short, and nearly equal in length, the two lower sepals united into one, and about half an inch long. The saccate lip is but little longer, and is white or tinged and spotted with pink. The species is common in the mountains of Northern California, growing in the open woods in damp soil or swamps.—*Garden and Forest.*

Notes of the Week.

The Painted Lady Carnation.—This is very sweet and charming as a cut flower. It is in fragrance far better than most of the border Carnations. Two forms of it sent by Mr. Burbidge are very well grown.

Gardeners' Orphan Fund.—We learn that at the flower show held at Heckfield Place on August 28, Mr. Wildsmith, the local secretary for the district, collected in aid of this society the handsome sum of £5 from three boxes.

The Apple crop in Nova Scotia.—The Canadian correspondent of the *Liverpool Journal of Commerce* observes that Apple growers in Nova Scotia say that the crop now maturing will be the largest and best for many years. August Pippins are early in the market.

Flame-flowered Nasturtium.—Messrs. Wood, of Maresfield, send us a photograph of the Flame-flowered Nasturtium, as grown by them in their interesting nursery at Maresfield. It almost covers a hedge in wreaths of beautiful foliage and flower. They also send a good photograph of Yucca gloriosa in flower.

Poppies and Globe Flowers.—I send you a bunch of various forms of the well-known Oriental Poppy. Although I have grown them for many years, I have never noticed them to remain in bloom for such a long period—from the beginning of June to September. It is due to the wet growing season. I have several beds of them in bloom now, and they are more attractive than those of any other herbaceous plant in my collection. Trollius is now in bloom for the second time. I enclose some blooms for your inspection.—Thomas S. Ware.

Allium flavum.—Under this name, which apparently is correct, I have a decidedly pretty and meritorious garden plant. The clump is composed of several slender stems, growing about a foot high, and now without leaves, each of these stems bearing a diffuse umbel of bright yellow flowers, which are borne on slender pedicels of the same colour. The flowers are not large, but the colour is good and deeper than that of A. Moly. It is a native of the south of Europe, the Caucasus, and Persia.—R. I. L.

Cattleya Harrisoni.—We have received from Mr. E. S. Neall, Weighton Road, Anerley, a spike of this lovely Cattleya bearing eight well developed flowers. This Brazilian Orchid reminds one of C.

Loddigesi, and all orchidists should grow it, as it blooms freely from July until October when the plant is in good health. A spike of flowers, such as that sent, is extremely beautiful, as the colour is of a soft shade of rose-mauve, the narrow, tubular lip alone relieved with a yellow tinge. The blooms remain fresh for several weeks.

Big bad Peaches.—Lately we have again been reminded of the shocking bad Peaches introduced into English gardens of recent years. It is most important that those who go to the expense of having this fine fruit should at least have the satisfaction of growing well flavoured kinds, unless they grow for market, and only go in for big, high-coloured fruit without flavour. No one should ever plant a Peach that has not a good flavour, like Noblesse, Royal George, or Grosse Mignonne. Our Peach-growing readers will do us service in pointing out kinds they have found to be bad.

Convolvulus Scammoni.—This forms a pretty feature rambling over some sticks on the rockery at Tottenham. It makes shoots 15 feet long, which are well furnished with distinct leaves and pretty flowers. The sharply-lobed leaves are almost triangular, and the flowers are white, with stains of red, and a little larger than those of the common Bind-weed. It is, indeed, a beautiful twining plant and somewhat rare. This species produces no seed, and propagation by division is a very slow method. It is a perennial kind with thick fleshy roots.

Sparaxis pulcherrima.—In warm situations some of the Sparaxis are quite hardy, but at Tottenham they will not flower in the open air. The above-named kind we recently saw flowering under glass, and it was so beautiful that we could not help thinking how useful these Sparaxis would be for conservatory decoration. The long Grass-like foliage alone is graceful, but the flower-spike, which is from 4 feet to 5 feet long, arches over the Grass in a beautiful manner, and the bell-shaped, blood-red flowers hang from the under side of the spike.

Leucojum autumnale.—This is a delicate little bulbous plant, sometimes called Acis autumnalis, as the genus Acis is hardly distinguishable from Leucojum. The kind under notice produces a flower-spike about 6 inches high, terminating in two or three little bell-shaped flowers which are white, with a soft tinge of pink at the base. The flower-spike precedes the leaves. It is now in flower under glass at Tottenham, but it is hardy on warm soils, growing well and flowering freely, and is best left undisturbed for several years.

Œnothera speciosa.—This is a very beautiful variety, producing in abundance its spikes of large flowers, which are white, with the exception of a deep yellow band on the inner base of the petals. It keeps up a succession of bloom for several weeks, each flower—unlike many of those of this genus—lasting in good condition several days. We recently noted a large patch at Tottenham. Mr. Ware thinks that gardeners would find it very useful in beds. It is largely used for that purpose in and about Paris, and it certainly deserves more extended cultivation.

Gardeners' Benevolent Institution.—A fête was recently held at Oakley Park, Scole, Norfolk, on behalf of the above. Unfortunately, from morning till night rain fell and sadly marred the proceedings, also seriously affecting the attendance. Had fine weather prevailed it was hoped to have realised £60, but in spite of the wet the profits amounted to £18 17s. 6d. Mr. McMillan desires us to give publicity to the matter in order that it may stimulate other gardeners who are in the position to do so to make similar efforts in support of this and other equally deserving institutions.

Hedychium coronarium.—This Hedychium is now flowering in the Water Lily house at Kew, and it is so distinct and beautiful as to be well worthy of note. It is a native of the East Indies, and probably requires a little more heat on that account. The stems grow to a height of 5 feet, terminating in a spike of flowers which, if not so large as those of H. Gardnerianum, are quite as beautiful. The individual blooms are larger than those of the yellow one. They consist of a large and broad two-lobed upper petal rather more than 1 inch in diameter, with lower petals much narrower. In colour the flowers are the purest white, with the exception of a greenish yellow stain in the centre of the large upper petal. They are very waxy in appearance and sweetly scented, the perfume of a few flowers pervading the whole house. This Hedychium is worthy of a place in any good collection of stove plants. It does remarkably well at Kew, standing on an inverted pot just above the water in the tank.

The yellow Bird's-nest (Monotropa Hypopithys).—I read with interest Mr. Webster's remarks on Monotropa Hypopithys. This curious parasitic plant is abundant at Selborne under the Beech trees. My friend, the late Professor Bell, considered this one of the botanical treasures of his neighbourhood, and he was fond of relating that he had the gratification of pointing it out to that "princeps botanicorum," Robert Brown, who had not before seen it growing. Lathræa squamaria also grows near Selborne as well as here.—Wm. Wickham, *Binsted-Wych, Alton, Hants.*

Flowers from Ireland.—To-day we send you a bunch of the Painted Lady Carnations, which we prize here for their vivid colour and exquisite Clove-like perfume. Would they not make a good plate for The Garden? The blue Catananche also does well here as a perennial; so also the blue Sea Lavender (Statice media), a most useful plant, as its lilac-blue sprays remain fresh a long time in water. The Japanese Raspberry (Rubus phœnicolasius) is very effective now on open-air walls, its rufous panicles being enlivened by the glowing red Raspberry-like fruits. Yucca flaccida is flowering very well here, as indeed are all the larger ones. Lemoine's hybrid Gladioli and Galtonia (Hyacinthus) candicans have also done well. So far September has been a month of bright, warm sunny days, with now and then a shower, and flowers are recovering from the wet, dull days of July and August. It has not been at all an ideal season here so far, and it is astonishing how dry the ground is after all the rain. The heat and drought of last year had almost baked the earth, and its natural moisture is scarcely yet restored.—F. W. B.

*** The Catananche is charming; we have never seen it so pretty.—Ed.

Eremurus Olgæ.—The flowers I sent you last last week, and which you mention in your number of Saturday, September 1, are not those of Eremurus robustus, but of Eremurus Olgæ. E. robustus blooms in June.—C. G. Van Tubergen, Junr.

—— The spike of Eremurus mentioned in your last issue as having been received from M. Van Tubergen, of Haarlem, cannot possibly be that of E. robustus, as there stated, as this variety blooms in June and has now ripened its seed and gone to rest completely till next year. What you have received must be E. Olgæ, which is always an autumn blooming species, coming into flower either in August or September and remaining in beauty sometimes till the middle of October. It is the only late blooming species of this handsome family as yet introduced, and is well figured by Dr. Regel in one of the volumes of his "Gartenflora," I think for 1884.—W. E. Gumbleton.

Campanula Zoysi.—A charming tufted little species, and although by no means difficult to grow we have rarely met with it, even in select collections of alpines; its dwarf habit and peculiar blossoms, so different from those of any other species of Bell-flower, should be sufficient to recommend it to those growers of alpines who do not already possess it. C. cenisia and C. Waldsteiniana are its nearest allies; it differs from both, however, in the flowers being contracted and almost closed at the mouth, large in proportion to its other parts, and azure-blue in colour. It grows well on exposed sites on the rockery, and may when fully established be divided to almost any extent. It is a native of Carniola, and is now in flower at Kew.—K.

Procumbent Sunflower (Sanvitalia procumbens).—A miniature trailing annual Sunflower of great beauty. It is a native of Mexico, and can be easily raised in the open air, along with the other annuals in spring. We have seen it this year for the first time used as a carpet bedding plant, and we have no doubt from its suitability for this purpose that it will soon be in demand. It is very compact, producing plenty of bright green leaves and an abundance of small Sunflowers with black discs and golden yellow rays. The flowers continue all through the summer and autumn months, and do not seem to suffer in the least from the wet. It ripens seed freely.—K.

National Chrysanthemum Society.—An important meeting of the committee of this Society took place at the Caledonian Hotel on the 3rd inst., Mr. E. Sanderson, president, in the chair. The following Chrysanthemum societies were admitted to affiliation: Barnsley, Hampstead, Isle of Sheppey Stroud, and Truro. A report was presented stating that the preliminaries of the great provincial show at Sheffield, in November next, had been satisfactorily arranged, and that there was every probability it would be in the highest degree satisfactory. The schedule of prizes to be offered at this show was laid upon the table. Two new Fellows were elected, making 39 in all, and 48 new members were also elected, bringing the total up to 510. The catalogue committee are bringing their labours to a close, and it is hoped that it will be ready by the second week in September. The cost of the publication will be £30, but fully one half of this will be covered by advertisements in the catalogue, and nearly 100 copies are already ordered. The proceedings closed with a vote of thanks to the chairman.

Death of Mrs. Roberts.—We are very sorry to hear of the death, after a long illness, of the wife of Mr. John Roberts, The Gardens, Gunnersbury Park, Acton.

Carnation competition.—We hope to announce the result of the Carnation competition in next week's issue.

Will any reader kindly give the names of any Roses and plants likely to do well on north and east walls?—F. E. S.

Preserving Fern fronds.—Will any reader of The Garden kindly tell me the best way to preserve Fern fronds, dried?—Y. X. M.

Wanted, a name.—There is a shrub or tree growing in many gardens the leaves of which, when rubbed between the hands, give out an odour of Cucumbers. Can any reader of The Garden oblige me by giving the Latin and English name of this tree or shrub, and where I could obtain the leaves?—Z. Y. N.

Wanted, suitable perennials.—What would be suitable perennials for a bed 12 feet by 12 feet, trees on two sides (north and east), and on which the sun shines from 12 noon to setting, good light land? The east side must be the back of the bed, and I should like the plants to slope gradually down to the other three sides. Will Hollyhocks do for the back close to the trees (Plums, &c.)?—Eureka.

Rainfall at Llandilo, Carmarthenshire, from Wednesday, August 23rd, 6 a.m., to Thursday, August 30th, at 6 a.m.: August 23rd, ·30; 24th, ·29; 25th, ·11; 26th, ·7; 27th, ·37; 28th, 1·75 (rained in torrents for the twenty-four hours); 29th, ·36; 30th, ·12. Total, 3·37 inches.—Thos. Cowburn, *The Gardens, Dynevor Castle.*

Names of plants.—*Wm. Newton.*—Tropæolum speciosum.——*K.*—1, send better specimen; 2, Reseda lutea (the common Mignonette).——*G. W.*—1, Davallia canariensis; 2, D. Vogeli,; 3, D. polyantha; 4, Asplenium nitidum; 5, Phegopteris divergens; 6, Adiantum pubescens.——*L. H. G.*—1, Asplenium heterocarpum; 2, Lygodium dichotomum; 3, Athyrium Filix-Fœmina Victoriæ; 4, Polystichum angulare lineare; 5, Asplenium japonicum.——*F. B.*—1, Cattleya Gaskelliana; 2, Physosiphon Loddigesi; 3, Angræcum falcatum; 4, Broughtonia sanguinea; 5, Grobya Amherstiæ.——*Frank.*—1, Adiantum fulvum; 2, Asplenium brachypteron; 3, Lophidepis piloselloides; 4, Salvinia natans; the last not a Fern.——*Slipper.*—1, Cypripedium Ashburtoniæ; 2, a poor form of C. Stonei; 3, C. pardinum; 4, an excellent C. Harrisianum superbum; 5, C. barbatum nigrum; 6, C. javanicum; 7, C. Dayanum.——*Salisbury.*—1, Saccolabium gemmatum; 2, Pholidota imbricata; 3, Masdevallia Wageneriana; 4, Lycaste candida.——*J. Jenkins.*—The summer-flowering form of Lycaste Skinneri, which has been in cultivation, to our knowledge, thirty years, and therefore cannot be considered new.——*Seedling.*—Your Cypripedium should be put on the fire; there are already a goodly number that deserve that fate.——*Erin.*—1, a fine form of Asplenium Trichomanes which is worth preserving; 2, A. Ruta-muraria; 3, Ceterach officinarum; 4, Polypodium vulgare.——*J. M.*—Odontoglossum Wallisi.——*M. B.*—1, Houlletia odoratissima; 2, Gongora truncata; 3, Epidendrum nemorale; 4 Lycaste tetragona.——*J. T. W.*—1, Cattleya superba; 2, C. tricolor; 3, Brassavola Perrini; 4, Warea discolor; 5, Maxillaria squalens; 6, Thunia Marshalli.——*E. D. F.*—1, Renanthera matutina; 2, Promenæa stapelioides; 3, Polystachya cultrata; 4 Pleurothallis Raymondi; 5, Ornithidium Sophronitis.——*E. C.*—Staphylea pinnata.——*A. P. H. (Suffolk).*—Phytolacca decandra.

WOODS & FORESTS.

DISEASES OF FOREST TREES.

On inspecting some plantations on an estate in Renfrewshire last week I found many of the Larch trees affected by ulceration and blister. Some of the trees exhibited flat, swollen malformations on the trunks, the marks of former ulcers that had gradually dried up, or nearly so; while further up the stem upon the same tree I found ulcers of recent formation, the orifice being quite open, and the resin gradually distilling from the wound and running down the side of the tree. From what has appeared in the columns of The Garden recently regarding this disease, I was naturally led to pay particular attention to this case in order to see whether I could find anything to verify H. Marshall Ward's statement regarding the presence of Hartig's Peziza Willkomi, but failed to find any trace of that fungus on either of the wounds. I should not have been surprised had I discovered it in active growth around the margins of the old wounds, as I have occasionally found it on such, but never upon fresh newly-formed ulcers where the resin was oozing from the wound, on which, being so effectually sealed up with resin, the spores cannot find a lodgment, far less penetrate the trunk. On cutting up a piece of the bark it exhibits a series of small globular holes filled with liquid resin. Sometimes these holes can be seen on the surface of the bark, when they are then known by the familiar name of blisters. It appears, however, that the juices of the Larch are of a concrete compound nature, for, according to Professor Pallis, the Larch in Russia at any rate possesses this singular quality. On wounding the bark at one place in the tree he says: "The resin called Venice turpentine is obtained, while a gum similar to that of arabic or senegal spontaneously exudes from other parts of the tree." Now when this gum exudes from the tree under certain climatic conditions in Russia it would be interesting to know whether this had anything to do with the ulceration of trees growing under different climatic conditions in this country. Perhaps not, but at all events it is a point in connection with the Larch which I have never seen discussed nor even alluded to among the many theories and suggestions offered upon the subject. One thing is certain, that in some parts of the country the trees are all but exempt from disease, while in other parts where the climate is a little different, every other tree is more or less affected, and in Ireland, where Hartig's Peziza is abundant, there is no ulceration at all. But the growth and propagation of fungi are but imperfectly understood. Their spores are so small and light that they are present everywhere, and as they are capable of retaining their vitality for an unlimited length of time, I have no doubt but that they are present in nursery ground, and thereby form a source of danger to young plants. I have seen seedlings of Larch as well as of other plants that appeared to damp off by alternate bursts of wet and sunshine, and as this state of the atmosphere is favourable to the growth of fungi, if not the direct cause, I have no doubt but that the fungi were present on the diseased plants. In order to counteract this state of things as far as possible, the seeds should be thoroughly ripened and the produce of healthy trees, and sown upon ground of a light sandy texture. Clay and mossy ground are unsuitable, and, therefore, should be avoided, as they naturally attract and retain too much moisture for the healthy growth of the tender plants, which are thereby apt to damp off or contract disease during a spell of wet weather. It is also an advantage to select the ground for the seed bed in an open, airy place away from trees and hedges, or anything that would impede the free circulation of air. The seeds should be sown rather thinly, as I find that seedlings grown thinly always make the strongest and healthiest plants, and ultimately become by far the finest trees. The best and healthiest young trees which I ever had were raised on a piece of ground on the side of a hill, where the only shelter they had was a web of wire-netting stretched around the margin to prevent the inroads of hares and rabbits.

Many years ago I had a quantity of home-saved seeds of Wellingtonia gigantea sown in a rather close, shady place, and in due time the plants made their appearance above ground; but a succession of wet, foggy days set in and a great many of the plants damped off in a similar way to those of the Larch already referred to, and I think had I not removed the remainder of the plants to more open quarters I would have lost the whole batch. This damping off, I have no doubt, was accelerated by the presence of a fungus belonging to the genus Peronospora infestans which attacks the Potato, and although it has been asserted by some that this fungus will not attack different species of plants, yet such a statement has never been fully proved as far as I am aware, and I believe it will attack different species of plants when it finds a suitable position for its growth. I have known a young Thorn hedge attacked suddenly by a species of fungus called mildew. The upper surface of the leaves had a whitish appearance, as if slightly covered by hoar-frost; while at the same time and place the leaves of Swede Turnips were attacked in exactly the same way, and although the two plants are widely different in their structure and organisation, yet the fungus found a congenial home upon both at a certain stage of their growth and under the same climatic influence. This, then, I consider strong evidence that the small, minute tribe of fungi at any rate are not confined to any particular class or species of plants; and although it has been denied by some, yet a great many farmers maintain that the rusty spores which occasionally appear on Barberry bushes form a source of danger to the corn crops in their vicinity.—J. B. Webster.

—— The conclusion at which Mr. J. B. Webster arrives about the disease of the Scotch Fir, which he terms blotch or ulceration, is not quite convincing. Mr. Webster is a practical authority on most forestry matters, but whether the deductions he draws regarding the disease of the Scotch Fir are less delusive than those of H.R.H. the late Prince Consort, or of Brown in his "Forester," whom he cites, are doubtful. After dismissing these two eminent authorities, Mr. Webster acquits the Pine beetle and Pine weevil of any blame, and further says that "with regard to wet ground being the sole cause, this is also fallacious." I would almost put this in stronger terms, and say that wet ground has nothing to do with the particular disease named. Mr. Webster adds, "I therefore come to the conclusion that wind and frost are the principal agents." I am reluctantly forced to differ from that opinion, because if it is the fact that wind and frost are the main agents in causing ulceration in the Scotch Fir, why is it that whole communities, or even large forests of trees are not destroyed in the same manner, and not isolated individual trees here and there at great distances from one another, and these very frequently in the most sheltered and warm situations, where neither frost nor wind has hardly any potency? Much less of this disease is observed in belts and small plantations than in extensive areas of trees, so that one would infer that if frost and wind have aught to do with the disease, belts and other small areas would be likely to suffer from the influence of these elements.

Might it not be suggested rather that this peculiar disease of the Scotch Fir is constitutional? A theory of this sort is more easy of conception and acceptation than that of wind, oscillation, and frost, and the more so when it is known how the ulcer affects the different parts of the tree. Sometimes the disease will appear about the centre of the stem; sometimes within two or three years' growth of the top; sometimes within 2 feet or 3 feet of the root; sometimes an entire whorl of branches will be affected; sometimes only a single branch, and then only a small portion of it. Nevertheless, sooner or later the disease almost always proves fatal to the tree. The disease of the Scotch Fir differs widely from that of the Larch, inasmuch as the disease or ulcer of the Larch is a bleeding, running sore, while the ulcer of the Scotch Fir is a dry sore. The ulcer of the Scotch Fir is composed of many blisters or small bags, each of which contains a minute substance resembling red lead, which is of a dry, powdery, volatile nature, somewhat like pollen, and is very irritating to the nostrils and throat when inhaled. This disease in the Scotch Fir seldom flows, save when the diseased part is attacked by the wood mouse (which is very often done), this being a sort of food the mouse is very fond of.—J. F.

Meteorological observations in Germany.—There have been in Germany during the last twelve years sixteen scientific stations devoted to the investigation of meteorological and other phenomena connected with the forest. At the Eberswald Station observations have been taken during a number of years for the purpose of determining the difference in the temperature of the soil in the forest and in the open ground. Two posts were established, the first in a grove of Scotch Pines forty-five years old, and 375 feet from the open ground, the other at a point 795 feet from any wood. At each of these stations readings of the thermometer have been taken daily at 8 a.m. and 2 p.m. at the surface, and at depths varying from 6 inches to 4 feet below the surface. The results of these observations may be briefly stated to be: that the temperature of the soil at the different depths averages one degree higher in the forest during the winter than in the open ground, and that it is nearly three degrees cooler in summer, so that the extreme variations of the soil are four degrees less in the woods than in the open ground; that the forest has the same effect upon temperature as depth below the surface has—that is, it retards and modifies extremes, and makes variations slower and more regular in their appearance and disappearance. A full account of these experiments and others carried on at these stations can be found in the annual reports which Dr. Mutrich has published since 1875, and which can be obtained from the Berlin bookseller Springer, 3, Monbijonplatz.

SHORT NOTES.—WOODS AND FORESTS.

Moving a tree.—I am anxious to move, if possible, a handsome tree (a species of Fir) that is too near the house. It is about 30 feet high. Would it cost very much to move, and is it likely to live if moved?—F. E. S.

Cercis siliquastrum.—At p. 190 Mr. Webster states that he is curious to know if the above-named tree seeds in this country. It both flowers and seeds freely here every year, the seed-pods being about 3 inches long, with from three to six seeds in each pod.—W. O., *Fota, Cork.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

GLADIOLI IN WET SEASONS.

THE question whether this beautiful autumn flower succeeds best in dry or wet seasons may, I think, be fairly determined by careful comparison of the results of the seasons of 1887 and 1888. Last year we had, as we all remember, a season of great—I will not say unparalleled—drought, for Mr. Symons, in his "British Rainfall," tells us of far severer ones—of, for instance, the Thames being dry above and below London Bridge, with the exception of a narrow stream in the centre. But we had little or no rain during the months of May, June, July, and August, which hurried in the bloom so fast that I had a great difficulty in keeping back any good spikes for the Crystal Palace show early in September. The bulbs (notwithstanding we had a good deal of wet in the autumn, necessitating the leaving of the bulbs in the ground to rather a late period) were lifted in a better condition and finer than I think I have ever before had them. We have had this season, so far, the very reverse of this—the wettest July ever recorded, and a summer of cold and unpleasant weather, so that in fact it may be said that we have missed the summer altogether, and I, at least, find myself at nearly the end of August with hardly a spike in bloom. Shakespeare, with me the earliest of all, is only just developing itself, and I have not now (the 24th) more than half a dozen spikes in flower. That it is the same in some other parts, at anyrate, I can testify, for at the show at Taunton on the 16th there was not a good spike in the show exhibited for competition, and Messrs. Kelway, who usually have a large bank of them, had only a stand of about two dozen. A friend who had been over their twenty acres a week before told me that he did not then see half a dozen in the whole lot. We shall therefore be able, I think, pretty well to determine this year which is better for them, a wet or dry season, provided that the comparison be fairly made. I think that the following conditions should be observed:—

1. The comparison should be made with bulbs grown in precisely the same soil and situation. If we take the Langport culture, for example, Mr. Kelway has a portion cultivated on high ground, and another on low ground. Last year a quantity of those on the high ground perished, owing to the drought, while those on the low-lying ground flourished exceedingly. This year it is reversed; those on the low ground have been flooded, while those on the high ground have done well; therefore, the comparison must be made between those on the same ground. We oftentimes hear people say "it is much colder here than at home," the fact being that the weather has changed since they came away, and were they to be transported back they would find it as cold there; so when persons write about the different effects of seasons on plants, they should be quite sure that they are grown under the same conditions. In my own case, I have a piece of ground which is of a stiffer character than the rest of my garden, and I last year occupied one half of this with the Gladioli, and this year the other half is planted. I must, of course, wait until the end of the season before I can write anything positively about it. At present, at the end of August, the foliage does not look so green as it did last year; it has more of the yellow appearance that wheat has in a wet season. But I do not see so much trace as yet of what (*pace* Mr. Kelway) I must still call disease; whether it is yet to come remains to be seen; some of the flowers which have opened are showing remarkably well.

Of course, a good deal will depend on the weather that we may have from now to blooming time. Should we have a good harvest time, I expect that the plants will recover their green appearance, and that the bulbs will ripen well. I know that with some this is considered a matter of no importance, and I, myself, have seen the French growers cutting them when quite green, but I have yet to learn that this one bulb is to be an exception to all others. Who ever advised to lift a Tulip, a Crocus, a Hyacinth, or, indeed, any bulb or corm until the foliage had to some extent decayed? and why should it be right to cut the Gladiolus green? and, as I have before said, I believe that the drier autumns of the neighbourhood of Paris give the French growers an advantage.

I have not mulched this year at all, as I did not think in so wet a season it was needed. I had intended to have adopted Mr. Campbell's, of Gourock, plan of covering the beds with Cocoa-nut fibre refuse, but the extreme wetness of this season made it unnecessary.

It will have been seen that my experience with this flower differs somewhat from that of your correspondent "J. C. C." in THE GARDEN, August 18, and I cannot understand his saying the season was not so late as might have been expected, especially as his observations refer to the same part of the country (Somersetshire), although as regards my own garden I am far away from it in Kent. I see, too, in the notice of the shows of Wells, Weston-super-Mare, Trowbridge, and other places in the west, no mention of the Gladiolus amongst cut flowers, so I presume that, as at Taunton, they were not to be had. DELTA.

Statice Suwarowi.—In this we have both a charming Sea Lavender, pink, not blue, and a good garden annual, equally valuable for cutting and for border decoration. For either of these purposes it is graceful, attractive, and withal distinct by reason of its long slender spikes of rosy flowers. In water it lasts in perfection a long time. The inflorescence is composed of a central spike, fully 1 foot in length, with several shorter ones spreading below, and with the stalk it reaches a height of 2 feet. A number of them rise from a rosette of long-stalked, ovate leaves. This is a good thing to which Messrs. Haage and Schmidt's figure does no justice; the plant is far more graceful. We have got some very acceptable plants through M. Albert von Regel from Turkestan, and this is not one of the least important. It is flowering in the Cambridge Botanic Garden.—R. I. L.

Antirrhinums.—These have given a very beautiful bloom this year, and late put out plants will flower very freely up to the middle of November. In spite of the fact that the Antirrhinum is naturally a heat-loving plant, yet it has enjoyed the moisture of the season, except in the case of old plants which succumbed early. It is wise to make two sowings of these Snapdragons, one under glass in March for planting out early in May (these will bloom from July till November), and the other in the open ground about July to give hardy plants to put out in September, as those usually stand the winter better than the older plants of the first sowing. The cooler temperature has not only helped to keep the flowers longer on the spikes, but the colours of the selfs—the dark hued ones especially—seem to have been so much richer than usual. As there is great variety of colouring in the Antirrhinum, a fine mixed bed is always exceedingly beautiful.—A. D.

WET WEATHER PLANTS.

AMONG these few rank higher than East Lothian Stocks. The comparative want of bloom this year on so many other blooming plants, such as tuberous Begonias, Pelargoniums, &c., has rendered the merits of the Stocks more noteworthy. They have been the most conspicuous in not a few flower gardens and borders this year. The less sun and heat, the more cloud and rain, the more bright and brilliant the Stocks; and their freshness and fragrance have quite equalled their brilliancy and beauty. Seldom have they grown so strongly, perhaps never have they bloomed so freely in East Anglia as this season. Not a few who have grown these Stocks in quantities in the drier counties of England have been more or less disappointed with the results. Catching the Stock fever in the cloudy, dripping north, they have it cooled down through the less satisfactory results obtained in the arid east or sunny south. But a veritable Scotch summer in the south, and something more, has pulled up the Stocks to East Lothian Perfection, the delight of all beholders. Nor is their unique beauty and profusion and durability of bloom their only merit. Their fragrance even exceeds their beauty. No garden or border with a score, a hundred, a thousand, five or ten thousand East Lothian Stocks but must be filled with fragrance, as well as furnished with beauty. Fairly filled with delightful odours by day, it overflows with sweetness as the shades of evening fall over garden and landscape, and the night dews open more widely the doors of its ten thousand founts of fragrance. The scent of the Stock, though so full, cannot be called fulsome, and hence few or none are ever heard to complain of its excess, while many so revel in its sweetness as to take a night ramble through their gardens to enjoy its rich fragrance without distraction.

These Stocks are also as welcome indoors as out. Few plants are more useful for personal use and room decoration; they are also endowed with excellent staying powers, keeping fresh and fragrant for a week or more in water, provided always that the vases and water are both clean and sweet when first used, that the water is changed, and the lower ends of the immersed portions of the stems are cut off daily—the latter being far too generally neglected. In the due preservation of cut flowers, the absorbing extremities get blunted by use, if not blocked up, through incipient decay, and hence the wisdom of their removal to furnish the stems with fresh mouths for absorptive purposes. It also seems as if the odours of such plants as Stocks, Mignonette, and many others had the power of not only blunting the powers of absorption, but, perhaps, of vitiating the water, sooner than plants less richly endowed with volatile oils. Be that as it may, the oftener in reason water is changed and the absorbing surface renewed in the case of Stocks and most other cut flowers the better, for fresh pure water is probably as needful to the preservation of their freshness and beauty as their ability to absorb it; nay, it is even more so, for no activity of absorption can preserve the freshness and fragrance of cut flowers if the water absorbed is already in a semi-putrid condition, as it so often is. D. T. F.

Dahlias.—Those who grow a few Dahlias in order to have some blooms fit for exhibition during the next few weeks should give the plants a little liquid manure occasionally. Take care that they do not suffer from want of water, and keep the plants free from insects that are likely to injure the flowers. It is also necessary to thin out the buds, so that those allowed to remain may develop into full and symmetrical flowers. Anyone accustomed to visit flower shows has seen Dahlias shown by amateurs that were too old, the centre quite open, and the back petals falling through age. Such flowers cannot possibly take honours; they are much too old, and it is a waste of time to stage them. It is better to cut the flowers the evening before the

show and keep them in a cool place through the night, such as a cellar, until the next day than to allow them to remain on the plants another night, and with the morning sun shining upon them for a few hours previously to taking them to the place of exhibition. Delicate flowers, such as the white, cream, and yellow selfs, and those having a white ground and the petals edged with lilac or purple have their charms heightened by being shaded from the sun. A thin paper bag placed over the flowers answers very well, provided care be taken that the petals are not injured. The enthusiastic cultivator who sets his mind upon winning a few prizes with his flowers soon hits upon methods for supplying the necessary shading; ways and means soon suggest themselves to anyone who is thoroughly in earnest in the matter. The blooms need also to be screened from the rain, which spots and spoils the petals, as well as from the sun, which causes the colours to run and flood the petals, robbing the flowers of that soft delicacy of tint so much admired. —R. D.

NOTES ON HARDY PLANTS.

Thymus Serpyllum, or the so-called variety coccineus, when grown in well-established specimens by the side of other true forms of coccineus and sanguineus, proves to be no more than of a deep magenta colour—truly an improvement on the type, but by no means what the additional name suggests, and therefore the plant is disappointing. If it had been given us with a correct colour name, or even without a name, we should, perhaps, have had our pleasure unmixed with disappointment.

Lychnis vespertina albo fl. proves to be one of the very best of rainy-weather plants; indeed, both flowers and plant seem benefited by warm rain. The chief and perhaps only drawback is the straggling and ungainly habit of the tall flower-stems. There is a way, however, by which strong specimens may not only be made neat, but also to bloom more freely and show off the fine flowers to greater advantage. It simply consists in pegging down to the ground the main stems. In a short time a pair of flowering laterals rise from each joint and bloom more freely than when upheld in the usual way, and being only from 4 inches to 8 inches long, the neatness may be judged. This pegging is less trouble than tying, if only there is a clear space to do it in.

Chrysogonum virginianum, always so beautiful and effective during its long flowering period, proves to be one of the very best of rainy-weather plants.

Corydalis cava and varieties, now in their dormant state, should be potted for flowering in winter in cold frames, and all the finer Fumitories are better for being transplanted, as they poison the soil around the roots from the quantity of decayed matter they throw off. It is interesting to notice how curiously seedlings form and place their first tubers. The infant root goes straight down deeply and at the point the tuber is developed. In the case of a pot of seedlings all the little tubers are found like a number of Peas below the crocks.

Omphalodes Luciliæ.—The propagation of this charming plant is always likely, I fear, to be slow work. It is not very difficult provided there are good-sized plants to work from. Offsets with a piece of ground-stem and half an inch of the black part from near the central stock root freely enough during the long warm days, and often they may be found with good roots on the black part. So far as my experience goes, it is of no use to try offsets without at least a heel of the black root stem, and care should be taken that it is not barked. Seed rarely ripens and more rarely can it be caught just ready before it falls and is lost. Something can be done to increase the plant by earthing up the collars of vigorous specimens and pinching out all flower-stems; shoots then grow more quickly and are longer. The following spring the soil should be bared and the shoots spread out layer fashion; by midsummer they make ready and safe cuttings.

Cyananthus lobatus.—There are at least two distinct forms of this cheerful alpine, and I fancy the difference is more permanent than such as we often find to come about by local or cultural conditions, for both are here under the same treatment. One has a large, light blue, funnel-shaped flower, small pale green leaves, and very slender habit. The other has smaller and dusky dark purple flowers, somewhat reflexed, leaves larger, stems much stouter and longer; indeed, the habit far the more robust. Both to my mind are desirable; they are quite hardy, and though much has been said about how they should be set, the plants never seem to go wrong. It certainly seems to enjoy moisture at this season, and it is one of the too few things that continues bright in dripping weather.

Saxifraga ohioensis.—When this distinct species is looked at from a short distance its flowers remind one of those of Gypsophila paniculata, being small, pure white, numerous, and sparsely displayed in panicles. The habit, however, is dwarfer and more rigid. For rockwork it is useful; it comes in when the flowers of most other Saxifrages have gone by. It is seen to best advantage when growing beside plants with bright red, yellow, or blue flowers. The plant is quite hardy, though not so free a grower as most of the European species. That may not be much against it, but for producing the best effect strong tufts or a group of smaller plants should be grown. JOHN WOOD.

Woodville, Kirkstall.

CARNATIONS IN THE FLOWER GARDEN.

I CANNOT but express my regret that my plants both in pots and in the open ground are unfortunately without any kind of shelter from the pitiless rains which fall so incessantly. It is melancholy indeed to see blooms rotting upon the plants before they are half expanded. I have not this season seen any Carnations that were growing in the open but presented to view this unfortunate condition, and I have envied those growers who, like Mr. E. S. Dodwell, can give their plants the advantage of a glass or tiffany covering overhead, while the sides are open to a free circulation of air. Not only have my flowers rotted day after day, but it has been practically impossible to get much among the plants. It is only by taking advantage of a break in the weather and lifting and placing certain selected varieties in pots, that I have been able to layer them. Only this morning I have examined two plants of that fine yellow variety Germania. I find to my sorrow that three fine blooms I had hoped to have taken to Bath on September 4 are hopelessly disfigured; the blooms, saturated with moisture, hang down their heads in the most depressed manner, and this is, I should think, the fate of a large number of Carnations grown in the open air this summer.

I have visited from time to time a great many ardent florists who are successful growers of Carnations and Picotees for exhibition. The invariable rule is to grow their plants in pots in the open air, shading from sun, rain, and wind such flowers only as they required for the exhibition table. Mr. Dodwell's frames are the nearest approach to glass-houses I have seen, and I wish "A. H." would take the trouble to see them and he would at once modify his statements. The frames are made of stout woodwork; the stand on which the plants rest is raised above the level of the ground to prevent the entry of worms, air circulating freely below and around. There is nothing in the way of confinement; they are in reality in the open air, only that at the flowering time glass lights or a light canvas or tiffany are placed over the roof as a protection from rain and hot sun. For health, strength, and constitutional vigour, I will back Mr. Dodwell's plants against any "A. H." has ever grown or seen. Layers from plants treated in this way last summer have in my own garden grown as strongly and flowered as freely and finely as any raised and grown in the open ground.

It is a pity loose statements are made that cannot be verified. It is unfortunate statements of this character should be made in THE GARDEN without adequate illustration of their truth and reality. In the name of the florists up and down the country who grow Carnations in pots, I unhesitatingly say that the insinuations contained in paragraphs 3 and 4 of "A. H.'s" paper on page 191 cannot be justified. They are untrue and misleading.—R. D.

*** We sent the above to "A. H.," who replies as below. We may say that "A. H." has abundant means of knowing what he talks about.—ED.

Apparently Mr. Dean fails to see from what standpoint the article on Carnations was written, namely, the extended culture of hardy selfs in English gardens. Mr. Dean speaks solely from a florist's point of view, and asserts that "the statements made cannot be verified." I have this year visited Mr. Dodwell's collection, and saw all the plants; I have also seen the best trade collections this season. When visiting one of the trade collections—the day happened to be hot—I had to endure the heat of a glasshouse in order to see the flowers, and upon asking for information as to Carnation growing out of doors, was informed that "it was impossible to get a good bloom in the open air." In striking contrast to this, I mentioned at p. 191 the collection of 2000 in the open garden, and the plants, in spite of this exceptional season, have flowered profusely, amply verifying every word said about them. What the florists grow, and how they grow them, has little bearing upon the capabilities of the Carnation in gardens. Mr. Dean will back Mr. Dodwell's plants against any, and I would add that a man must be a poor cultivator indeed if he could not grow good plants beneath glass, and show good blooms under canvas.—A. H.

CACTUS DAHLIAS.

THE variable forms and colours now seen in this section of Dahlias are considerable, and it is only a question of time before they supplant the show varieties in public favour, so far as regards their use for household decorations. The stiff-looking show varieties are unsuitable for use in the house, but the form of the Cactus varieties is quite the opposite. There is every appearance of their having a bright future before them. I have a collection of eight Cactus kinds before me, and although some of the flowers are rather formal, they are very distinct. Some of the varieties have quaint colours, while others are clear and distinct. They make a pleasing arrangement when associated together. The most striking flower, both in form and colour, is William Rayner. About two-thirds of the lower petal of every flower is of a dark salmon colour, the centre being bright primrose. The petals forming the centre of the flower are pointed, while the others are imbricated. Picturata magnifica is a large, loose flower of a bright orange-scarlet colour, with rounded petals. William Darvil, crimson-purple flowers, large and distinct, is a very desirable variety, as it furnishes a shade of colour much wanted in this section. Zulu, as its name implies, is a dark flower, but wanting in size and substance. Henry Patrick is a white variety, but the colour is not pure. The best white varieties are Mrs. Tait and Constance, both of which should be in every collection. Mrs. Hawkins is indispensable on account of the soft primrose colour in the centre of the flower, a pretty contrast to the lower petals, which fade to a dark lilac colour. Germania-nova.—If this variety has a fault, it is that the flower is too formal in outline and too full, but the colour being lilac it is valuable for the variety it affords. It is a question whether this sort and William Rayner should be included in the Cactus section on account of the shape of their flowers, but they are so distinct that it is difficult to classify them. It would be a pity if the true Cactus varieties should be classed with inferior forms, for they are so useful and distinct that we cannot well have too many of them. J. C. C.

Aster Comet.—This is a comparatively new introduction of the Victoria type, and as fine as it is distinct. It might fairly be termed the largest flowered Aster I am acquainted with, and when well grown the flowers are very large, full, and symmetrical. It makes one of the finest exhibition varieties in cultivation, but it needs to be grown in good soil and the flowers disbudded in order to have them in perfect form. The flowers are formed of ribbon-like petals,

the ground soft pink, with side margins of white. I think it must have originated as a sport from a pretty rosy pink-coloured Victoria, as it is found many of the flowers will go back to this character. Even in this form it is highly attractive, although when of the true striped character it is doubly so.—R. D.

FLOWER GARDEN NOTES.

A MIXED FLOWER BED.—When re-arranging a set of beds in the spring for large foliage, or what are generally known as sub-tropical plants, the idea occurred to me that a bed or two of suitable flowering plants might look well in association with fine-leaved plants. This idea was put into practice, and the experiment has turned out a complete success. I note one large oblong-shaped bed that is surrounded with beds of Castor-oil plants, Wigandias, Solanums, and Eucalypti. The flowering plants consist of Lilies of various kinds, Gladioli, Pentstemons, Japanese Anemones, Hyacinthus candicans, and Phloxes, the groundwork plants to these being tufted Pansies, Harrison's Musk, and Veronica rupestris. The effect of such brightness of flowers, in conjunction with the sombre surroundings, can only be described by the word "grand," an appellation that many visitors have applied to it, and, as a matter of course, that is my own opinion, and I have determined to have more of such beds another season.

SUMMER-FLOWERING CHRYSANTHEMUMS.—I wish to call attention to the value of this early section of Chrysanthemums for late summer and autumn display in the flower borders. We have now used them rather extensively for three seasons, and this year they are more in favour than ever, and both in variety and extent the resolve is made to further increase their numbers next year. They are now planted in single file here, there, and anywhere in the mixed flower border, but by mistake a number of old plants were planted together on a vacant piece of ground that is reserved for surplus flowering plants of any kind, and the effect of this large mass of flowers is so telling that, instead of single plants, it is intended next year to plant the early-flowering Chrysanthemums in groups of three, five, or seven, according to the size of plot that may be vacant. Of course, in the front part of borders and on margins there must necessarily be some approach to a formal style of planting, and in such a position the single plant style will probably prove to be the best. The varieties that at the present time produce the gayest effect are the light and deep yellow varieties of Mme. Desgrange, Nanum, St. Mary, Précocité, Lyon, and Mme. Jolivart.

TUBEROUS BEGONIAS.—We have planted these in various ways, that is, singly as dot plants on a cushion of Sedum, mixed with other bedding plants, and in a mass by themselves, but never till this season have I hit on (to my mind) the right, or perhaps I should say, the best way of arranging them. Our finest plants occupy two large circular beds, the soil of which was made specially good for the Begonias, and that they appreciate it, the size and free-flowering state of the plants are sufficient evidence. Not a plant is less than a foot across, and is stout and high in proportion, with flower-stems innumerable, and so stout that the flowers stand well up without a particle of labour having been expended on staking. The effect of such a mass of fine flowers would, of course, be grand without any addition, but their beauty is very greatly enhanced by the addition of dot or standard plants of the variegated Abutilon Thompsoni. These plants tone down, give refinement, much in the same way as Fern fronds do, to what otherwise would be a gaudy bouquet. The next best way to arrange these plants is to plant them singly a good distance apart, and fill in the groundwork either with Sedum glaucum, Herniaria glabra, Antennaria tomentosa, or variegated Mesembryanthemums.

ANOTHER EFFECTIVE BED.—I have always contended, and do so still, that simplicity of arrangement, even in complicated geometric patterns, is the most telling; I could give several instances, but one must suffice. The bed is one of a series of similar ones in a geometric garden, the form is long (16 feet), with semi-circular ends, and the width 7 feet. Right round the bed runs a narrow border cut up into lozenge-shaped segments, formed with that best of all green carpeting plants, Herniaria glabra; the small beds thus formed are filled in with variegated Mesembryanthemums, Alternantheras, and Kleinia repens. This border forms what I call the framework for the flowers that occupy the central and by far the largest breadth of the bed, and this is filled with Fuchsias, planted somewhat thinly, the undergrowth to these consisting of white and blue tufted Pansies and the sky-blue-flowered Agathæa cœlestis, this plant in other beds of similar size and arrangement being replaced by dwarf-flowered Ageratums, and the tufted Pansies by pink-flowered Pelargoniums and the sweet-scented variegated Pelargonium Lady Plymouth. Each arrangement is as good as the other.

PROPAGATION OF BEDDING PLANTS.—Of the several drawbacks connected with the bedding-out system this is by no means the least. No sooner are the beds effective than hacking them about for cuttings begins. I have used the word "hacking" designedly, because it best expresses the way that many do mutilate their beds at this season. As I do not and will not, I can, with a good conscience, suggest a more excellent way. The first being to propagate kinds that strike well in spring, and that make as good, and often better, plants when struck at that season than when done in the autumn, only in sufficient quantity to get cuttings in the spring; by so doing, not only do the beds escape mutilation now, but room in the houses is spared for other plants throughout the winter months. Another way is to make one man responsible for the getting of the cuttings, and he, having been charged not to injure the present effect of the beds, will be careful to take only such cuttings as can be spared without doing this. As a rule, all soft-wooded plants—Pelargoniums excepted—are best propagated in spring, so that only a few stock pots of each are required. Pansies, Violas, Calceolarias, Gnaphaliums, Leucophytons, and plants of similar hardiness need not be propagated (and, therefore, the beds remain uninjured) till the end of this month or the beginning of October, but, meantime, the frames and handlights intended for them should be got ready.

GENERAL WORK.—I place foremost the maintenance of neatness, and at this season in particular, when flowers and plants are at their very best, weeds look sadly out of place. Keep tall plants securely tied to supports; wind storms are due, and neglect of this may prove vexatious. Keep dead flowers and seed vessels picked off all plants that are expected to flower continuously. Pinch, or peg into form all plants in formal arrangements. The hap-hazard rule of letting plants take care of themselves is sadly out of place in this connection, and those who do not care for the labour this involves should altogether discard geometrical designs. Cut bad flowers off Roses and pull up all suckers. Plants worked on the Manetti stock are giving us a lot of work of this sort this wet season. Asters, Stocks, Zinnias, and all herbaceous plants should at all times be kept free of faded flowers. W. WILDSMITH.

SHORT NOTES.—FLOWER.

Scented Carnations.—Can any of the readers of THE GARDEN oblige by telling me the best Carnation for scent, apart from the Cloves and the Painted Lady, which I find has a most pleasant perfume?—F.

Dracocephalum Ruyschianum.—A great merit with this plant is that it flowers throughout the late summer and autumn, when its blue flowers are most acceptable, and a pleasing change to counteract the predominance of yellow, a colour which generally is then most abundantly displayed in the various Helianthemums, Heleniums, and Rudbeckias.

Picotee Mrs. Sharpe.—The florist includes rose and scarlet-edged Picotees under one heading, but there is now such a distinctness of character about the scarlet-edged varieties, that it seems necessary to create a new section of scarlet edges. The variety that heads this list is a case in point. It is comparatively new, has a singularly pure ground, which contrasts in a remarkable manner with the broad, bright, rosy scarlet edge. It is quite distinct in colour and should be in every collection. The raiser is Mr. J. P. Sharpe of Birmingham. Mr. E. Dodwell mentions that the habit of growth is tall and robust.—R. D.

Dianthus Atkinsoni.—If Mr. Wood would kindly give some hints on the cultivation of Dianthus Atkinsoni, of which he appears to have such splendid specimens, he would confer a favour on a good many who find it impossible to keep it. I find it nearly always dies after flowering, and that it is difficult to strike or even to layer, for the layers flower and then die. I have made inquiries from the herbaceous foremen of three of the largest nurseries, and they tell me their experience is similar to mine.—A. J. B. S.

Pentstemon barbatus Torreyi.—The season, however cold or wet, does not seem to have any bad effect on this charming plant. It is more robust than the type, and may be distinguished chiefly by its greater height and absence of the beard on the lower lip of the flower. With us it always flowers more freely on a light, sandy, well-drained soil with full exposure. Now is the best time to take offsets, which should be potted singly in good rich soil, placed in a shady position, and by spring will be ready to plant out. This process is necessary, as the old clumps soon wear out; at least such is our experience.—K.

Œnothera fruticosa and glauca.—These forms seem to be more puzzling than all the others put together. In Torrey and Gray's "Flora of North America" both are described, but instead of giving the well-known form Œ. Fraseri under fruticosa, as we always see it in our gardens, it is described under glauca. I have had what were said to be the two species growing in my garden, but after the lapse of a few years I could not distinguish the one from the other. In a note with Œ. glauca in the above work it is said to be perfectly glabrous, and more or less glaucous, with broader leaves and larger flowers than Œ. fruticosa. The latter is described as being hairy or almost glabrous. Can anyone growing plants under these names distinguish them sufficiently for garden purposes?—K.

Pyrethrum uliginosum.—I find if the main stems or shoots of this fine autumn Daisy be pinched early in the summer, that a large number of side shoots are thrown up, and the average height of the plant is reduced fully one-third. As this Pyrethrum is ordinarily so very tall-growing, any method of checking its height is useful. Has it ever occurred to anyone to layer the tops of the main stems into pots about August? If that can be done, what charming dwarf plants might result later. Perhaps the tops put in during July as cuttings would strike as ordinary Chrysanthemum cuttings will, and thus produce good heads of bloom. As the point of each main stem throws up a cluster of flowering shoots, very pretty plants carrying fine heads of bloom 18 inches high should result.—A. D.

Narcissus Ajax bicolor.—In THE GARDEN, Sept. 8 (p. 227), it is rightly said that Ajax bicolor is the type and origin of the grandest Trumpet Daffodils, of which Horsfieldi seems to have been the first. I believe also that Salisbury is probably right in saying that this Ajax bicolor was introduced from Montpellier in 1787, as this is about the time that it first appears on the scene of Daffodils. I believe, however, that he is wrong in saying that it was in cultivation in England before this. An examination of old herbaria at Kew has led me to think that the N. bicolor of Linnæus was a different plant, more nearly allied to typical N. Pseudo-Narcissus. What, then, is the wild origin of Ajax bicolor? I think it is undoubtedly one of the forms of the Pyrenean N. muticus of Gay, a very variable flower both in size and colour, out of which Haworth made six distinct species. N. muticus is the only truly wild Daffodil I have ever seen with the broad, fleshy, round-tipped, upright foliage of Ajax bicolor, and though an approach to it is to be found amongst the Daffodils imported from the Pyrenees as variformis, I believe that this name is given to crosses between N. muticus and the Pyrenean form of N. Pseudo-Narcissus, called N. nobilis by Redouté. I was led to this conclusion in the Pyrenees, where I found spaces between beds of N. nobilis and N. muticus filled with N. variformis.—C. WOLLEY DOD, *Edge Hall, Malpas.*

Lilium Batemanniæ.—This must be included among the late-flowering Lilies, that is to say, those that bloom about the same time as L. tigrinum, and which are just on the wane, as the different varie-

ties of L. speciosum commence to expand. The individual blooms of this Lily bear a very great resemblance to those of a form of L. elegans, or Thunbergianum, known as venustum, and their colour is a deep warm apricot—a very pleasing tint. In all respects, save the flowers, it differs in a marked manner from venustum, for whereas this last only reaches a height of about a foot, L. Batemanniæ, when well developed is four or five times as high. Both the foliage and the bulbs are also widely different from those of venustum, which is generally past some little time before Batemanniæ opens its earliest blossoms. L. Batemanniæ is by no means a difficult Lily to grow, and, besides this, large numbers are usually imported from Japan during the winter months. These bulbs, as a rule, travel well, and may be depended upon to flower the following season.—H. P.

Gladioli.—How very finely the scarlet brenchleyensis has bloomed this season in spite of the wretched weather. However, we must not be hasty in attributing this excellence to the present season, as some may be due to the thorough ripening of the old bulbs last year, which enabled them to develop strong new ones. The proof will probably be found next year, when we shall see how the bulbs behave. Very likely the plants have not had too much moisture for the roots, although it has been bad for the flowers. It was noticeable that many of the spikes seen in the Messrs. Kelway's collection at the Westminster Drill Hall, last week, were of great length, some, in fact, the longest I have seen, but whether due to the absence of heat, which often causes the older plants to fade early, or to the sustaining root moisture, is not easily determined. It is to be deplored that whilst the Messrs. Kelway exhibit their grand collection of flowers so widely, showing that they at least can grow Gladioli, yet how rarely do we find these noble autumn flowers grown in private gardens. It may be that their scanty culture is due to inherent weakness, but there is no want of that in brenchleyensis at least. Some may be due to the necessity for lifting and proper storing of the bulbs through the winter—work occasionally forgotten until too late in many places, and some to the unfitness of Gladioli spikes for cutting, as they are too big for ordinary vase decoration. On the other hand, some half dozen clumps in bloom make a brilliant display, and afford a good reason why Gladioli should form a very prominent feature in flower gardens through the late summer and autumn.—A. D.

NOTES OF THE WEEK.

Pear Jargonelle.—Mr. Barker sends us some of the finest samples of this Pear we have ever seen. A good point in favour of this fruit is its great beauty when well grown.

Helianthuses from Ireland.—All the Sunflowers are very beautiful here just now. The old-fashioned double-flowering form (Helianthus grandiplenus), blooms of which I send you, I find very useful for cutting.—W. B. HARTLAND.

A fine Eucalyptus.—A Eucalyptus planted in 1880 and now measuring 29 feet in height may be seen in the gardens of Earl Jersey at Baglan House, near this place. This is considered the finest specimen in this part of the country.—K., *Briton Ferry.*

Campanula pyramidalis.—We recently noted a fine specimen of this at The Grange, Farnborough. It sprang up in the gravel walk close to the outer wall of a glasshouse and grew strongly, sending up several flower-spikes nearly 6 feet high, which were covered with flowers.

Catalpa syringæfolia.—A Catalpa tree which is now in full flower in my garden presents a very handsome appearance, somewhat similar to that of the common Horse Chestnut. The tree was planted about twelve years ago, and this is the first time of flowering.—T. A. MITCHELL, *Elmstead Glade, Chislehurst.*

Beschorneria bracteata.—This keeps throwing up quite a number of secondary spikes of flower, so I send you part of one to look at. The bracts are far duller than those grown in June, but in spite of all the cold and wet of this season the effect in the garden is really handsome, so that I feel satisfied it is a fine addition to seaside plants of bold character. A central stem 10 feet high with three lesser ones round (such as the plant from which this came) is quite remarkable as well as handsome.—E. WOODALL, *Scarborough.*

Amaryllis Halli.—I send you a spike of Amaryllis Halli, which was mentioned in THE GARDEN for March 24 (p. 268). This is a quite new and perfectly hardy species, and has been obtained from North China. Like A. belladonna, it flowers in autumn when the leaves are withered.—C. G. VAN TUBERGEN, Jun., *Haarlem.*

Montbretias at York.—One of the finest features in the York Nurseries at the present time is the fine display of the new varieties of the Montbretias. They are all fine decorative plants, especially so the varieties elegans, sulphurea, Fiery Star, Golden Sheaf, pyramidalis and crocosmiæflora. Good rich sandy loam suits them well. They are quite hardy.—R. P.

Althæa frutex.—This is one of the best autumn-flowering shrubs we have, and for that purpose it ought to be more freely planted. It is also well adapted for town gardens, for at the present time there are some fine bushes of it in Battersea Park. The plants are one mass of flower, and embrace several shades of colour. One large bush was particularly noticeable. It was fringing a bank of Evergreens, and its large crimson-stained white flowers were admirably shown up by the dark green background.

A fine Allamanda.—I recently saw a very fine Allamanda at Harlaxton House, Grantham. It was growing in a large pot, but the roots had passed through the bottom into a small border. The plant was trained all along the centre of a span-roofed house. Every shoot was laden with blooms, and the whole plant was such a mass that it was almost impossible to see a green leaf. I counted upwards of 500 expanded blooms, while there was a much larger number than that yet to open. I was informed that this year's profusion of bloom is not exceptional, as it blooms as freely every season.—C.

Hypericum kalmianum.—This North American St. John's Wort is perfectly hardy, and forms a little dense bush. It comes into flower in June and continues for two or three months. The flowers, borne in little panicles of from five to seven, are of medium size, the yellow stamens gathered closely together forming quite a ball. On the rockery at Tottenham there are several nice bushes, which had been in flower six weeks when we noted them, and they promise to continue for another such a period.

Iris Robinsoniana.—The Wedding Iris of Lord Howe's Island (Iris Robinsoniana) has flowered in an open-air border near the lake in the gardens of Tresco Abbey, Scilly Islands. It first bloomed there in 1887, but this year has thrown up a spike 5 feet in height, and it has borne about 60 of its large white flowers. Mr. G. D. Vallance, the gardener, writes that the plant was presented to Mr. Dorrien-Smith by Mr. H. J. Elwes about six years ago. It is a handsome species, which has thwarted the efforts of many good cultivators, and Mr. Smith and his gardener may feel proud of their success.—F. W. BURBIDGE.

Carnations for the open garden.—The best batch of garden Carnations we have seen from any nursery comes to us from Messrs. Harkness, Bedale, Yorks. They are mostly one-coloured sorts, and far more effective than the bizarre striped forms of the florist. Nurserymen who grow Carnations too often only treat them as pot plants and requiring as much care and cost as cool Orchids. If during the Carnation season a visit is paid to one of these nurseries it will probably be found that there are no Carnations planted out, as if the Carnation came from Timbuctoo. Therefore we hope Messrs. Harkness will go on treating this fine plant as a hardy flower. It is one of the noblest, but the way so-called florists have grown it for ages has robbed our gardens of its beauty.

Crinum giganteum.—This lovely Crinum, though generally regarded as a stove species, has flowered well, both last year and this, in the open garden at Betteshanger Rectory. We recently noted several fine specimens carrying good spikes of flowers, and it is remarkable how well they have developed in such a cold year. The bulbs are taken up in autumn and stored away where they are safe from frost. In spring they are gently started in heat, being afterwards hardened off and planted out. One of the plants was standing on a little mound, where its fine, broad, arching foliage and noble spikes were seen to great advantage.

Landscape gardening in India.—The young Indian prince, the Gaikwar of Baroda, who has travelled much in Europe, is so charmed with its great gardens and parks, that he intends to rival them if possible in his own dominions. He has therefore retained the services of the landscape gardener, Mr. William Goldring, of Kew (who was for some years on the editorial staff of THE GARDEN), to design and lay out some extensive gardens around his palaces at Baroda and some public parks and gardens there. Mr. Goldring will also during his stay in India advise the Gaikwar as to the best means of establishing a school of gardening among his young native men, and he will also organise a department of public parks and gardens.

Bananas.—I send some Bananas taken from a cluster numbering about 165 fruits. Many of them weigh over 6 oz. each and a few are under 5 oz., so that the cluster would weigh over 56 lb. Is not this an unusual weight for Bananas in this country? A small plant was planted two years ago at the back of a lean-to stove without any preparation of the soil. The temperature of the house in winter never exceeds 60°. The plant was in bloom last Christmas, but owing to the low temperature and the damp atmosphere of the house many flowers decayed. I would advise those who can spare a good-sized corner in the stove to give the Banana a trial, as apart from its value as a dessert fruit it merits attention for the tropical appearance it gives to the immediate surroundings.—R. POTTER, *St. Clere Gardens, Kemsing, Sevenoaks.*

Cyclamens planted out.—On calling at The Oaks, Epsom, a few days ago, I observed a batch of Cyclamens, the seed of which was sown last November, and the seedlings planted out at the end of May in frames. The growth of the plants was a proof that this method of growing young Cyclamens is the correct one. The leaves were of large size, beautifully marbled, and their texture thick and leathery, while the flower buds at the base were very numerous. Both sorts are here treated on the same generous principle and with equally good results, for all have already used up their liberal allowance of space of about 14 inches square in the case of the giant varieties, and 11 inches in that of the smaller. The plan is certainly well worthy of general adoption, as not only do the plants do better in every way, but their doing so is a surer and easier method of keeping them free from their insect enemies, whilst considerable labour is saved in regard to watering.—F.

Cosmos bipinnatus.—This Mexican annual is not much grown, and is rarely seen in gardens. This is surprising, considering it is a plant worthy of culture for its graceful foliage alone, the beauty of which is admired weeks before the plants flower. The plants when well grown form nicely branched pyramids from 3 feet to 4 feet high, each shoot being well clothed with finely cut foliage, somewhat like that of a Carrot. The reddish-purple flowers are usually produced during September and October, and not only are they borne upon the tips of the shoots, but as they fade smaller flower-spikes are thrown out from the axils of the leaves all down the sides of the shoots. Both last year and this we saw the Cosmos doing well at Betteshanger Rectory, in Kent. Last year the plants were grown in the open ground, but when frost came there were still so many flowers showing that they were potted up and placed in the conservatory, where they bloomed for a long time. This year another method has been tried. They were grown on in large pots and plunged outside in the flower garden. Owing to the backward season, as yet they have not shown flower, but their fine form and elegant foliage have made them conspicuous. When cold comes they can be removed to the conservatory, where they will be beautiful for many weeks. This Cosmos certainly surpasses many of the more popular annuals.

CHAMÆROPS FORTUNEI.

The Chamærops Fortunei (or excelsa) figured in the engraving was one of several planted by me about sixteen years ago. It was then, I suppose, a two-year-old plant, and it is now between 8 feet and 9 feet high. They stand fully exposed to the sea to the south at a considerable elevation, but sheltered on other sides by woods. The soil is almost pure sand and peat. They flower more or less every year, but the fruit never sets. They are never given any shelter in winter. I have two or three other Fan Palms, which also grow in the open, the best growing being Chamærops humilis, and next to that one, I think, is Sabal Palmetto, but I am not sure. The C. humilis remains very dwarf, more so than is its habit in the south of Europe. Among other exotic trees of interest I have, Acacia dealbata, which grows luxuriantly all about my grounds and flowers well, some of the trees being now sixteen years old.



Chamærops excelsa in flower in a Dorsetshire garden. Engraved for The Garden from a photograph sent by Earl Nelson.

I have several species of Eucalyptus, notably the very elegant E. Gunni. The Laurus Camphora flourishes in my grounds, as does the Benthamia fragifera, but the latter has never flowered with me. Several of the Dracænas grow very well in the open, some being 10 feet or 12 feet high. All the Yuccas seem to thrive. I enclose a photograph I took the other day of one in flower, which I should think must be 13 feet or 14 feet high. This is, of course, the Y. gloriosa, the other sorts none of them attaining so great a height. Azalea indica is with me perfectly hardy, and flowers as freely as indoors. I have grown many other trees, shrubs, and herbaceous plants from Japan, Australia, and other parts with various success. By the way, I may remark that Mesembryanthemum uncinatum is worthy of being much more largely used as an edging plant than it is. I have had edgings of it for years. They never seem damaged by the frost, and flower profusely. It grows quickly, and requires clipping every year. H. R. Dugmore.

The Mount, Parkstone, Dorset.

PROPAGATING.

Montbretias.—These beautiful plants can be very quickly increased, for if planted out in the open ground, creeping underground stems are pushed out in all directions, so that a few bulbs, if in good soil, will soon form a large mass or clump thickly packed with flowering stems. All that is necessary then to obtain a good stock is to lift the clump when dormant, and divide to the extent required. If the bulbs are needed for flowering in pots a very good plan is when lifting them to select the best bulbs only for the purpose, and to replant the smaller ones in order to keep up the stock. These Montbretias have one great drawback, inasmuch as the foliage is apt to turn yellow before the plants flower, and on that account they should not be planted in light dry soil, but rather where the roots will be fairly moist throughout the summer. While the above mode of increase is the most suitable for the commoner kinds, it is sometimes necessary to propagate from a single bulb as quickly as possible (in the case of a new variety, for instance), and with such I have derived by far the greatest measure of success by potting the bulb in some good light soil directly after it was received, which would be when dormant, and then treating it as a greenhouse plant. The result of this would be that the creeping, stoloniferous-like stems would directly after they reached the sides of the pot mount upward and make their appearance above ground in the shape of two or three unfolding leaves. Then on being turned out of the pot it will be found that most of these offsets have formed a root or two of their own just below the leaves, and if they are then cut off and potted into small pots, they quickly start away. If shifted on or eventually planted out some of them will flower the first season, while the parent bulb will grow away as freely as if it had not been thus deprived of its first crop. Of course the main or centre tuft of foliage must not be interfered with or injured in any way.

Seedling Ferns.—Where there are a number of these in various stages of development it is a very good plan to go over them all at the present time, and either to prick them off or pot them into small pots as may be necessary. The reason for giving them a thorough overhauling at this season of the year is that if overcrowded during the winter many of them (especially the more delicate kinds) are very liable to decay, so that it is absolutely necessary that something be done to prevent this happening before winter sets in. If delayed longer than this the young roots do not take hold of the new soil so kindly as they do now. In the case of spores that were sown late in the season they will probably have covered the soil with a dense Moss-like cushion, and if attempts be made to winter them in this state they would certainly decay. In the case of such delicate subjects as these the pricking off is effected by filling some well-drained pots with light soil sifted fine, and though levelled over it must not be pressed down at all, thus leaving a soft bed for the reception of the young growing spores. Then with a pointed stick a little clump not larger than the top of a pencil is lifted and deposited in its place in the new soil, when if gently pressed with the forefinger it enters the soil (purposely kept light) quite deeply enough to fix it securely in its place. Where the seedlings are farther advanced and the young fronds make their appearance, the plants should be pricked off in just the same way, except that the soil must be somewhat firmer, for it will be necessary to use a dibble for the roots. In either case, as the pots are filled with the young Ferns, they should be placed in a close propagating case for a time until they recover from the shift, after which those which are sufficiently advanced to throw up fronds can be placed on a shelf or in a similar position. A necessary article among young seedling Ferns is a watering-pot with a very fine rose.

Blandfordias from seed.—This beautiful class of Australian plants is usually increased by division, but this is, especially in the case of some kinds, an extremely slow process, so that to many it will be an advantage to propagate the Blandfordias from seed. To obtain perfect seed artificial fertilisation is necessary, and even then some of them do not seed very freely. The plants should be, especially when in flower, kept in a light airy structure, as perfect seed is under such conditions more likely to be obtained than if they are kept close and shaded, though where the blooms are required for ornament they must then be protected from the sun. The seed should be sown when ripe in some well-drained pots of soil consisting principally of peat and sand with a little loam. In a warm greenhouse or intermediate house temperature they soon make their appearance above ground, and when large enough the young plants must be potted off, using the same kind of soil as for sowing, and taking care also not to injure the stout fleshy roots in any way. T.

Fuchsias from seed.—Fuchsias are so readily propagated from cuttings, and there are now so many

good varieties in cultivation, that to most people it may appear that seedlings are not required; but still in the case of plants raised from seed there is the, to many, great pleasure of anticipation, even though when the plants flower most of the hopes are dispelled. By saving seed, however, from only a few good varieties, most of the progeny will turn out good showy kinds. Fuchsias may be treated as annuals—that is to say, if the seed is sown in a gentle heat about the end of January and the young plants pricked off and potted when necessary. They will then make rapid progress, and the majority of them will yield a wealth of blossom during the latter half of the summer.—H. P.

Stove and Greenhouse.

WORK IN PLANT HOUSES.

Greenhouse.—Lilies.—Most of the failures that occur in pot-grown Lilies may be attributed to the repotting being deferred until the roots have begun to move. The young roots are extremely brittle, so that when the old soil has to be shaken out it is impossible to prevent the roots being broken. Any harm done in this way is much more injurious to Lilies than to most other plants, as they seem almost incapable of making good the loss of young roots. Most of the old roots die annually about the time the tops die down. The period that intervenes between the decay of the tops and the recommencement of root-growth varies considerably in different species. L. candidum, which is now much used as a pot plant, is the quickest in commencing to push roots after the stems have died. There is no fixed time when the plants are in a condition to require potting, as the time they are started and the way they are subsequently treated have much to do with the completion of the growth; consequently it is necessary to repot when each set of bulbs happens to be in a state that requires it. My practice is to repot every year. If the bulbs remain a second season in the same soil, assistance by the aid of manure water is given, but there is less increase in the size of the small bulbs, and those that have attained full size do not bloom so well as when the soil is annually renewed. For most Lilies good turfy loam with a moderate quantity of fibrous peat, some leaf-mould, rotten manure, and sand is a good compost. The different forms of L. pardalinum do best in peat alone, but wherever peat is used, either wholly or in part, it should contain plenty of fibre. The heavy, black, boggy stuff that is sometimes used for pot plants is totally unsuited for Lilies, as for most other things. Some Lilies require more room than others, but it is a mistake to overpot any. L. auratum is an instance, especially when the bulbs are newly imported, and in no case is it well to grow too many bulbs in a pot. L. speciosum will bear larger pots, but seven or eight good-sized bulbs are enough for a 15-inch or 16-inch pot. It will generally be found better to have three or four bulbs together than a larger number. The soil should not be too moist when used, and care should be taken that it is not afterwards drenched with heavy rains. On the other hand, it must not be let get too dry or the young roots will suffer. An ordinary garden frame with the lights at hand so that they can be put on when the weather is wet is the most suitable place to keep the bulbs in during the autumn. L. Harrisi, L. eximium, and the common variety of L. longiflorum, that flowered in spring, and also any plants of L. auratum that bloomed early should at once be attended to.

Roman Hyacinths.—To have these Hyacinths in bloom early the bulbs require to be potted soon enough to admit of their making plenty of roots before they are put into heat. They will not bloom well if excited into growth before enough roots are present to support it. It is not necessary to give these small Hyacinths much room; six or seven bulbs may be put into a 7-inch pot. They do as well in moderately deep seed-pans as in pots. If pans are used, a score of bulbs may be put into a medium-sized one. The idea that any kind of soil will answer for these and other bulbs is a delusion. Good-sized, well-matured bulbs are essential to success, but these will flower better when potted in rich soil. Turfy loam with some rotten manure in it is the best soil for these and other forced bulbs, using sand in proportion to the heavy or light nature of the loam. In plunging the pots there should be enough fine ashes, sand, or other material under them to prevent worms entering.

Hard-wooded greenhouse plants.—Preparation should be made for housing plants of this description that have been stood out of doors to harden their growth, so as to be able to get them in without delay when there is an appearance of frosty nights. In the north it is not safe even in ordinary seasons to allow the tender kinds of greenhouse plants to remain out after the third week of the present month, unless there is means of giving them some protection, such as when the plants are stood under a light wooden framework with movable blinds attached or with loose lights overhead.

Chrysanthemum frutescens.—The white and yellow varieties of this Chrysanthemum in pots that have been stood out of doors during the summer should shortly be taken inside, for although there may not be enough cold to injure the plants, it may interfere with their flowering. Old specimens of the white sort that have hard, woody stems, if well treated through the summer, should now be in free growth and thickly studded with bloom-buds that will open readily in a little warmth. With a genial temperature in a house or pit that affords plenty of light they will produce quantities of flowers all through the autumn. The yellow varieties, of which the best is Etoile d'Or, are not such free growers or profuse bloomers as the white sorts.

Autumn-flowering plants.—Such things as Salvias, Veronicas, and Callas that have been planted out should be lifted and potted. Plants of this kind look the best when not in large pots. But in limiting them in this matter there must not be too much soil shaken away from their roots, neither must the roots be too closely compressed in the pots. Although the plants in question are less impatient of interference with their roots than some things are, yet if too much disturbed it will affect their flowering. They should be watered moderately as soon as they are potted. This they will bear without its injuring them, as it would tender-rooted plants so treated. If the soil is not fairly moistened the foliage will suffer.

Solanums.—Where Solanums have been grown in the open ground, or have been planted out in pits or frames, they should now be taken up and potted. Although they will bear a lower temperature without sustaining injury than most greenhouse subjects, it is best to pot them whilst there is time to allow of their making enough root growth in the pots to keep them in a healthy condition through the winter. If the lifting is deferred until the weather becomes cold the plants will fail to get established. After potting give a good watering, and shut them up in a cold pit or frame, only giving a little air until the roots have begun to move in the soil, when more air should be gradually admitted, but not sufficient to make the leaves flag. Should the weather be sunny a little shade may be necessary to keep the temperature from rising too high, which would necessitate more air than the plants would at first bear.

Stove.—Gardenias.—The best Gardenia for general cultivation is G. intermedia, as it will flower better in winter than any of the other kinds. The size, purity of colour, fragrance, and appearance of the blooms and the handsome foliage make it one of the most favourite flowers, especially for using in a cut state. At no season are the flowers so much prized as in the depth of winter, during which time many growers find a difficulty in getting them to open, the buds sometimes falling off after they have attained a large size. Failure in this way, or through the buds refusing to open, is frequently attributed to want of sun; but in reality it is often through absence of enough light. Where Gardenias are well grown and strong, with the buds prominent in autumn and there is sufficient heating power, the plants should be kept at a night temperature of 70°. Then if they are stood with their tops close to the roof in a light house the flowers will open during the dead of winter. In most stoves it is difficult to get large specimens sufficiently near the roof-glass, but this can be got over by making cuttings of branches that have several shoots and which have set their buds. They may be taken off from 6 inches to 10 inches long, putting them singly in 4-inch pots, drained, and three-parts filled with peat, to which a moderate amount of sand has been added, filling up with sand alone. Treat them in the usual way, giving them a heat of about 70°, and not keeping them closer than is necessary to prevent flagging. If this happens, or if the cuttings are too closely confined, most likely the buds will fall off. The cuttings will soon strike. When they are well rooted, gradually inure them to the full air of the house. Keep the little plants close to the glass; a shelf over the path at the warmest end of the house is the right position for them. Let the soil be fairly moist and the atmosphere moderately charged with moisture, but do not syringe much overhead. Treated in this way little difficulty will be found in having flowers at Christmas and during the first two months of the year. Little plants, such as described, will frequently produce from twelve to eighteen blooms during the winter, as the shoots will make a little growth and set more buds. T. B.

Crossandra undulæfolia.—This is a stove plant of very easy culture, and one that may be had in bloom at almost any season of the year. It bears a resemblance to some of the Aphelandras, the flowers being borne in a terminal spike, as in the different members of this genus, but they are larger than the blooms of an Aphelandra and of a very distinct bright salmon colour. This Crossandra is apt to run up somewhat leggy, especially in a very warm structure, so that it should be stopped occasionally during its earlier stages, but perhaps it is seen to the greatest advantage when several are grouped together in a large pot or pan. Though such a distinct and pretty subject, it is comparatively unknown in gardens, but still it can be propagated very readily by means of cuttings. A coloured plate of this Crossandra was given in The Garden, Dec. 15, 1883.—T.

The Scarborough Lily.—Few plants will thrive with so little care and attention as this, and at the same time there are not many subjects that can be brought in competition with it at this particular season of the year. The principal consideration in the culture of this Vallota is in potting. Use only such soil as will remain sweet and fresh for years, as it dislikes very much being disturbed at the roots, and flowers much better when the pot or pan in which it may be growing is crammed with bulbs. For this reason a very good compost is fibrous loam, with an admixture of silver sand, as this will stand for years without turning sour. In obtaining a stock of this Vallota the best varieties should be sought after, for there is a very great difference to be found among them, some flowers being much superior to others. A grand variety is that of which a coloured plate was given in The Garden, September 11, 1886, under the name of Vallota purpurea magnifica.—H. P.

SHORT NOTES.—STOVE AND GREENHOUSE.

Impatiens Hawkeri.—This is now flowering freely in the Kew collection, maintaining its position as not only one of the finest bloomers in the genus, but the richest-coloured Touch-me-not that has ever been introduced. This plant is one of Mr. Bull's introductions, and when in his establishment a few days ago he told me, when speaking of this species, that he had never found it produce seeds. Have the readers of The Garden met with similar experience? A coloured figure of this plant appeared in The Garden for March 19, 1887.—W. H. G.

Flowers for window boxes.—In the Paris flower markets I recently noted a system of growing Cannas in pots in company with Gladioli. This gives a capital background for the flowers of the latter, and makes up an harmonious and highly decorative whole.

I have never seen this system adopted in this country, but it is well deserving the attention of everyone having large windows to decorate, more especially as the roots of both plants may be preserved from year to year.—W. H. G.

ORCHIDS.

W. H. GOWER.

CYPRIPEDIUMS IN FRANCE.

LOUVIERS, situated on the river Eure, about seventeen miles south of Rouen, is an ancient town in Normandy. It is famous for its beautiful church, which dates from the time of the first crusade, for its manufactory of broadcloth, and for its magnificent collection of Slipper Orchids grown by Dr. H. Carneus. Dr. Carneus is a most enthusiastic grower of Orchids, and his collection of Cypripediums is a very complete one. He also raises seedlings, for which perhaps he has not been awarded due honours, and I do hope to see a thoroughly good form of the genus Cypripedium bearing his name. The houses are very small, and the plants are not large specimens, but exceedingly numerous, and it is quite certain that the doctor gets as much enjoyment out of the medium-sized plants as many other growers do from large examples. These plants are kept in an intermediate temperature, in which they grow most freely and flower profusely, and I was pleased to find that in all the gardens which I visited during my short journey in France cultivators incline to cool treatment, to which their plants respond by growing vigorously and blooming well. Amongst the principal kinds flowering with Dr. Carneus at the time of my visit, which was about the dullest in the whole season for Cypripediums, I noted C. superbiens, perhaps the finest form I have ever seen; a magnificent variety of C. Dayanum with the light variegation in the leaf, and which should, I think, deserve a varietal name, as the variegation in the two plants known by this name is so very distinct. Here, as in other places in France, I found wonderfully fine forms of C. Hookeræ, finer by far than the first imported plants, which, by the way, were imported by the celebrated firm of Messrs. Low, of Clapton, and were named in honour of the lady of Sir Wm. Hooker. C. superciliare roseum is a very fine form; as seen here it is quite distinct and a most desirable form, but I have seen plants under this name in which I could not distinguish any difference from the type; indeed I observed, in looking over this collection, that the species and varieties appeared to be scrupulously true to name. Amongst others were C. Harrisianum in very fine varieties; Sedeni and candidulum were also good; C. gandavense, with leaves much like those of C. Lowi, amongst which it is imported, the sepals and petals being deep rose colour; C. Lemoinei, in the way of C. calurum, and C. villosum aureum, which was said to have been in bloom for four months; C. Robelini and C. tonsum, together with a fine form of C. Lawrenceanum bearing two flowers on a stem, were the most noticeable of the plants in flower, but there were hundreds of plants of Cypripediums, and from these alone the doctor observed he always obtained some bloom for every day in the year, so that this is an additional recommendation to grow Orchids, and especially Cypripediums. I have already observed that this collection is kept cool, and the plants receive plenty of water, but they are not grown so cool as the Odontoglossums, which are also grown largely by Dr. Carneus, and which at the time of my visit were out of flower, saving a light and very bright form of O. Harryanum, which appeared to me more desirable than the heavy dark-flowered varieties. O. Phalænopsis, also grown cold here, flowers profusely. Another plant which grows well here in cool quarters is Miltonia Moreliana, and every growth is flowering. The Mexican Lælias were grown here in the open air last year and produced good pseudo-bulbs, many of which produced flowers, but this year, as with us in England, the weather has been too treacherous and bad to allow the doctor to venture on the experiment. I saw little difference in the routine of management to that practised in English gardens, saving that the scaly portions of the creeping rhizomes of Polypodium vulgare are used to a great extent in the place of peat fibre. One grower told me he preferred it to peat, and when I asked him why, he said, "Well, it is a very difficult matter for us here to get such good fibrous peat as is obtainable in England." This led me to infer that good peat fibre is looked upon as the best material for Orchids by French as well as English growers, and the Fern fibre is preferred to bad peat fibre. Dr. Carneus is a devout lover of plants, and is a worthy follower in his devotion to our own Dr Ward, of Southampton, who for years maintained a superb collection. Again, the medical, or any other profession in England never had a more enthusiastic lover of plants than Dr. Cooper-Foster, whose great hobby was Filmy Ferns.

Spathoglottis angustorum.—A beautiful subject for autumn flowering, blooms of which come from Wilton House, Southampton. In habit the plant somewhat resembles Phajus bicolor. The spike is erect and many-flowered, the individual blooms being 2 inches across; the sepals and petals broad and full and pure white; lip pale purple, front lobe pale mauve, with a fleshy yellow protuberance at the base. It is a very showy and interesting plant, and one not yet generally known. It is, I believe, one of M. Linden's introductions.—W. H. G.

Mesospinidium vulcanicum.—This is one of the very prettiest of autumn-flowering Orchids, and one of the most easily managed. In its native country it appears to be a spring bloomer, flowering in the month of April; here, however, it commences about this season, and continues for several months in beauty. It resembles somewhat Odontoglossum roseum, but differs considerably in its growth and in the shape of its lip. I am not sure, but I think we are indebted to the Messrs. Backhouse, of York, for the introduction to cultivation of this charming plant, which enlivens our houses at this particular season with its bright rosy red blossoms. I recently noted some fine varieties flowering in Mr. Williams' nursery at Holloway.—W. H. G.

Cypripedium vexillarium.—A dwarf, slow-growing plant of extreme beauty; it is a hybrid obtained by the veteran Dominy between C. Fairrieanum and C. barbatum, and whilst retaining nearly all the characters of the first-named parent it is more beautiful. The dorsal sepal is pure white in the upper part, the remainder being streaked with deep vinous purple and suffused with carmine-purple; the petals, deflexed in the way of those of C. Fairrieanum, and not curving upwards in the form of a buffalo horn, as in that species, are waved at the edges, and of the same colour as the dorsal sepal; lip light brown, veined with green, the claw spotted with deep crimson. This plant has always been scarce, but I recently noted a specimen with upwards of a dozen blooms in the nursery of Mr. Sander at St. Albans. It is considered amongst the most beautiful of the autumn flowering kinds.—W. H. G.

Cypripedium œnanthum superbum.—This, of free and dwarf growth, is one of Mr. Seden's most beautiful hybrids. It blooms freely, and the flowers, brilliant and showy in the extreme, being produced from this season on through the autumn, are valuable. I was never so much impressed with its beauty as recently when I saw it in the nursery of Mr. Williams, of Holloway. The dorsal sepal is large and the ground colour pure white, a large portion of the upper part being unspotted, the remainder being ornamented with eighteen or twenty dotted lines of deep crimson; these are bordered with emerald green and flushed with carmine; petals deep vinous purple, reticulated with violet; lip bright port wine colour. The lip and the petals have the appearance of being freshly varnished. This most desirable variety is the result of a cross between C. insigne Maulei and C. Harrisianum, and thrives well under comparatively cool treatment.—W. H. G.

AUGUST FLOWERING ORCHIDS.

DURING the month of August Orchids are in great demand for exhibition bouquets and vases or epergnes, while at nearly every important show prizes are offered for four or more plants in flower; in fact, as far as country districts are concerned, more are wanted at this season of the year than at any other time. Unfortunately, the selection of showy or serviceable species and varieties is somewhat limited, and I endeavoured when last at Mr. Cypher's Queen's Road Nurseries, Cheltenham, to gain as much information on the subject as possible. One of the best August flowering Orchids is found in Cattleya Gaskelliana, this being a marked improvement on the old C. labiata, and quite as easily cultivated. It succeeds admirably with the other Cattleyas or, as with us, in a light plant stove, a perforated pan and a compost of rough peat, charcoal, Sphagnum and crocks suiting it well. It forms sturdy growth, and under ordinarily fair treatment produces grand spikes, each carrying three or four fine blooms, which keep fresh in a dry warm house about three weeks. In common with most other Cattleyas, there are various forms all more or less beautiful, and all capable of being improved by good cultivation. Cattleya crispa, a much older favourite and of remarkably easy culture, is equally as serviceable, though not quite so showy, as the majority of Cattleyas. A plant of a superior variety in Mr. Cypher's Cattleya house was carrying six fine spikes, each with six flowers, the lip in this case being more richly coloured than that of the ordinary form. Our plants of C. crispa had, several years ago, a rough time of it, but they have survived it all, and now annually flower strongly in August, remaining in a serviceable state for about a fortnight. Cattleyas generally keep better in a dry, warm house or room than they do in a cool plant house, where they are often placed when it is wished to preserve the flowers as long as possible. Cattleya Loddigesi ought always to be grown where Orchids are required late in July and till the end of August. It is of free growth and never fails to flower. The strongest spikes produce four medium-sized, fairly showy flowers, which remain fresh for three weeks or longer, and are fairly attractive on the plant or in a cut state. Cattleya Aclandiæ can frequently be had in flower as late as August, but it is by no means of very easy culture and not very well adapted for showing as a plant. When grown either in perforated pots or baskets or on a charred block of wood and suspended near the glass, it produces its handsome flowers more freely, and these keep fresh for many days. In a large collection it is possible to have the beautiful Cattleya gigas in flower during August, and I saw a lovely form of it at Mr. Cypher's. C. prismatocarpa was also very beautiful, and this should also become a general favourite.

Dendrobium formosum giganteum is perhaps one of the best Orchids that could be selected for flowering in August and September. It is said to be difficult to cultivate, but with us it grows strongly suspended near the glass in an ordinary plant stove, one young growth producing two spikes and another on the same young plant one extra strong one this season. At Cheltenham it is very vigorous and free-flowering, both fixed to boards and in perforated pans, all, however, being suspended in a brisk heat. It delights in a rough compost, and requires plenty of moisture when growing, no drying off

being necessary to induce flowering. The spikes produced from the points of the current year's growths each have about four blooms not less than 4 inches across, and pure white in colour with the exception of a blotch of yellow on the lip. We have had flowers keep fresh in the house where grown for about two months. Dendrobium Dearei, another evergreen species, is when well grown also very serviceable. It does well in pots filled with ordinary Orchid compost, and ought never to be dried off, but should be kept growing in a brisk heat with plenty of atmospheric moisture, and be lightly shaded. The pseudo-bulbs ought not to be cut, as these are capable of flowering three or more times and at different seasons in the year. Each short spike produces five or six medium-sized flowers, which are nearly pure white, and these remain fresh for two months. [*Mr. Poë brought us the other day a spike of this bearing twelve fully expanded flowers.* —Ed.] Dendrobium Jamesianum, which is not unlike D. formosum, flowers earlier in the summer, but at Cheltenham plants were in flower late in August, and were very attractive.

Several Cypripediums can be had in flower during August, among these being the quaint C. caudatum. Some of the flowers on Mr. Cypher's plants had "tails" 2 feet in length. It does well in a brisk heat and moist atmosphere, and rarely fails to flower satisfactorily. The rose form is the best, but either always attracts attention. I noticed several plants of the beautiful Cypripedium Stonei in flower, and this fine species may well be added to the list of possible August-flowering Orchids. Cypripedium Godefroyæ and C. bellatulum, a newer and improved form of the latter, are also worthy of special mention, both being of easy culture and very fresh and attractive. Cypripedium Lawrenceanum is also frequently seen at its best during July and August. Mr. Cypher had several fine plants flowering grandly, and we had it good at the same time. It does not require a very high temperature, and the flowers remain fresh for six weeks or longer. The prettily mottled foliage of this species adds greatly to its attractiveness.

By far the best spike of Odontoglossum Harryanum I have yet seen was produced in Mr. Cypher's nursery, and those who have a good batch of this comparatively new and very beautiful species will find it very serviceable in July and August. It greatly improves on its form as first seen in this country, the flowers being much larger and showing up better than previously. The spike just alluded to was carrying nine large richly coloured flowers, these being altogether distinct from those of any other species of Odontoglossum. Grown in an ordinary Odontoglossum house, it thrives admirably and is very free-flowering. Where a good stock of Odontoglossums exist there are generally several O. Alexandræ in flower in August, and they are much appreciated at that time. Masdevallia Harryana is frequently very good equally late, and I also noticed M. Reichenbachiana as being attractive at the same time. The quaint Masdevallias Shuttleworthi, Chimæra, and bella appear to be nearly always in flower, but they are not serviceable to the exhibitor. The Anguloas are also well adapted for the cool house and pot culture, and when well flowered are very handsome as well as singular in appearance. As a rule they flower earlier in the summer, but I observed A. Clowesi, A. eburnea, and A. Ruckeri all quite fresh at Cheltenham, and others might safely retard their plants. Saccolabium Blumei and the newer forms can always be had at their best in August, and exhibitors of plants especially ought to include one or more of them in their lists. They, in common with Vandas, thrive and flower most freely in gentle heat with a moderate amount of shade, being grown either in perforated pots or baskets, and given a good surfacing of live Sphagnum and plenty of moisture. The spikes of bloom remain in a fresh state for about three weeks. Oncidium Lanceanum also thrives in a moderately strong heat, and can frequently be had in perfection as late as September. It does well on a block and is a beautiful species. Mr. Cypher had Oncidium sarcodes flowering strongly, but, as a rule, this species flowers much earlier in the year. My list will not be complete without allusion to the beautiful and most serviceable Epidendrum vitellinum majus and Dendrochilum filiforme. The latter in a cut state is frequently seen in hand bouquets, the elegant racemes of yellowish blooms falling gracefully over the rest of the flowers. Though not at all showy, it is yet worthy of general culture. It is a heat and moisture-loving species, and by no means difficult of culture. The Epidendrum may be said to be one of the best cool house Orchids in cultivation, and those who possess a good stock of plants may have a supply of bloom from May to September inclusive. It succeeds well in perforated pots, is of neat habit, and never fails to flower. The individual spikes are about 10 inches long, and much of this length is closely furnished with bright orange-scarlet flowers, which retain their freshness six weeks or even longer. W. Iggulden.

Cattleya virginalis.—This would appear to be the correct name of the white form of C. Eldorado, oftentimes found in gardens under the name of C. Wallisi. I have recently noted it blooming in several collections, but some extra fine forms are flowering in Mr. Williams' nursery at Holloway, where it receives the same treatment as the New Grenadian Cattleyas. In the best forms the sepals and petals are pure white and the segments are broad, thus forming a full and well-shaped flower; the lip also is white, stained in the throat with bright orange. In the variety rosea there is a distinct rose-coloured blotch on the anterior lobe of the lip. The merits of this Cattleya are too much ignored, seeing that it flowers during the months of August and September, which may be reckoned the very dullest time for Orchid flowers.—W. H. G.

Oncidium Lanceanum.—From amongst a rich gathering of Orchids from Mr. Buchan, of Southampton, come numerous forms of this species, which show it to be a valuable plant for flowering at this season of the year. One variety, however, amongst the number is specially remarkable, the individual flowers being upwards of 3 in. across, the segments broad and massive and fleshy in texture. The sepals and petals are rich chocolate-brown transversely banded with yellow, on which are numerous spots of the same rich hue; the broad lip is rich violet in front, the clawed base and the small side lobes being of a deep rich violet. The blooms yield a delicious fragrance somewhat resembling that of Vanilla, and they remain in full beauty for many weeks. In the variety Louvrexianum, which comes with the above, the flowers are distinguished by the lighter brown of the sepals and petals, and by the anterior lobe of the lip being pure white. This species is usually considered difficult to grow, but Mr. Osborne says, "It gives me no trouble here." Knowing it to be a native of British Guiana, he gives it more warmth and does not load its roots with potting material, but he finds it enjoys copious waterings.—W. H. G.

Eulophia guineensis.—This is a magnificent terrestrial Orchid from the West Coast of Africa, and one that is unfortunately still rare in cultivation. I was particularly struck by a plant of it flowering in the collection of Mr. Measures, The Woodlands, Streatham. The spike was about 3 feet high, and bore some three dozen or more flowers, each of which was about 2½ inches across, the sepals and petals being narrow, slightly twisted, and of a dull purplish hue; the lip is distinctly three-lobed; the short side lobes erect; the front lobe is large, cordate, waved at the edges, white or rosy white, stained at the base with crimson, and bearing several crimson streaks on the surface. The flowers remain in full beauty for a considerable time. This species is a member of a large genus, the headquarters of which is in the southern and western portion of Africa. They thrive best potted in turfy loam, leaf-mould, and sandy peat. During the growing season an abundant supply of water and strong heat are necessary to their welfare, but a long season of rest is injurious. Many of the species are not ornamental, but this one and its variety purpurea take rank amongst the most beautiful and ornamental plants in the whole family of Orchids.—W.

Bolbophyllum umbellatum.—Although seldom seen, this is valued by those fond of curious flowers. It was first introduced by Gibson to Chatsworth and flowered in this country fifty years ago. Its flowers, thick in texture and lasting a considerable time in beauty, are produced in an umbel, and are of a pale rosy yellow colour dotted and freckled with deep red. The plant thrives best on a block or in a small, shallow basket. I recently noted this species flowering in Mr. Williams' nursery at Holloway.—W. H. G.

Cattleya Aclandiæ.—Some flowers of a beautiful form of this gem come amongst the gathering from Wilton House, and Mr. Buchan is deservedly proud of his Cattleyas. The best form of this species sent is a flower upwards of 4½ inches across, the sepals and petals broad, a bright buff, ground colour approaching to Indian yellow, transversely barred, tipped and spotted with deep purplish brown; the large lip and column are of a deep magenta-purple with a blotch of yellow at the juncture of the exposed column. The plant comes from the neighbourhood of Bahia, and enjoys an abundance of light and heat. It does not like to have its roots encumbered with too much peat or Sphagnum.—W. H. G.

SHORT NOTES.—ORCHIDS.

Angræcum Dubuyssoni.—This is a new species of a somewhat slender growth which I do not think has yet flowered in Europe. It is said to have an erect spike of bloom which much resembles that of A. Ellisi. It has been imported from Madagascar, and I recently noted many plants of this species in the establishment of M. Godefroy-Lebeuf at Argenteuil.—W. H. G.

Cattleya Wallisi, or virginalis.—Numerous fine forms of this variety of C. Eldorado are now flowering with Mr. Horsman in his nursery at Colchester, as well as some excellent varieties of C. labiata pallida, now called Gaskelliana. Some plants of Lælia purpurata which arrived in this country only during the last spring are now flowering.—W. H. G.

Phalænopsids at Kew.—These plants are especially showy just at present, many plants of P. grandiflora being in bloom, and most of them good varieties; beside this species I also noted an excellent form of P. Sanderiana, P. violacea, P. Esmeralda, and the lovely P. Mariæ, the last, one of Mr. Burbidge's discoveries when travelling for the Messrs. Veitch, of Chelsea.

Cottonia peduncularis (The Bee Orchid of Ceylon).—This is a rare plant in cultivation, and is not a plentiful plant in its native habitats. It was named Vanda peduncularis by Lindley, but was constituted a new genus by Dr. Wight, and named in honour of Major Cotton, an enthusiastic cultivator of Orchids in India. It is a peculiar and interesting plant now flowering in the Kew collection, and is well deserving the attention of Orchid growers.—W. H. G.

Oncidium incurvum album.—This is a rare plant both in this country as well as on the Continent, and is valuable on account of its free-flowering qualities as well as for the purity of its blooms. It is the exact counterpart of the typical plant, but the whole of the flower is snow-white. This superb plant I recently noted in bloom in the establishment of M. Garden, Bois de Colombes, near Paris, where it is grown cool.

Cypripedium concolor Gardenianum.—This is an elegant form which I recently noted in the establishment of M. Garden, Bois de Colombes, near Paris, and it appears to be almost intermediate between concolor and Godefroyæ. It retains in a great measure the foliage of concolor, and the leaves are pale green beneath, but it appears to be a stronger and freer grower than that plant. The flowers resemble those of concolor in shape, but are larger, the ground colour of the purest white, sparingly dotted with crimson. Slipper Orchids are well and largely grown in this establishment.—W. H. G.

Catasetum Bungerothi.—Doubtless this distinct and beautiful variety will, when better known, be held in high esteem by Orchid growers. It seems to be a plant of easy culture and free flowering. Our plant, growing in a basket suspended from the roof in the warmest house, has made a bulb 6 in. to 7 in. long, which has already produced a spike with eleven of its large ivory white flowers, and is now sending up another spike which promises to develop four or five flowers. This species seems to be deciduous, but the

leaves are fresh and green during the season of flowering, and considerably add to its beauty.—J. A., *Digswell*.

Rose Garden.

T. W. GIRDLESTONE.

ROSE FRANCOIS MICHELON.

Just as among men, there are always some few who tower head and shoulders above their fellows, whether physically, intellectually, or morally, and are universally considered "great men," so among Roses there are some varieties whose claims to be accepted as "great Roses" are undisputed. Moreover, as in the world of men, although there are plenty of good and useful, not to say indispensable, members of the community, the number of really great men is small, so in proportion to the infinity of beautiful Roses in cultivation the really great Roses, such as General Jacqueminot, Charles Lefebvre, Marie Baumann, Alfred Colomb, La France, Baroness Rothschild, Louis Van Houtte, Marquise de Castellane, A. K. Williams, Madame Gabriel Luizet, and Ulrich Brunner, are by no means numerous.

It must, however, be admitted that an addition was made to the select list of great Roses when in 1871 Levet sent out François Michelon. If anyone had ever any doubts as to the magnificence of this variety, they should have been dispelled this season, for it has been emphatically a François Michelon year in the south of England at any rate The flower, whose pure and brilliant rose colour is sometimes marred by a burning sun, was exactly suited by the cool showery weather, and glorious examples were consequently seen on all sides.



Rose François Michelon.

One of François Michelon's great charms lies in the fact that, however large the flowers may be grown, they never appear coarse, their exquisite and refined form, purity of colour, and smoothness of petal invariably rendering them attractive, and although seventeen years have now elapsed since its distribution, this beautiful Rose is still unsurpassed among pure rose colours.

The plant is a vigorous grower, making shoots often of great length, and by the pale green, thornless wood and large foliage is easily distinguishable amongst other varieties at any time of year; and while it may be regretted that François Michelon is not a freer autumnal, it cannot for this one failing be denied a place among the "mighty few," and will unquestionably rank for many years to come as one of the "great Roses."

THE RAINS AND RED RUST ON ROSES.

We wish to give the cold rains their due. They have saved many places from an impending water famine, replenished our cisterns with water, and washed off or drowned out the red rust from our Roses. It would be easy enough to balance these advantages without travelling far from the fair field of Roses. For the present we will write well of the rain for ridding us of our most formidable foe the red rust. We cannot tell how it was done. Suffice it to say that once it was here and now it has vanished, and that without visible cause, barring the floodings of rain, mostly cold rain. Whether the cold perished it or the wet drowned it out we cannot certainly say. Possibly both had a hand in its removal, the rain being the strongest factor in the matter.

This opinion is formed after much observation and not a few attempts to eradicate rust by artificial means. But Nature has done her work more thoroughly and with more effect. True in some places the white mould has succeeded to the red fungus, and we may not have gained so very much by the change of colour. But the Roses have been benefited, for mildew is more readily curable than the red rust. The latter in its worst state is, in fact, virtually incurable; whereas every rosarian has his half-dozen or more nostrums for the cure of mildew, to say little or nothing of the universal panacea—sulphide of potassium. Besides, the sun may destroy mildew while it is seldom we have rain enough in the time of Roses to drown out red rust. Notwithstanding the drowning of the red rust, few rosarians have any desire to see the like of the closing season again.

D. T. F.

Rose W. F. Bennett.—After so much has been said and written against this Rose, which when first distributed bore such a high character, it is satisfactory to learn that it still retains its good character with some growers. I recently met a gentleman from America (Mr. J. S. Peterson, of Cincinnati), who is a large cultivator of Roses under glass, and he told me that he found this Rose one of the best and most profitable to grow for winter-flowering. He, however, stated that many of the American growers had discarded it, but considered this was due to the Rose not receiving favourable treatment. It appears to be a Rose which requires exceptional treatment, and when in the hands of those who know how to grow it, it is undoubtedly a fine Rose. This must be evident to all who have seen the splendid blooms which have been exhibited at various times by its raiser, Mr. Bennett, of Shepperton. Other Roses which Mr. Peterson spoke highly of were Catherine Mermet and Perle des Jardins. Perle des Jardins, however, does not succeed well with all growers, but when under good conditions it is certainly a grand Rose. Sunset, another Rose of similar character, can also be highly recommended.—A.

Marechal Niel Rose.—The very hard pruning which I gave my plants of this Rose early in the summer has been fully justified, the heavy rains having forced unusually strong growth, the roots being outside. Some old wood, stouter than broom handles and cut through, has broken remarkably well, throwing up several stout shoots, now 3 feet and 4 feet in length. Buds worked on shoots which broke from Lamarque stock, a very prolific stock for shoots of that character, have already given some splendid growths, whilst all over the plant wheresoever hard pruned a wealth of shoots has broken and will continue to make strong growth for the next six weeks. Happily, such wood under

glass withstands severe weather, whilst it will mature thoroughly. Some persons seem afraid to hard prune their Maréchal Niel Roses, and are rewarded annually with small shoots and indifferent flowers. I do not find that, whether on the Brier or on Lamarque or Madame Berard, or even on Marie Guillot, there is much difference. The chief cause of such robust growth is doubtless found in the thorough moistening of the soil, which is somewhat stiff, but the roots evidently like it. I have noticed some plants of Maréchal Niel on Manetti, but planted inside the house, and they have not made by any means such robust shoots as those on outside borders. Whilst so far reserving every robust shoot, it is evident that considerable thinning will have to be done later. It is worthy of note that whilst the buds worked on to the Lamarque stock have proved so very active, some worked on strong shoots of Madame Berard stock at the same time have not yet pushed growth.—A. D.

LIST OF GARDEN ROSES.

The best varieties are denoted by an asterisk.

PROVENCE.

Cabbage or common — Burgundy
*White Provence — Little Gem

STRIPED PROVENCE.

*Rosa Mundi

MOSS.

*Blanche Moreau — *Common — Muscosa japonica

CHINESE, BOURBON, AND NOISETTE HYBRIDS.

Blairi No. 2 — *Madame Plantier
Coupe d'Hébé — Souvenir de Pierre Dupuy

AYRSHIRE.

Alice Gray — Splendens

MANY-FLOWERED.

*Simplex — Grandiflora

EVERGREEN.

*Félicité-Perpétue

HYBRID CLIMBING.

*Fortune's Yellow, or Beauty of Glazenwood
Laura Davoust — The Garland

SPECIES.

Anemonæflora — *Macrantha
Brunonis — Moschata alba
Clynophylla plena — Pomifera
Indica — Pulverulenta alba
Lucida — *Rubrifolia

AUSTRIAN BRIERS.

Single Yellow (R. lutea) — Persian Yellow
Single Copper (R. punicea) — Harrison's Yellow

HYBRID SWEET BRIER.

*Hebe's Lip

HYBRID PERPETUALS.

Alphonse Soupert — Gloire Lyonnaise
*A. K. Williams — Glory of Cheshunt
*Anna Alexieff — Henri Ledechaux
*Baroness Rothschild — *Heinrich Schultheis
Boule de Neige — John Hopper
Camille Bernardin — Jules Margottin
Charles Lamb — *La France
Charles Lefebvre, or Marguerite Brassac, or Paul Jamain — *Madame Gabriel Luizet
—— Nachury
*Marquise de Castellane
Dr. Andry — Merveille de Lyon
Duke of Edinburgh — Pride of Waltham
*Dupuy Jamain — Princess Louise Victoria
Ella Gordon — Suzanne Marie Rodocanachi
Etienne Levet — Thomas Mills
Eugène Appert — *Ulrich Brunner
Florence Paul — *Violette Bouyer
Garden Favourite
*Général Jacqueminot

MACARTNEY.

Alba simplex — Marie Leonida

RAMANAS.

*Rugosa alba — Coruscans

ROSA POLYANTHA HYBRIDA.

Anne-Marie de Montravel — *Mignonette
*Ma Paquerette — *Perle d'Or
Max Singer

PERPETUAL SCOTCH.

*Stanwell Perpetual

BOURBON.

Armosa — Queen
Madame Isaac Pereire — Souvenir de la Malmaison
Marie Paré

NOISETTE.

Aimée Vibert — Narcisse
Céline Forestier — *Ophirie
*Lamarque — Rêve d'Or
*Maréchal Niel — *Wm. Allen Richardson

CHINESE OR BENGAL.

Cramoisie Superieure — White Pet
Mrs. Bosanquet — Red Pet

HYBRID TEA-SCENTED.

Camoens — *Reine Marie Henriette
*Cannes la Coquette — *Reine Olga de Wurtemberg
Longworth Rambler
*Madame Alfred Carrière — *Viscountess Folkestone
Marie Lavallée

CLIMBING TEA.

*Bouquet d'Or — Gloire de Dijon
Emilie Dupuy — Madame Berard

TEA-SCENTED.

*Anna Ollivier — Jules Finger
*Caroline Kuster — Madame Charles
Ethel Brownlow — *—— Chedane Guinoisseau
Francisca Kruger
*Grace Darling — —— Falcot
*Hon. Edith Gifford — *—— Lambard
Innocente Pirola — *Marie Van Houtte
Jean Ducher — Perle des Jardins
—— Pernet — *Souvenir d'un Ami

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

CULTIVATORS of Chrysanthemums for large blooms will do well to have the branches securely tied to the stakes and these fastened to the cross rails now that the time is drawing near when equinoctial gales are usually prevalent. I do not remember a year when one of these severe gales has not visited us from the 1st to the 15th September. Blowing so fiercely as it does from the south-west, often accompanied with heavy rain, much damage is done to the points of the branches which have just set and are commencing to swell the bloom buds. Many varieties having slender peduncles are more liable to be damaged through being whipped about with the wind. Even if the buds are not broken off, they are sometimes so bruised that the sap does not flow easily, consequently the flower does not develop satisfactorily. I find that when the points of the branches, say about 4 inches long, are left unfastened to the stakes they are extremely likely to snap off with the weight of the leaves when wet. Very liable to this casualty are the varieties Prince Alfred and Mr. Brunlees. We generally lose more points from the shoots of these sorts than from those of any others. A broken branch means the loss of a bloom, and this is very annoying when, as it often happens, those broken are the scarcest sorts. Incurved varieties are more liable to disasters of this sort than those of any other section, and it is necessary therefore to use all possible care to prevent accidents of this sort. The severe gale of August 28 ought to act as a warning to cultivators with no previous experience of damage caused by winds and rain.

I find many branches rendered useless this season by reason of the points being injured by various insects, such as earwigs, &c. In my opinion there is another enemy more difficult to deal with than earwigs, although they are bad enough. The insect I allude to is a species of very small fly, dull red in colour, and which secretes itself among the young leaves about half an inch below the point of growth, and bores a hole through the skin of the stem in a manner which cripples that side of the shoot and ruins the point. I believe that this pest has this season been very prevalent in the collection of a leading grower in the neighbourhood of London. He blames the earwigs for this depredation and loss of many points of plants, but I am inclined to think it is the insect referred to above. As far as I know, there is no means of trapping this pest. Earwigs may be kept down by using small pots half filled with Moss, and by examining them in the morning many may be destroyed. To show how numerous they are, thirty-six were caught in a 2½-inch pot one day this week. Stems of Broad Beans in 6-inch lengths or hollow Bamboo canes thrust among the leaves of the plants make excellent traps for earwigs. Where any branches are spoilt through whatever cause, it is useless to allow them to remain on the plant. Particularly is it desirable to cut them off this year, so that the remaining branches may have the extra benefit of light and sun, with a view to assist in the maturation of the wood, which cannot possibly be over-ripe this season; therefore, anything which will aid the wood becoming solidified should be done. It will also be found that mildew is not nearly so likely to infest the leaves when the branches are thin as when they are huddled together. This is a distinct gain, and a good reason why these useless branches should be removed when it can be seen they are of no service.

As there appears to be no end to the wet weather, the greatest care should be exercised in watering the plants. The soil is being soaked through and through so often now by rains that the foliage is, in some cases, showing the effects by turning black, and when this takes place it is sure to fall off. Watering the plants when they do not require it is a sure means of aggravating the evil. Stimulants should be given also very sparingly now, as they have a decided tendency to encourage gross growth, and consequently unripened wood, which should be avoided. A few doses of soot water will be of service to the plants. Soot water improves the colour of the foliage, and at the same time does not cause a gross growth.

It is interesting to watch the growth of new varieties, particularly if they have a good reputation. Especially is it pleasing to find that most of them are inclined to be of dwarf growth. Any good variety which ranges from 2 feet to 6 feet in height is especially deserving of attention, and any method of cultivation which will produce the finest blooms upon dwarf plants should be the aim of all, although some of the best flowering sorts will run up 10 feet high. Those having more than one plant of any new varieties would do well to select in one plant the buds upon the first break, and in another those from the second break. In this way the kind could be tested to its fullest extent.

Cut blooms in quantity.—Any plants of such varieties as Mrs. G. Rundle, George Glenny, or Elaine that were planted out in May and June with a view to being lifted in the autumn and placed under cover without potting, in order to supply cut blooms in numbers, will shortly need attention, so that the least check possible be given to the plants when moved. The growths would be pinched till the middle of June, allowing the branches to lie on the ground instead of securing them upright to stakes; the reason for this form of training will be obvious when it is considered what the position is which they are to occupy when in flower. In the last week in September cut around the plants with a spade and in about a week lift them with a good ball of soil, and plant as thickly as their size

will allow in houses usually occupied in the summer with Cucumbers. The soil in which the Cucumbers had been grown will suit the Chrysanthemums and save further trouble in preparing other compost. As the branches were not staked, they will lie on the bed, and in this way they will be near the glass. When planted give a good soaking of water to the roots, and syringe the plants in the afternoon for a few days, and if they show signs of flagging apply a light shade until they have recovered from the check. It will be well to disbud to one flower on each stem on some of the plants, and by allowing all the flower buds to remain on others flowers of different sizes are obtained. When the roots commence to penetrate the new soil water freely with tepid liquid manure if good drainage is assured, and ventilate the house freely on all favourable occasions Mrs. G. Rundle is particularly well adapted to this method of culture, its habit of growth being moderately strong. It branches freely and flowers profusely, yielding an abundance of flower with a minimum of trouble when treated asadvised.—E. M.

KITCHEN GARDEN.

DISEASE-RESISTING POTATOES.

With such sad evidences of disease in Potatoes everywhere, it is no wonder if the attention of the unfortunate grower is once more turned to the subject of disease-resisting varieties. Only a few years ago no subject excited more interest in relation to vegetables, and then there was ample necessity. Then came a few years of fair health and good Potato crops, and the disease-resisters were forgotten; indeed, some have treated them with contumely. Now that the disease is really worse than it has been perhaps for ten years, perhaps as bad as at any time since the disease first appeared in this country, it is but natural that attention should be given to varieties which exhibit disease-resistance in any appreciable degree. Very probably there is no variety which does not give some diseased tubers. To expect that any sort should be able to withstand the action of the Peronospora in every soil and under all conditions of culture or of weather would be to expect far too much. What we must seek for are varieties which exhibit comparative immunity from disease. The severest tests of Potatoes are always found in rich or highly manured soil, and very severe lessons in regard to that kind of culture have this year been taught, myriads of roots growing in strong, rich garden soils having been lifted absolutely rotten. It was but natural, having regard to the results seen on comparatively poor ground last year, that little confidence should be placed in such soils as Potato producers. However, this has been specially the season of poor soils, and no matter what crops they are carrying, they have proved on the whole the most healthful and productive. It may, therefore, turn out that whilst some varieties of Potatoes are only comparatively disease-resisting on rich soils, they are absolutely so on poorer soils, and allowance must be made in the former case for the cultural conditions. To have one-fourth or even one-third of the tubers diseased out of a heavy crop is not a serious evil. It is very serious, however, when the proportion is reversed and the bad tubers preponderate.

There can be no doubt this season that the fungus has been greatly aided in its terrible work amongst the Potato crops, both by reason of the generally excessive wetness of the soil and the soft, imperfectly matured nature of the haulm. These features exhibited themselves chiefly in connection with the early varieties, because just at the time of their proper maturing we had much of the heaviest rainfall, and being of less robust habit of growth than the later ones usually are, could not so rapidly absorb the moisture from the soil. The tall, strong-growing varieties are greatly helped through bad weather by their greater root action and leaf area; hence, with them moisture about the roots is much more rapidly absorbed and the growing tubers are kept drier. The stems in nearly all cases taking longer to mature seem composed of harder and more woody tissue, which serves to carry leaves up to the very last possible moment, and it is invariably found in lifting roots, as indeed it has always been found during past years, that wherever the stems remained green, and but a leaf or two remained green, there is little, probably no disease found in the tubers. Of course, more than this is needed to show why some sorts of Potatoes do resist disease generally whilst others do not in any way, and it seems probable that we shall have to look for that divergence elsewhere than in the mere plant growth. Form has nothing to do with it; colour is also equally an inefficient element; but time of ripening and general habit have very much to do in the matter, for all expereince shows that whilst no early nor even second early kind is trustworthy, the robust late varieties only afford anything like resisting capacities. Amongst sorts which so far have proved clean and sound with me I may mention Magnum Bonum, Abundance, Chancellor, Governor, the latter a new white kidney, and some robust late seedlings. These are all absolutely clean, whilst some others are nearly so. There is much variation in the early kinds, as White Beauty of Hebron, with me only moderately affected, is very bad near at hand. Mine, however, were grown in rather poor soil, the others in stronger soil to produce market samples. There have been seasons when earlier kinds have excelled generally and the late ones have severely suffered, but that was when for late crops we were chiefly dependent upon Regents, Victorias, Lapstones, &c., all kinds which though good yet suffer from disease sadly. Had stocks generally this year consisted of these kinds, our Potato crop might have been in a sad plight. Disease-resistance in the Potato must be treated diversely from the subject of protective earthing. That unfortunately has been tried little or not at all this year, and therefore we are none the wiser with regard to its usefulness or otherwise in saving our Potato crops. With disease-resisting kinds we need no system of protective earthing; indeed, the plan would be a difficult one to adopt in field culture, whilst where adopted it is admitted that the productiveness of the plant is appreciably reduced The aim of protective earthing, based on the assumption that the fungus spores are washed by rains into the soil, and thus the tubers are diseased directly, is to place so much more of soil over the tubers in the rows that the moisture shall largely be thrown off or at least the spores shall not penetrate to the tubers. To secure that result some 4 inches or 5 inches of soil laid right on to the roots is needful. That a great deal of the disease in the tubers this year is due to the fact that they have been saturated with rain, which doubtless washed the spores of the fungus down the plant stems into the midst of the tubers there can be no doubt. All the same there remains the other fact that there are kinds the tubers of which subjected to exactly similar disadvantages have yet proved impregnable to the disease spores. A. D.

Planting Asparagus.—Anyone who has dug up an old plant of Asparagus, and observed the far horizontal stretch of its very numerous strong fleshy roots in all directions, will see at once that a distance of 1 foot or even 2 feet apart is a derisory space in which to put them to compete with each other with expectation of their producing full-sized sprouts of tenderest quality. The fact adduced by B. F. Johnson and observable in almost any Asparagus bed that the outer row gives the largest shoots, even if it adjoins a Grass plot, is plain evidence of their wanting liberal room.

KITCHEN GARDEN NOTES.

Forming Mushroom Beds.

It is quite useless to form beds with manure that has been left in the open air to ferment, as this is certain to have been badly saturated and rendered altogether unfit for the purpose. The greatest difficulty has been experienced in keeping early made open-air beds sufficiently dry, strong gales of wind dislodging all the covering placed over them. Tarpaulin covers answer well in colder weather, but at this time of year are apt to unduly confine the heat, and the spawn in an overheated bed is soon destroyed. In spite of these difficulties open-air beds properly made and spawned will be found much more profitable than any formed under cover in dry warm sheds or houses. Quite cool sheds or outhouses answer well, especially if conical or wedge-shaped ridges are made in preference to the ordinary flat shallow beds. The latter are the first to become dry and cold, whereas a bed to be long productive ought to retain a certain amount of heat and moisture for several months. When the manure, owing to dryness, ceases to decompose, the supply of Mushrooms is very limited, and soon fails. The spawn is also destroyed when the other extreme is reached, too much moisture inevitably proving fatal. In all cases much depends upon the proper preparation of the manure, and if it is decided to form ridges rather than shallow beds, there is all the more need for avoiding the use of raw or badly prepared materials. It takes from a fortnight to three weeks to properly prepare and sweeten a mass of fresh, or nearly fresh horse droppings, three or more thorough turnings inside out being necessary before rank heat and foul gases are got rid of. Well-prepared manure should be fairly moist to the touch and sweet to the smell, and unless these conditions are to be met with success is very doubtful. For outdoor beds plenty of short straw should be left with the droppings, as without this the manure does not hold well together in the first instance, and is liable to become too moist and cold later on. Neither is it advisable to remove all the short straw from the manure to be made into beds under cover of a shed or house. An open-air site should be well drained, and if possible screened from cold winds. The space should be staked out, a suitable width for a ridge-shaped bed being 3 feet, the length being regulated according to the amount of manure available. It should be very firmly and evenly built, and gradually tapered in so as to make the ridges about 3 feet high and about 6 inches wide at the top. Such a mass of manure, however well prepared, is certain to become very hot in the centre, and unless deep holes are opened with an iron rod through the middle of the ridge to the ground so as to let out much of the steam generated, the droppings soon become quite dry and mouldy, in which state they are altogether unsuited for Mushroom production. Ridge-shaped beds, as before stated, are also the best for cool sheds and Mushroom houses, but if this style of bed does not suit the position, the ordinary sloping beds may be made. At this early date the floor of the house or shed should be selected, benches being much too warm and dry. These beds may be from 10 inches to 12 inches high in front and from 15 inches to 18 inches high at the back, and should be very firmly and evenly built, all lumps of manure being well separated as the work goes on. These shallow beds ought also to be closely watched, and should the trial stakes or thermometers plunged in them denote a great rise in the temperature, holes should be opened at short intervals all over the bed. Neglect this precaution and it may be necessary to break up the bed, in order to add fresh manure and remoisten the rest.

Spawning Mushroom Beds.

The proper time to spawn a bed is directly the heat, which in the course of a few days has risen to 90°, or rather higher, has declined to about 75°. Another 10° higher would not injure the spawn, but it will be found that spawning the bed usually causes a slight rise in the temperature, and it is for this reason that a safe figure is given. All do not possess plunging thermometers, nor are they indispensable. A frequent examination of stout pointed stakes, kept well thrust into the beds, soon enables anyone to test the heat of the bed, as should these prove too hot to be held comfortably in the hand, spawning must be deferred until the heat has declined. A fair price should be given for fresh spawn from a reliable source, and this ought not to be broken up too finely. We prefer lumps from 2 inches to 3 inches square, and from these fine masses of Mushrooms eventually result. Holes for these ought always to be opened just below the surface with the hand, and not a dibber, the latter forming a deeper cavity than can again be closed, and if the manure is rather moist, the heated steam is liable to collect under the spawn and destroy it. In the case of the ridge-shaped beds, the holes may be made 9 inches apart in rows about that distance, dividing the lines. The whole of the surface, including the ends, may be spawned, and all thoroughly well beaten down and covered with a good depth of dry litter. The flat beds to be somewhat similarly spawned, only in this case it is not advisable to surface over with litter. When the manure is rather old, and therefore not liable to suddenly attain a dangerous heat, it is a good plan to mould over the bed directly after spawning, this conserving the heat, and ensuring a quick spread of the mycelium or fungus spores. As a rule, it is advisable to wait for a week, or rather longer, before the mould is put on, but it ought not to be delayed much longer, or a check will be given to the spread of the spawn. We prefer fine fresh loam obtained from below the turf in a meadow, this being run through a coarse or half-inch sieve and used in a moderately moist state. Failing this, well pulverised garden soil of a loamy nature may be substituted. Very thin coverings of soil are to be avoided. We always put on sufficient to admit of a thickness of 2 inches resulting after it has been well beaten down. It ought not to be wet and plastered over, as this ends in surface-cracking and injury to the crop of Mushrooms. Indoor beds may usually be safely covered directly after they are soiled with not less than 6 inches of dry, soft litter, this preventing loss of heat and moisture, and ensuring a more regular temperature. Outside beds should have rather more litter placed over them, this being held together with long straw and lines, and in the winter by a tarpaulin or mats. These covered beds must be looked to occasionally, especially when there is a danger of over-heating. It may be necessary to open out the beds, but this does not often happen when the manure is well prepared in the first instance. Mushrooms may be gathered within a month of the spawning time, but more often than not it is nearer six weeks before they can be pulled in quantity from a bed. W. I. M.

Nutrition of vegetables.—Are vegetables raised by the aid of artificial manure as sappy and nutritious as those raised by thoroughly decomposed manure? Some of the correspondents of The Garden may be able to throw some light upon this subject. When one piece of Turnips is raised with artificial manure and another part of the crop in the same field with farmyard manure, it is a curious fact that sheep always prefer those raised with farmyard manure to those raised with artificial manure, even although these, to all appearance, are the largest and finest looking bulbs. Wood pigeons likewise follow the example of the sheep. On cutting up a bulb of such as are raised with artificial manure it appears to be much more stringy in the centre than the others. Some farmers are of opinion that artificial manure brought the Potato blight to this country, and some fishermen think that it has been the means of propagating a fungus which attacks their salmon in fresh water streams in districts of the country where the manure has been used in large quantities.—J. B. W.

Trees and Shrubs.

THE SHRUBBY MEADOW-SWEET AND VENETIAN SUMACH.

Permit me to add all the force of long experience to the advice given by "H. P." to your readers at page 176, to plant this charming and most graceful of all the Meadow-sweets (Spiræa ariæfolia). This writer says, truly enough, that it is not white, only creamy white. It is as beautiful and valuable as he says in that state or colour, but it can be had pure white, and then it is a plume of grace fit for the bower of the Fairie Queen herself, for not only may the colour be purified of its cream, but the plumes of blossom may be greatly lightened. To effect these improvements simply plant in good soil, under the shade of Oak or other forest trees. So great is the transformation, so marked the improvement on the whole habit and character of the plant, that good gardeners have declared the Shrubby Meadow-sweet grown in moist shady places to be a totally different species from the self-same plant grown in sunshine within a few yards.

To any reader of The Garden who may doubt whether this graceful Meadow-sweet will continue to thrive and bloom in the shade, I may add that I have known it to do so for a quarter of a century and more. There are also varying degrees of shade. Planted near the outskirts and on the shady side of a plantation, the plant will continue in good health, and also produce flowers white as snow and fluffy as eider-down, the very perfection of lightness and purity. Under deeper shadows the plant becomes more slender alike in stem and blossom. Doubtless it might be so densely shaded as to weaken its health and shorten its life.

The Venetian Sumach, on the other hand, is most perfect when grown in the fullest sunlight, for the more colour, the more effective are its fairy-like fluffy flowers. Unfortunately for the decorator, it is but seldom that these two plants can be had in perfection together, as otherwise it would be difficult to find two more effective plants for decorating rooms, churches, or dinner tables. The ruddy red or terra-cotta flowers of the Sumach, tastefully disposed in grouplets or wreaths over a base of the Meadow-sweet, are very effective, while there is hardly a landscape or shrubbery in the country that would not be vastly refined as well as sensibly enriched by the liberal planting of these two graceful and elegant shrubs. Hortus.

Prunus Pissardi.—Throughout the earlier part of the summer this purple-leaved Plum was seen to less advantage than has been the case for several seasons, as the continued dull and wet weather caused its foliage to become of a rusty brownish hue, rather than the rich bronzy-purple colour so much admired. During the last three weeks, however, we have had much brighter weather, and this Prunus has now acquired its normal tint. As it is deficient in colour when in the shade, this circumstance should always be borne in mind when planting it, for it must be so situated as to be fully exposed to the sun's rays, as the distinctive features of each are fully brought out when two plants of an entirely opposite character are associated together. A good companion to this is the golden-leaved Elder, which, like the Prunus, is better coloured when in full sunshine.—H. P.

Jamesia americana.—This handsome shrub does not seem to be so well known as it ought to be. It never fails with abundance of its pretty bunches of white Saxifrage-like flowers, is perfectly hardy in the open, and heedless of even our most severe winters. As a shrub for the rock garden, planted among the larger boulders, we have seen nothing to equal it, so bright and attractive is it at the present time. The soft green foliage reminds one of spring tints unusual in an autumn-flowering shrub. It is nearly allied to the Hydrangeas, and was first collected by Dr. Edwin James, botanist and historian of Major Long's expedition to the Rocky Mountains in 1820. It was found along the Platte, or Canadian River. With us it forms an erect much-branched shrub, compact and amenable to any amount of cutting or trimming, so that no difficulty will be experienced in keeping it to the required size when grown on the rockery. It would doubtless also prove an excellent subject for planting in exposed positions on the outskirts of lawns, &c., as its thick, compact growth would give good shelter in a very short time.—D.

Aralia spinosa.—This now forms a conspicuous feature by reason of the large terminal upright panicles of whitish blossoms, which, though individually small, are borne in such profusion as to present a very imposing appearance, especially when the plant is so situated that the huge compound foliage has sufficient space allowed for its full development, when it is, irrespective of flowers, a very striking shrub. It is well suited for planting in an isolated position, where if fairly moist and the soil is good it will make rapid progress, pushing up from the base strong shoots that quickly attain considerable height. I saw some flowering examples the other day that had been treated widely different from this, for they were crowded up with a mixed lot of shrubs, but the Aralias had overtopped all their neighbours, and the large feathery inflorescence towering above all its surroundings was remarkably conspicuous.—H. P.

Garden Flora.

PLATE 666.

SHRUBBY ROCK ROSES.

(WITH A COLOURED PLATE OF CISTUS CRISPUS *)

The Cistus family, represented in our gardens by Cistuses and Helianthemums, when seen at their best and in situations suitable to their requirements, are amongst the prettiest and most interesting shrubby plants that we possess for summer flowering. During Sweet's time the Cistus family seems to have been largely cultivated in all the old gardens, if we may judge from the large number of so-called species and varieties figured and described at great length in his "Cistineæ." Many of the plants figured are now considered mere forms of the older species, and several are not now in cultivation. The number of different species and varieties in gardens at the present time does not exceed twenty-five, many of these being old and well-known species, while a few are varieties and some natural hybrids. Much of the confusion at present existing regarding their proper classification is undoubtedly due to the readiness with which they hybridise with each other, and, if properly worked up and carefully studied by a competent authority, we believe that a few at present considered species, and certainly a few so-called varieties, would be found to be hybrids, natural or otherwise. When grown together on the rockery or border, they cross as freely as Aquilegias, &c., and, if watched, would certainly give some curious results. In growing these Cistuses in this country, and more especially in low-lying districts, the great difficulty to be overcome is damp. In the hilly or dry districts they thrive luxuriantly, forming large, handsome bushes in a few years. We are told that in the olden times almost every garden of note could boast of large bushes of these charming plants, many of which perished probably with the advent of ribbon bedding. Many of the failures may also be attributed to their being covered during winter. Cistuses, with few exceptions, will not stand covering at any time, and in a damp season they are far

* Drawn for The Garden by Miss E. Lowe at Woodcote, Wimbledon, July 16, 1887. Lithographed and printed by Guillaume Severeyns.



A ROCK ROSE (CISTUS CRISPUS)

more liable to damage when covered than if left exposed. Our experience with these plants proves that the more they are raised above the general level, the better will they pass through the winter and spring. Dry, exposed sandy banks suit them admirably, as our illustration well shows, and we find them flourish where the majority of plants refuse to grow at all. Nearly all of them ripen seed freely in ordinarily hot summers, and by this means they can be raised in plenty. The surest way, however, of perpetuating particular varieties is by cuttings, which if taken off about the end of July, or beginning of August, strike readily in a cold frame, and make nice sturdy plants by the following spring, the cuttings being potted off as soon as they are well rooted. To keep them true this is the only sure means of propagation. The raising of seedlings, however, will prove interesting to those who may have the time and the inclination to do so. During the last two years some rare species have been widely distributed in this country, and once more few gardens need be without a selection for the rockery or borders.



Cistuses in a Surrey garden.

C. ALBIDUS.—A very old species of great beauty. It was cultivated in 1596 by Gerard, and although not quite so hardy as many of the others, its erect growing habit renders it a useful rock plant. It produces abundance of large, bright lilac or pale rose-coloured flowers, which contrast well with the hoary grey elliptical or lance-shaped leaves, three-nerved at the base, and densely covered with white stellulate hairs on both sides. It flowers freely all through the summer months, and is easily propagated by cuttings. It has a host of synonyms, the most common being tomentosus, canescens, incanus. There is a variety called varius, but we have not seen it.

C. CORBARIENSIS, often called cordifolius in gardens, is a natural hybrid between populifolius and salviæfolius. It is about the hardiest of all the Cistuses, and stands well in the open border; the first to flower in spring and the last in autumn. The leaves are somewhat Poplar-like, with crisped margins and cordate base. The flowers are medium-sized, white, and crimson in the bud, when the plant is very handsome. It is called salviæfolius var. grandifolius by Willkomm.

C. CRISPUS.—The group to which this, the subject of our coloured plate, belongs, and which includes among others villosus, albidus, parviflorus, &c., all of them, with perhaps the exception of C. creticus, being perfectly hardy in the open under the conditions indicated above. As they produce abundance of flowers, varying from pale rose to deep purple, they are valuable for the embellishment of our rockeries and exposed borders. The present species, perfectly distinct from all the others and quite hardy, even low down on the rockery, where most of the others would be hurt, is by far the handsomest of this group, and flowers with the greatest profusion. It is readily distinguished from C. villosus, its nearest ally, by the very short flower-stalks, flowers of a different red, and the long narrow sepals and crisp leaves. It makes a very pleasing variety in a group. Stems woody, erect growing, and covered with a brown, cracked bark; leaves narrow and rough, three-nerved at the base, and beautifully reticulated on the under side, the whole covered with a fine pubescence; flowers reddish purple, terminating the stem, and produced in succession from early June until September. Native of Southern Europe.

C. HIRSUTUS.—A very distinct and useful plant, known in gardens under the name of albiflorus. It somewhat resembles a miniature C. vaginatus, but the flowers are small, quite round in outline, and pure white; the epicalyx very large, curiously shaped, and thickly covered with long silky white hairs. It does best near a wall, as it is liable to injury in a very severe season.

C. LUSITANICUS is the garden name of a plant which I have no doubt is a hybrid between C. ladaniferus maculatus and monspeliensis, such a cross being recorded by Nyman. Willkomm describes a plant under the title of C. ladaniferus forma angustifolia, and this has been suggested as a good name for the present plant; we have, however, seen Willkomm's figure, and it does not at all correspond with our C. lusitanicus. It is one of the most charming, being the only really dwarf Cistus we have in cultivation and perfectly hardy in the open, and one of the best rock plants for a dry, sunny position. The leaves are short, blunt, and dark green, the flowers large, white, with a reddish purple spot or blotch at the base of each petal. It may be readily propagated by cuttings.

C. LONGIFOLIUS.—This is the plant known so well in gardens under the provisional name of florentinus, and which Pourretti, an eminent botanist, thinks may be a hybrid between populifolius and monspeliensis. C. Cupanianus, figured in Sweet's "Cistineæ," comes very near this, and may be a variety. In Nyman's "Conspectus Europæus" C. Cupanianus is placed under C. villosus. This appears to be its proper place, the original description and figure giving the flowers as purple, and the leaves not unlike those of villosus. C longifolius is a charming species for the rockery, and bears large pure white flowers, with dark green netted leaves. It is largely grown in many gardens, and in some few places we have seen it grouped on exposed sunny banks where even weeds were scarce. It is also known under the name of C. nigricans.

C. MONSPELIENSIS.—This is the small-leaved Cistus so common in gardens. It proves perfectly hardy, and the large, well-formed bushes which it forms so rapidly are very effective all through the summer, an abundance of flowers being rarely absent. This same plant seems to have been distributed under the erroneous name of C. Clusi, which we believe is not in cultivation at the present time, though the name is not uncommon. C. Clusi differs from C. monspeliensis in having narrow, incurved, almost glabrous leaves, and in not having an epicalyx, which is very characteristic in C. monspeliensis. The branches of C. monspeliensis are erect, hairy and often viscous, leaves opposite, lance-shaped, very wrinkled, and covered on both sides with tufts of brown hairs; flowers smallish white. Native of Crete.

C. POPULIFOLIUS is perhaps the rarest of the Cistuses in cultivation, and with us always is destroyed after a series of hard winters. It is, however, a handsome plant, and should be tried in every possible way before giving it up. Its leaves are very large, Poplar-like; flowers large, white, and very handsome on the plant. It does well with the protection of a wall. A native of Portugal, and seems to have been cultivated in 1656 by the younger Tradescant.

C. PURPUREUS.—This is a charming plant, and should be included in every collection, as well for its handsome flowers as its neat erect habit and hardy nature. It forms a neat bush, which in summer is covered with large fine purple flowers, with a deep purple spot at the base of each petal. It is easily propagated by cuttings, and is very useful for forming groups on the rockery or border.

C. VILLOSUS is apparently the most variable of all the species. Amongst the best of the varieties included under this plant, eriosepalus, creticus, undulatus, complicatus, and garganicus may be taken as the most distinct and worthy of a place in the garden. The flowers are usually rose or purple,

but vary on different plants. It is the most common in gardens.

Among those not mentioned above the following may be noted: Cordifolius, parviflorus, salviæfolius, vaginatus, and cymosus. D. K.

FRUIT GARDEN.

STANDARD APPLES FOR BRITAIN.

1. ALFRISTON.
2. BESS POOL (NEW).
3. BLENHEIM ORANGE.
4. BRAMLEY'S.
5. CLAYGATE PEARMAIN.
6. COX'S ORANGE PIPPIN.
7. DUTCH MIGNONNE.
8. FLANDERS PIPPIN.
9. LANE'S PRINCE ALBERT.
10. MERE DE MENAGE.
11. NORTHERN GREENING.
12. REINETTE GRISE.
13. RIBSTON PIPPIN.
14. STONE'S.
15. STURMER PIPPIN.
16. WELLINGTON.
17. WINTER QUEENING.

Early Apples.—Carlisle Codlin, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Devonshire Quarrenden, Irish Peach, Oslin, Early Margaret.

Fine-flowered Apples.—Emperor Alexander, Hawthornden, Lord Suffield, Hambledon Deux Ans, Blenheim Orange, Court Pendu Plat, Orange Goff, Kirke's Incomparable, Sharp's.

Cider Apples.—Fox-whelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Joeby Crab, Styre Wilding, Eggleton Styre, Royal Wilding, Black Wilding, Pym Square, Mumm's Red, Bran Rose, Red Styre, Tremlett's Bitter, Ellis's Bitter, Slack-my-Girdle, Pound Apple or Sweet Buckland, Red Cluster, Sweet Albert, Holmcote Sweet, Cat's-head, Sweet Portugal, Red Bosberry, White Bosberry, Tom Putt, Kingston Black, Greasy.

Little Apples.—Golden Harvey, Pearson's Plate, Beachamwell, Keddleston Pippin, Ashmead's Kernel, Pine Golden Pippin, Pitmaston Pine-apple, Lucombe's Pine-apple, Sam Young, Lodgemore Nonpareil.

Brightly-coloured Apples.—Incomparable, Hanwell Souring, Cox's Pomona, Brabant Bellefleur, Bauman's Red Reinette, Rymer, Red Hollandbury, Alexander, Hoary Morning, Tom Putt, Tyler's Kernel, Striped Beaufin, Fearn's Pippin, Cumberland Fillbasket, Duchess of Gloucester, Worcester Pearmain, Cellini, Adams' Pearmain, Scarlet Nonpareil, Red Astrachan, Norfolk Beaufin.

Our readers will remember that last year we raised the question of the needless number of Apples, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The minor lists will, we hope, be useful, as they will prevent the exclusion of fruits with useful secondary qualities. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on English Apples of the highest class and able to compete with those of any country.

Good Apples.—I am pleased you invite a few notes on the Apple. I was greatly interested in your late Pear notes, from which I culled, I hope beneficially, for future guidance. I would say Cornish Gilliflower was the best flavoured Apple, but a shy bearer. I would include it in a collection of one dozen dessert varieties. We have half a dozen trees here, half of them bushes and half on walls. Those on walls are much the best. Ribston does well here on walls, but not on the open, the trees cankering. Cox's Orange I place third for flavour; it is best on walls. Margil, a small but well flavoured sort in the way of Kerry Pippin, but preferable for flavour. I should not include both in a short list. Irish Peach must be in, and the never-failing King of the Pippins, but how this got first place at the late great Apple conference for flavour surprises me as well as many others, although, were I restricted to one Apple, this would be my choice, being a good grower, free fruiter, keeps well, and will do for dessert or kitchen. One of our prettiest early Apples is Duchess of Oldenburg; we have it here on walls. Summer Strawberry comes in first, and deserves a place in any collection. Golden Pippin is a most desirable variety and a good keeper. Old Nonpareil does well here, rarely misses a crop, but the fruit cracks badly in some seasons. It is one of our best known Apples. For keeping and usefulness when other Apples are past, let me commend Allen's Everlasting. This is not so well known as its merits deserve. It has a very hardy constitution, rarely fails to crop, and will keep all the year round if a fair chance be given it.—S. KEVAN, *Castle Upton, Templepatrick.*

HINTS FOR THE SUNLESS SEASON.

THE short spell of bright weather with which we were favoured at the commencement of August naturally raised the hopes of the fruit cultivator, who, not without reason, expected that for a time at least we had bidden farewell to cold winds and leaden skies, and that one of the dullest and coldest periods occurring in the midst of the summer season was about to be succeeded by some real warm weather. July is often a wet month, but when the weather clears up in August a bright time usually follows; not so, however, this year, and all hopes of having enough sunshine to compensate for its absence in the fore part of the summer have now been quite dissipated, and we must fall back upon the artificial methods at our disposal to supply the deficiency of natural heat. This, of course, can only be done where the trees are growing under glass, and a season like the present one emphasises the necessity of always providing some means of heating houses which are erected for the purpose of fruit growing in this country, not alone as a means of assisting the ripening of the fruit, but that which is perhaps of greater importance still, namely, the ripening of the wood and maturing the buds which are to produce next year's crop. These much-to-be-desired points, in the estimation of the fruit grower, are essential for the maintenance of his trees in health and vigour, without which it is vain to look for good crops. In a sunless season then like the present one, although it is not in our power to supply anything in the place of that desirable element, there are ways and means at our disposal, by the use of which we can greatly assist the ripening of the wood; therefore, we should not neglect to use them.

It is always a relief to the gardener when he can dispense with fire-heat, if only for a few weeks, not alone on the score of economy—although this is a great consideration in many gardens at the present time—but because it gives him a respite from the constant watchfulness required to be kept up against the insect enemies which are engendered by its use. Such relief has not fallen to his lot this year, as vineries, Peach houses, and other fruit houses have needed the almost constant use of artificial heat; and now that the houses are becoming cleared of fruit it will not be well to leave the trees to take care of themselves and ripen as best they can. Early houses will not require any more firing, but it is those which are cleared of fruit from the present time of which I am speaking more particularly. A moderate heat in the pipes with air on the house will greatly assist to harden the wood and plump up the buds of the Vine. Peaches after being thoroughly syringed in the morning, unless the weather should by chance be bright, will be better not wetted again in the afternoon, but close the house with the pipes warm and turn off the heat the last thing in the evening, at the same time opening the ventilators a little way. This dry, warm air for several hours daily will have the effect of hardening the wood and ripening the foliage, but a sharp look-out must be kept for red spider and thrips; these pests should on no account be allowed upon the foliage.

In addition to the judicious use of fire-heat much may be done to further the ripening of the wood by removing all superfluous shoots. Immediately the fruit is all gathered the trees should be loosened from the trellis, all the old ties being removed, replacing them with just sufficient fresh ones to maintain the trees in place. Cut out all the old wood which has borne fruit this year as well as any pieces not wanted for tying in again. The rambling lateral growth, usually allowed to remain on Vines for some time after the fruit is cut, may with advantage be reduced, not in a wholesale manner, but a little at a time, so as to gradually reduce the shoots, leaving only those carrying the old and full grown leaves.

If any crowding is noticed in the late houses cut out a few shoots, but avoid removing any quantity at one time. This precaution is more than ever needful when bright days come by fits and starts, as they do this year, and great care has to be exercised to prevent injury to both foliage and fruit by scorching. White Grapes are often spoiled in appearance by being suddenly exposed to the sun with the object of hastening their colouring, and this is more liable to happen after dull weather when a few hours' exposure of the bunches which have been previously shaded is sufficient to turn many of the berries brown. As a rule, the best finished bunches are to be found where they have received a subdued light through the foliage on all sides.

Attention should also be directed to the surface of the borders, removing some of the mulching. Where they are outside, this operation has been rendered necessary by the heavy and continuous rain which has soddened the soil, and every facility should be given for this superfluous moisture to drain away. Many other minor details, such as keeping the houses clean, frequently removing dead leaves and other decaying materials, &c., will suggest themselves to the thoughtful cultivator.

Hindlip. A. BARKER.

Wet Vine borders.—Growers of Grapes are everywhere alarmed because of the excessive wetting of outside Vine borders, especially just at the time when Grapes are ripening, and dryness and warmth at the roots are desirable. That the Grapes will be disastrously affected in many places there can be no doubt; what with cracking, lack of colour and flavour, and badly ripened wood, the prospect is not a happy one. Those who have their Vine borders inside are this year favoured. But whilst the heavy rains still continue and autumn warmth fails to come it is worthy of consideration whether it would not be well to protect outside borders as far as possible from further soakings. The best, most effective, and enduring material for the purpose would be sheets of corrugated iron, as they will endure for many years, are easily laid down, easily removed, and most efficiently throw off the rain. Our Peach borders are suffering this year from too much rain, and the trees are too full of luxuriant growth just at the time when the young wood should be ripening. It is specially important in the case of Vines and Peaches that the roots should have all possible help to restfulness, as on the whole the wood is amply supplied with sap to enable the fruit to finish, but rest seems to be difficult when borders become so moist at the wrong season.—A. D.

William Pears.—The market is now flooded with these, and poor sickly stuff most of them. The man who says a William is a first-class Pear can never have tasted one that deserves the name. There is a difference in kind between one and a William.—"ONE WHO TASTES."

FRUITS UNDER GLASS.

Pines.

September is a busy month amongst Pines, as plants of all ages and sizes require overhauling and rearranging for the first part of the winter. Pines, it is true, are not nearly so extensively grown as they were twenty years ago, as we now find the few who stand by the king of fruits growing them by the score, where formerly they grew them by the hundred, but the management is the same throughout the season. As no one, I believe, now grows Pines for profit, the object, as a matter of course, is a continuous supply of fruit for private use from a small number of plants which may be divided into three sections, viz., fruiters, successions of two grades, and suckers. Early starters having passed away, the remainder of the summer fruiters should now be got together and placed in a light, well-ventilated and properly heated compartment or pit to finish off. Space being an important item, this structure should not be larger than is absolutely necessary, as the dry heat essential to ripening and colouring in October and November will not suit the next batch now throwing up their fruit. To accommodate these another section should be specially prepared for giving a moist, steady bottom-heat of 80° to 85° and a top heat of 70° by night to 80° by day without driving the fires. This structure, like the preceding, should admit of plenty of light, and as some of the plants, including Cayennes, Rothschilds, and the good old Black Jamaica, will remain throughout the winter months, it should be just large enough to admit of plunging without crowding the foliage. The first set, or rather the relics of the past season, which have nearly, if not quite, finished swelling, need very little preparation in the way of fresh material, as a good watering, followed by turning over, generally revives the bottom-heat. But the second, exclusive of Queens, which, by the way, are hardly worth keeping, having nearly all their work before them, must be better provided for. A bottom-heat of 80° to 85° will keep the fruit swelling, and as this for some time to come can be obtained from fermenting material alone, I would suggest a complete clearance of the old, scalding, cleansing and re-filling with sound Oak leaves of last year's harvesting, or, lacking these, with well-worked tan which has lain for some weeks in an airy shed. When the heat reaches the maximum and shows signs of declining, plunge loosely, keeping the crowns well up to the glass, syringe lightly very early on fine afternoons, feed with warm diluted liquid, and run up to 90° when sun-heat is favourable. By way of economising fuel and maintaining a moist heat a good external front lining filled with fermenting leaves is a host in itself, but, lacking this arrangement, much baneful dry fire heat may be avoided by covering the glass with oiled canvas through the night.

Successions.—Having disposed of all the winter fruiters, the general stock of Queens for coming in succession next season must be thought of. Hitherto the whole of the plants may receive uniform treatment, but the most forward having filled their pots with roots, they should be drawn and placed together where the bottom-heat will gradually descend from 85° to 75°, or even as low as 70° during the resting period. It is not unusual for this bed to fall below 70° towards Christmas, but notwithstanding the dryness of the atmosphere, it is rather risky, as too low a bottom-heat paralyses the roots of Queens and is the most common cause of fine plants throwing up crippled fruit in February. As these plants, now beginning to bristle with sharp pointed centre leaves, sink gradually to rest, the supply of water must be reduced, but an occasional watering with guano liquid will keep the roots in tone and prevent them from starting prematurely. The next grade, consisting of spring-potted suckers and now filling their pots with roots, must be kept progressing for some time longer, not so much by an incessant bottom-heat as by a continuance of a moist, genial bed and growing atmosphere. If these plants are in rather small pots, say 10 inches or 11 inches in diameter, and the thickening of the stems shows that they are well advanced, they must not be too severely checked by dryness at the roots, otherwise the bulk of them will throw up the first batch and but few will be left to make a growth before they start in the spring. Light through the autumn and winter months being so important, the plants cannot be kept too close to the glass, provided the leaves do not actually touch it; the latter should be kept quite clean and free from confervæ, shading should be put away for the season, and ventilation, if only for an hour or two on fine days, should be pretty liberal. As Pines grow very fast through September and sometimes well into October, air-giving is a very important matter, as no after management can restore a plant which becomes drawn in the autumn.

Suckers.—If the stock of suckers is quite equal to the demand, or, in other words, to the space at command, old stools may be thrown away; otherwise they may be shaken out and placed in small pots, or laid in pretty close together to give a further supply in the spring. The shy Smooth Cayenne, which no one throws away so long as there remains a likely bud, comes under this head, but the suckers of Queens and Rothschilds, enough and none to spare, should now be rooted and capable of making good progress down to December. Like the preceding, they must have plenty of light and air; therefore of two evils it is better to throw some away than to spoil the batch by overcrowding. Shallow span-roofed pits are the best places for suckers, as they may at a pinch in these structures be kept steadily growing through the winter. To save firing it is a good plan to turn the bed, and after adding a little fresh material, either mixed with or on the surface of the old, according to its life and vigour, to plunge the plants up to the rims of the pots, a position in which the roots will hardly require any water. One exception there is, and this I need not say is near proximity to bottom heat pipes, which sometimes do more harm than good during severe winters. To counteract this, the plants immediately above them should be frequently examined, when, in the event of their becoming too dry, the plunging material as well as the balls must be carefully moistened with tepid water.

Cucumbers.

The second or third week in September is not too late to make sowings of suitable varieties for producing plants which are not expected to bear fruit until after Christmas. Once through the soil, the secret of success consists in early planting before they become pot-bound, and keeping them steadily progressing until the trellis is covered. A light sound compost, rich enough to produce a stout, short-jointed growth without the assistance of manure, suits them best, as manure not only encourages worms, but also forces a grossness of habit, which cannot be maintained through the dark month of December. As these late plants, which generally follow the last Melons, are expected to fruit well up into the succeeding spring, too much care cannot be devoted to the cleansing and preparation of the pits, and equally important is the foundation for the roots. If compost similar to the above is at hand, and bottom-heat pipes are equal to the maintenance of a steady temperature of 80°, planting out upon narrow beds or in pits about 2 feet in width will give excellent results with a minimum of risk. But lacking this aid from hot-water pipes, the pot system is to be preferred, as the fermenting material can be changed or renovated at any time without checking the roots. Water at all times, somewhat warmer than the bed and in liberal quantities, even in winter, being absolutely necessary, the drainage beneath the beds or pots must be ample, and upon this a layer of light rich turf should be placed grass side downwards as a sort of anchorage for the roots, and a filter for diluted liquid on its way downwards to the dark regions below. Feeding, however, will not be necessary until the plants commence bearing, but now is the time to make provision for supplying liquid *ad lib.*, as more than half the failures are due to a sour condition of the soil, or the fear of giving too much water.

Plants quite recently put out and intended to commence bearing at once must be grown on rapidly with a sharp bottom-heat from fermenting material alone for the present, but hot-water pipes should be near for taking up or aiding the work when solar heat fails. These plants should be allowed to extend upwards until two-thirds of the trellis is covered, when they may be divested of their points to throw strength into the laterals, which, by the way, should be tied out in a horizontal position and pinched at the first leaf. If fruit is in request, one or two of the first shows upon these may be allowed to swell, but otherwise the second break should be the first to commence bearing. Space in winter houses, as a rule, being limited, timely attention to stopping not only husbands the vigour of the plants, but it prevents crowding when light and air are quite as essential as heat and moisture. The old-fashioned method of pinching each lateral one joint in advance of the fruit answers very well in large frames and pits, as summer plants can be cut back and thinned with impunity; but here every inch of space is of consequence, and the better to economise it, each point may be taken out close home so soon as the tiny fruit is perceptible. Whether these plants be grown in pots or upon hills a very small quantity of soil should be given to them at first, but a good stock of light turfy loam and lime rubble, the rougher the better, should be kept in a warm corner of the house for packing layer upon layer as the roots show upon the surface. If the turf is too poor, a few handfuls of bone-dust cast over it will encourage the roots, when warm diluted liquid soot or guano water will answer better than solid manure.

Old plants in full or fair bearing and approaching their end will stand any amount of feeding, always provided the liquid is used clear and warm and not too strong. If a flush of fruit and away is the object, the hills or pots may be mulched with very old manure free from worms, and insect pests being more or less troublesome, soot water may be freely and frequently syringed over the foliage. Young plants, on the other hand, now days are becoming shorter and colder, will not be improved by incessant syringing, neither will they require it, as atmospheric moisture rising from the frequently moistened walls and fresh fermenting material will ensure a clean bill of health.

Cuttings.—Where any extra good strain is not producing seeds, it can be perpetuated by cuttings or layers, but cuttings formed of clean short-jointed points make the neatest and best plants. Moreover, many good winter growers use these in preference to seedlings, first, because they know what they are growing; and second, under the correct impression that they are less sappy and more fertile. If a sharp, moist bottom-heat is at command and a bell-glass is placed over them, the cuttings will be rooted in a few days, when they may be gradually hardened and treated as seedlings. One clean cut just below a leaf the size of the palm of the hand is all that is needed; the cutting, before it has time to flag and with the base leaf attached, is then dibbled into a very small pot filled with warm fibry turf and plunged under the glass. Water is hardly safe or necessary, but the frame or house in which the cuttings are plunged will require keeping constantly moist and moderately shaded.

The Orchard House.

If any of the early forced trees which were repotted shortly after the fruit was gathered have been kept indoors, an event by no means unlikely, they should now be quite fit for removal to the open air. In ordinary seasons we get them out early in August, but this has been such an adverse summer for ripening up the fruit and buds, hence the possibility of a great number of trees still occupying snug quarters under well-ventilated roofs. This caution, so far, is quite right, as the attempt to force unripe wood is worse than useless; but we must not overlook the fact that the ripening of wood and getting the buds just a little too forward may be overdone. Indeed, many Peach growers attribute dropping to getting the buds too forward in the autumn. To steer quite clear of pushing the delicate, incipient parts of the flowers too far I would suggest the removal of every forced pot tree, Figs excepted, to a warm sheltered spot where they

will have the full benefit of rain and dew for the next three months. The pots being full of roots, some slight protection from the drying influence of sun and wind through October and frost afterwards will be necessary, and watering to prevent a suspicion of root drought must be carefully attended to. Later trees, of course, may still be potted and returned to the house for two or three weeks, not so much for warmth as for protection from drenching rains should they continue. Otherwise, unless the old balls are considerably reduced, they will do very well in the open air.

The general house.—Peaches, Nectarines, Plums, and Pears will now be yielding a daily supply of ripe fruit, and will require a slightly diminished supply of water, but dryness, especially at the roots, must be carefully guarded against. To economise labour and maintain moisture it is a good plan to drop heavily-laden trees into pots a size or two larger than those in which they are growing, and to mulch well with some light material. The feeding time amongst midseason varieties having passed by, the remains of an old Mushroom bed or a layer of old lime rubble, two excellent absorbents of moisture, will suit the fruit better than the ordinary rich top-dressing. Plums, Pears, and early Peaches may be removed to the open air as they are cleared of their fruit, and so may some of the October varieties of the first and second, always provided they are well protected from birds, but late Peaches and Pears, and Golden Drop Plums will require all the orchard house warmth we are likely to have this season. A continuous supply of fruit from a mixed collection of trees being of more value to all, with the exception of the market grower, than a glut, the ventilators by night and day may now be left wide open, and walls and floors must be moderately watered with the hose or syringed on fine mornings. Excessive moisture in cold houses makes the fruit soft and vapid, but root and atmospheric moisture at all times is absolutely necessary, especially when external conditions are favourable to rapid perspiration.

Gathering the fruit.—Early morning, when the foliage is quite dry and the fruit is cool, is the best time to detach Peaches and Nectarines from the trees. If for home use, they may hang until they are soft near the stalks and the aroma is powerful, but dropping from healthy and moderately cropped trees should not be allowed, as dropping, in the first place, bruises and spoils the fruit, and, in the second, it is the stage at which the departure of a brisk sprightly flavour sets in. For packing and travelling, say for market, they must be gathered as soon as they have attained full size, are well coloured, and a peculiar transparency of skin, so well known to experienced Peach growers, is present. As Peaches show the most gentle finger-marks when ripe, no attempt at wrenching from the trees should be allowed, neither should the sense of touch be the guide in determining when a fruit is ready. To avoid this injury the eye must be educated, then, with a pair of Grape scissors held in the right hand and a pad of wool in the left, each fruit may be detached, placed on a square of silver paper in a well padded flat-bottomed basket or box, and conveyed to the fruit room. W. C.

How to grow Quinces.—Mr. Chas. L. Jones, of Newark, N.J., has had unvarying success with this fruit, and his trees have now been in bearing thirteen years. For several years he has gathered from each tree from 400 to 450 Quinces, and last year the average was 475 to a tree. Mr. Jones asserts that anyone can grow Quinces in a city back yard, and he gives a full explanation of his method of culture in a recent number of the *Rural New Yorker*. The first injunction is not to stir the ground deeply near the tree. The Quince throws out many fine feeding roots near the surface, and these should be encouraged, fed, and protected. Hence the ground about the tree, to a distance as far as its branches extend, is undisturbed, except to keep down the weeds, which are cut close to the surface with a push-hoe. Late in autumn a dressing of barnyard manure is given, and in early summer a mulch of salt hay or other coarse material is added. This keeps the fine roots moist and cool, and furnishes them with food. The next essential is proper pruning. This does not mean an occasional thinning out of the branches as they become crowded. Indeed, as the tree is often deficient in foliage, no thinning out is practised, but every spring the new growth all over the tree is pruned back or "headed in," so as to leave but four or five buds. This means that a length of from 2 feet to 4 feet of wood is cut from every thrifty shoot. As a result of this treatment, the entire outer surface of the tree is literally covered with fruit of good size and quality.—*Garden and Forest.*

THE PACKING, CARRIAGE, AND MARKETING OF FRUIT.*

Ignorance displayed in packing and want of knowledge of the condition in which fruit should be sent to market are the principal causes of loss to the fruit grower in this country. In packing we are far behind our Continental brethren, for while they study not only the condition most suitable for travelling, but even the package in which the fruit is to be sent, we frequently send it too ripe and make use of any package that may come to hand, with little regard as to whether it is too deep or too shallow, or will hold such quantities as are ordinarily marketable.

Packing

is such an important factor in realising good prices for market produce, that it ought to be one of the essential points in the education of a gardener. What is the use of growing the best fruit in the world if it be spoiled in transit? At least one-third of the hothouse fruit sent to market is depreciated in value and sometimes rendered worthless by bad packing; whereas if all came in marketable condition the prices would be lower to the consumer, the supply being larger, and a better result all round would accrue to the grower. Bearing this in mind, I beg to submit the following remarks as applying to London markets:—

There are three golden rules to be observed in sending fruit to market:—

1. Never send it too ripe. Peaches especially should be packed hard, as they travel better in that condition, and are rarely used by the shopkeeper till two or three days after purchase.

2. Never (if possible) send it for Saturday's market, as, with the exception of Strawberries, the retailer invariably provides himself beforehand with what he requires. Monday and Tuesday for the first part of the week, Wednesday and Thursday for the latter part. In hot weather when fruit ripens fast small consignments may be sent on Friday.

3. All fruit should be sorted into bests and seconds, and in some cases into thirds, as there are always buyers of best and buyers of seconds and thirds, but seldom buyers of mixed.

Grapes,

being the most important among hot-house fruits, claim our first attention. There are two sorts of baskets in which Grapes may be sent to market, viz., the "handle" and the "baby." The former is more useful for ordinary work and is safer, as the handle is used for lifting, and to a certain extent is a protector to the fruit in preventing other goods being placed on the top. A little packing should be placed in the bottom, then a lining of white paper. The bunches should be packed close together, shoulders upwards, and the basket tied over with a sheet of stiff paper with a label "Grapes with care" on it. Grapes packed in this way will travel any distance. Special bunches travel well in "handles," each bunch tied to the basket without the centre being filled up. The latter mode is recommended in the case of special fruit only. The "baby" basket is only used for short distances, and where a regular supply is sent and where the railway porters are accustomed to them. It is more convenient than the "handle" for displaying in the shop windows and shows off the fruit better. The basket should be lined with white paper and a little packing placed in the bottom, the bunches being simply laid in close together. The whole fits nicely into a hamper known as a "flat," and with the ordinary Grape label affixed, invariably arrives in good condition.

Peaches

should be packed in shallow boxes, of sufficient depth to allow room for a good layer of packing in the bottom and a thin layer on the top. The box should contain only 24 best or 30 or 36 seconds. Each fruit should be wrapped in soft paper. A very effective way of packing Peaches, so that when the box is opened the class of fruit can be seen at once by the buyer, is to roll a double slip of tissue paper round each fruit, leaving the crown exposed. This requires a sheet of paper to be placed over the fruit before finally filling up with the packing. I know of no packing better than Moss. This should be properly dried and cleansed from all grit. It is cooler and more elastic than any other substance. Each fruit should be completely surrounded with it. Next to Moss is bran; but care should be taken to shake it down well and refill the box before fastening the lid, as it settles down with the oscillation of travelling, leaving part of the fruit exposed and liable to injury. Wadding is not elastic, and is too heating.

Strawberries

should be packed in boxes in single layers, containing from 1 lb. to 1½ lbs. according to size, each fruit being placed in a Strawberry leaf on a thin layer of Moss, with only a light covering of leaves on the top. Each package of say 5 or 6 boxes should have a label, "Strawberries, with care," "This side up," on the top of it. When the season is full on they lose value if delivered after 8 a.m. After that time the trade supply themselves from the "morning gathered" delivered by the growers themselves.

Tomatoes

should be packed in handle baskets containing from 18 lbs. to 20 lbs., and should be

* A paper read by Mr. J. Webber, Covent Garden, at the Fruit Conference, Crystal Palace.

well coloured, but not too ripe, otherwise they split.

Outdoor Fruit.

Suitable baskets for sending outdoor fruit to market can always be obtained of the salesmen. These consist of quarter sieves, half sieves, and sieves. The former hold 12 lbs., and are used for best samples of all kinds of soft fruit; half sieves are used for Cherries, Currants, Plums, Pears, and Apples; sieves are used mainly for Apples. A half sieve of soft fruit should contain 24 lbs., of Plums 28 lbs., of Apples from 21 lbs. to 24 lbs. Soft fruit should be simply stuck down with a sheet of paper. Hard fruit should be stuck down with dry packing, such as hay or straw. If a sheet of paper is placed over the fruit in each basket the appearance is much improved.

Pears,

especially early varieties, should be sent directly they can be removed from the trees. On no account should they be allowed to get ripe. The system in vogue in France is well worthy of imitation by growers in this country. The fruit is carefully sorted, in many instances into four sizes. Cases are made to contain two tiers, each tier consisting of 20, 24, 30, or 36 fruits. A layer of paper shavings is placed between each tier, and one top and bottom. When the fruit is extra large and kept late in the season, cases to contain a single layer of 12 and 15 are used. If packed in half sieves, the better sorts other than standards should be placed in layers with a little packing between.

Carriage.

With regard to the cost of carriage, little can be said here, except that the rates, as we all know, are very unsatisfactory, little or no inducement being held out by the great carriers for the development of produce on a small scale. Special rates may sometimes be secured for regular consignments over 28 lbs., but even then there is often a difficulty in keeping the railway company to their contract. All goods by passenger trains should reach the market by 7 p.m., so as to be ready for the next morning's sale, as if not they are seldom delivered till after the market is over, and therefore lose their value.

Fay's Currant is fulfilling all its promises, and I find it quite as productive as the Red Dutch. The fruit sells readily at 50 per cent. advance on that variety, and pickers willingly gather it for ½d. per quart. Versaillaise and Cherry have never paid the cost of the plants and cultivation on my soil, though near by on rich clay they are better, yet there they are not equal to my Fays.

Successful culture.—I can remember when a plant of Dipladenia amabilis, grown by William Cole and exhibited at one of the great flower shows of the year held at Manchester, was the chief object of admiration, although it had only some six or eight blooms upon it. At the floral exhibition recently held in Sevenoaks, Mr. A. Gibson, gardener to Mr. T. F. Burnaby Atkins, of Halstead Place, displayed a specimen of the same plant having 147 trusses of bloom. The plant had previously supplied, between the 9th of May and the 21st of August, 587 cut flowers. The judges very judiciously awarded to this plant not only the first prize as a single specimen, but a special certificate for superior cultivation.—S. R. S. D.

Ferns.

W. H. GOWER.

FILMY FERNS AT KEW.

The collection of these plants at Kew has been largely increased by the addition of the late Cooper-Foster collection, the plants of which consist for the most part of excellent masses, which give a good idea of the beauty of these elegant plants. It is to be hoped that the powers that be will use every endeavour to secure new species whenever opportunity offers, so that our national collection of Filmy Ferns may be looked upon with pride as the most complete in the world. These plants are gathered together in what has been for a long time the temperate Fern house, but which in years gone by contained the Heath collection when these plants were fashionable, and comprised upwards of 500 kinds, species, and varieties. The Filmy Ferns are in excellent health and condi-



Trichomanes auriculatum.

tion at the present time, and to a lover of these plants are well deserving a special journey from any part of the kingdom to see. The plants are grouped amongst medium-sized boulders of stone, and appear to be quite at home, whilst the air admitted is sufficient to prevent the condensation on the glass from obscuring them. This is a point well deserving attention in a public garden where the order of "hands off" is absolutely necessary. Amongst the most notable Trichomanes were fine masses of the beautiful fan-leaved parvulum, the delicate humile and exsectum, contrasted with bold masses of reniforme, the strong-growing auriculatum, javanicum, and Luschnatianum. There are also fine masses of the Killarney Fern, T. radicans and its several varieties, some of which are very distinct; especially is this the case with radicans frondosum, a form with very broad fronds. Here are also fine specimens of the very delicate trichoideum, the handsome elongatum, alatum, venosum, olivaceum, tenerum, sinuosum, digitatum, pyxidiforme, and many others. In Hymenophyllums, too, the gardens are very rich; amongst the finest may be noted H. pectinatum, æruginosum, demissum (very stately), caudiculatum, fuciforme, the beautiful dilatatum and scabrum, obtusatum, dichotomum, asplenioides, flabellatum, pulcherrimum, the rare cruentum and chiloense, flexuosum, multifidum, polyanthos, ciliatum, hirsutum, tamariscifolium, javanicum, lineare, nitens, and many others, including a very distinct looking kind which bears the name of Fosterianum, a worthy compliment to such an enthusiastic cultivator of these plants as was the late Mr. Cooper-Foster. The above-named species are all grown cool, and many amateur lovers of plants in towns may with advantage cultivate Filmy Ferns, as they are always beautiful and require but little attention, moisture being the only thing necessary, while they



Trichomanes Luschnatianum.

seldom grow out of the space allotted them. I would specially commend Filmy Ferns to those in want of a hobby, and would advise all such to go to Kew and see the Cooper-Foster collection, which was began in a London window, and is now one of the finest, if not the finest collection of these plants in the country. In a warmer house I also noted fine examples of Trichomanes pennatum, also known as floribundum, T. crispum, and T. anceps, and Feea spicata, the latter a common plant in Trinidad, and distinguished from Trichomanes by its separate fruiting fronds, the involucres being bell-like, pendent, and are gathered into a spike. Another elegant plant in this way is Hymenostachys elegans, a plant with reticulated veins, the fertile frond distinct, being narrow linear-elongated, the involucres sunk side by side along the margins, whilst the sterile frond is leafy and pinnatifid. It is also a native of Trinidad.

Adiantum Williamsi in baskets. — This lovely Maiden-hair, which is, perhaps, the best of recent new kinds, is found to be most useful and effective as a basket plant. It is one of the running kinds of the A. assimile type, and when placed in a basket the fronds appear through the sides and bottom, until at last not a portion of the basket is visible. We recently saw a fine hanging mass in the conservatory at Arundel Castle produced by a plant of this species. It is also doing well in baskets with Mr. May at Edmonton, and being a free grower, will doubtless ere long be largely used for this purpose.

The Weather Plant.—This continues to excite considerable interest at Vienna. Men of science, who on its first discovery were unwilling to express an opinion on its prognosticating virtues, now agree, after extensive experiments, that the shrub is in truth prophetic; 32,000 trials made during the last three years tend to prove its infallibility. The plant itself is a legume, commonly called the Paternoster

Pea, but known in botany as the Abrus peregrinus. It is a native of Corsica and Tunis. Its leaf and twig strongly resemble those of the Acacia. The more delicate leaves of its upper branches foretell the state of the weather forty-eight hours in advance, while its lower and hardier leaves indicate all atmospheric changes three days beforehand. The indications consist in a change in the position of the leaves and in the rise and fall of the twigs and branchlets.

The Fruit Crops.

SUPPLEMENTARY ENGLISH REPORTS.

Maiden Erleigh, Reading.—Bush fruits here and in this district have been a splendid crop in every respect. Raspberries also have been a heavy crop and very fine. Strawberries, too, were a good crop, but owing to the excessive rainfall (viz., 5·13 in. in July) they were nearly flavourless. We grow Elton Pine in quantity for preserving, but never before have we had such a heavy crop as this season, and despite the wet and sunless period they ripened more satisfactorily than any other kind, and we found them very useful for dessert in the latter part of July. Cherries, both sweet and Morello, are a good crop and very fine; but of all wall fruits Plums are the crop with us this season, as besides the heavy crop which most of the kinds are bearing, the trees are so wonderfully healthy and clean. The crop, however, is a light one on standard trees. Apricots are nearly a failure, but Peaches are a good crop, and although the young growths got much crippled with aphis whilst the fruit was setting, the trees have since made a clean and healthy growth. Nuts, Cobs and Filberts are an average crop, but Walnuts a very heavy crop. Of Apples on bush trees we have a good crop of the following, viz., Frogmore Prolific, Pott's Seedling, Warner's King, Small's Admirable, Cellini, Rosemary Russet, Stirling Castle, The Queen, Cox's Pomona, Manks Codlin, Alexander, Court of Wick, Court Pendu Plat, and Ribston Pippin; but the fruit of all are exceedingly late and look so unkind that I fear they will not now grow to nearly the size we have always had them. On old orchard trees I have met with good crops of Quarrenden and Wellington, but in most gardens where these sorts are not grown the crop is a complete failure. Of Pears we have good crops of the following kinds on walls, viz, Jersey Gratioli, Brockworth Park, Fondante d'Automne, Marie Louise, Beurré Diel, and Doyenné du Comice, but other kinds on walls and all kinds on pyramids are a poor crop, and the fruit smaller and more unkind than the Apples, and all the trees have made a very poor growth. The best sorts of Apples for dessert I have had experience with are, for August, Irish Peach and Quarrenden; September and October—Worcester Pearmain and Kerry Pippin; November and December—Ribston Pippin, Golden Pippin, Margil, and Cox's Orange Pippin; January onwards, in the order of their ripening—Rosemary Russet, Mannington's Pearmain, Cockle Pippin, Scarlet Nonpareil, and Sturmer Pippin.—T. Turton.

Penjerrick, Cornwall.—The Apple crop in this neighbourhood is much below the average, and in many instances where there was a fair crop they have fallen prematurely, no doubt owing to imperfect blossoms. The sorts most in favour here are Irish Peach, Juneating, and Early York for early use. For late dessert, I should readily give the premier place to Cornish Gilliflower as regards quality, but the tree cankers badly. Next comes Cox's Orange Pippin; but for general utility I find nothing to beat Blenheim Orange and Cornish Aromatic; the latter rarely ever fails to crop, and is useful for either dessert or cooking, besides being one of the very best keepers. Pears a fair sprinkling, but not heavy. Peaches and Nectarines very thin, and in many cases trees sadly injured by blight. Plums thin; a great many fell during stoning; in fact, this applies to all stone fruits this season. Morello Cherries good. Strawberries good crop, but soon over, and a great many spoiled by the continual rain. Gooseberries an enormous crop here, but in the district generally very light, owners attributing it to spring frosts, as a great number fell during blossoming. Currants very heavy crop.—Thomas Evans.

Mentmore, Bucks.—Apples are a partial crop; many varieties a failure; others are bearing freely. As a rule the trees are healthy, and have made good growth for another season's crop. We have a very large collection here both of cooking and dessert varieties, grown as orchard standards and bushes on the Paradise stock. The following varieties are bearing freely and are all good: Irish Peach, Mr. Gladstone, Ribston Pippin, Cox's Orange Pippin, Margil, Kerry Pippin, King Pippin, and Washington. These are all grown as bushes on the Paradise stock. We have many other varieties, some of them better than those mentioned, but they are not fruiting this season. The Crabs are handsome ornamental flowering shrubs, and should have a place in every garden. Here the Dartmouth and Siberian Crabs are fruiting freely, and are objects of great beauty. Plums are a good average crop. Damsons Green Gage and Victoria above an average crop. The trees are very healthy and are growing well, but the crop is a month late. Small fruits have been abundant. Walnuts a very heavy crop.—J. Smith.

Waterdale, St. Helens.—Considering the unfavourable season, we have very little room for complaint, owing no doubt to our having planted only the hardiest and most suitable varieties. Apples are a bare average, Lord Suffield, Keswick Codlin, Echlinville, and Dumelow's Seedling being the best. The crop of Hessle Pears is immense, but the fruits small; Jargonelles are good; other varieties are a fair average. Morello Cherries are quite a picture, both on the wall and standards; sweet Cherries good crop, but small and flavourless. Plums are an average crop, Victoria being the best. Damsons are a good crop. Gooseberries are plentiful, but small. The same may be said of Red and White Currants, but the Black Currants are a full crop and large. Raspberries are a good crop and of fair size, but poor in flavour. Black Prince Strawberry being our best early escaped the frost and carried a good crop of small fruit; Vicomtesse Héricart de Thury, President, and Sir J. Paxton are the most suitable sorts here.

Potatoes are looking uncommonly well. We have not yet seen any disease.—James Smith.

Childwall Hall, Lancs.—Apples an average crop; the trees look well, and are free from spider. The best dessert kinds are Ribston Pippin, Cox's Orange, King of Pippins, Lady Derby, Northern Spy, Sturmer Pippin, Worcester Pearmain, and Schoolmaster; the two latter are small trees, but promise well. All are pyramids in the open garden, which unfortunately has a slope to the east. The garden is an old one, the soil is good and light, and rests upon red sandstone. Pears, about half a crop, one notable instance to the contrary being a tree of Napoleon on a south-east wall, which seldom gives half as much fruit as it is carrying this season. Jargonelles are carrying good crops, whether against walls or in the open. I may say that in some neighbouring gardens Pears in general are a fair crop. Ours are on walls; pyramids and espaliers in the open, but those on walls are best fruited. Plums (except Green Gages, which are carrying very little fruit) are an average; two standards of a local variety called Halewood have more than usual. This variety is about as profitable as any I know for this part. It seldom misses giving us some, and often a very creditable crop. Damsons are carrying about a third of a crop. This fruit has been very unsatisfactory for some years. We have two young trees of the Crittenden Damson which are bearing, and I have great hopes this variety will prove an acquisition. Currants.—These, both Red, White, and Black, were abundant; Black Champion and Lee's Prolific were exceptionally fine. Gooseberries are abundant and fine, but late, the rough Reds being not yet ripe. The trees have not suffered from spider or caterpillars to any extent this season. Raspberries with us are abundant, Baumforth's Seedling being exceptionally fine and well flavoured. It is the best variety I am acquainted with. Strawberries were a very light crop, owing probably to the extreme drought of last season, as the plants did not show flower, the only one which gave a crop among eight or ten varieties being Duc de Malakoff. Cherries, both sweet and Morellos, have good crops, but the former crack badly, owing to the excessive rainfall. This is especially the case with Bigarreaux. Peaches, Nectarines, and Apricots are no longer worth the room they occupy outside (except in well sheltered gardens), so that they are abandoned. The smoke of Liverpool and adjacent towns keeps the air continually laden, so that a clear sky and bright sun are very rare, so much so that when it comes it often distresses vegetation considerably.—T. Winkworth.

The Gardens, Brockhurst, Didsbury.—With regard to the Apples in this district, there are not many kinds grown. Lord Suffield is about the best for cooking; of this there is an average crop. Pears are above the average, especially Jargonelle. It is a long time since we had such a crop of this variety. Of small fruits there is an abundant supply of Raspberries, a fair crop of Currants, very good crop of Gooseberries. Plums are rather less than last year. Strawberries a very poor crop, and much later than usual. Apple Nonpareil, though not a large fruit, is a sure cropper.—A. Mottershead.

The Gardens, Brodsworth Hall, Doncaster.—The fruit crops in this district as a whole are much under average, but mostly clean and good. We have a very heavy crop of Peaches and Nectarines, the best for the last ten years, and the worst crop of Strawberries for the past sixteen. Several varieties which have hitherto been free are badly mildewed. Small fruits have been heavy crops and good except Raspberries, which are very acid. Apples and Pears are under average, but mostly clean and good. Some trees of the following kinds of Apples are bearing heavy crops, but the best in that respect are, as regards flavour, Devonshire Quarrenden, Kerry Pippin, Cox's Orange Pippin, Cornish Gilliflower (rather shy bearer), Blenheim Pippin, Ribston Pippin, King of the Pippins, Mannington Pearmain, Sturmer Pippin, American Mother, Syke House Russet, and Sharleston Pippin, a local Apple. Apricots are a very thin crop, but good. Morello Cherries are quite up to average and good. Plums, only Victoria reliable for average crop in this neighbourhood.—W. Chuck.

Boreatton, Baschurch, Salop.—Apples are very poor, I may say a failure. We shall not have an eighth of a crop, and the same remarks apply to Pears. Apricots set well, but are dropping off from the cold, dull, wet weather. Cherries abundant, especially Morellos. Currants of all kinds abundant and fine. Gooseberries enormous crop and very fine. Nectarines very scarce, trees nearly dead. Peaches are a fair crop; the trees which suffered very much from the cold in the spring are now improving, and considering the weather the fruits are swelling fairly well, but unless we have a fine autumn will scarcely ripen. Plums are about half a crop; some common kinds, Red Magnum Bonum, Orleans, and Damsons, are fairly good. Raspberries a good crop. Strawberries abundant, fruit large, flavour very deficient. The following Apples, Ribston Pippin, Golden Pippin, Reinette du Canada, King of the Pippins, Hereford Pearmain, Stirling Castle, Claygate Pearmain, Sturmer Pippin, Court Pendu Plat, Nonpareil, are in favourable seasons fairly good for dessert.—H. Eckford.

Ingestrie Gardens, Stafford.—The fruit crops in this neighbourhood are not quite satisfactory. Apples are a fair crop, such kinds as Echlinville Pippin, Warner's King, Duchess of Oldenburg, Stirling Castle, Lord Suffield, King of the Pippins, Hawthornden, Worcester Pearmain, and Keswick Codlin bearing well. Pears are a fair crop on walls; Marie Louise, Beurré d'Amanlis, Beurré d'Aremberg, Beurré Diel, Beurré Bosc, and Williams' Bon Chrétien are bearing best. Plums an average crop; better on walls than in the open. Peaches and Nectarines showed plenty of flower, but owing to east winds and cloudy skies did not set so well as I could have wished. Apricots are plentiful and good, the trees healthy and strong; always a good crop with us. Cherries are an average crop; Mo-

rellos good. Strawberries are under average and disappointing. Last year we picked great quantities. The same plants are this year blind, which we attribute to the dry weather of last year. Raspberries have been abundant. Currants, both Red and Black, also Gooseberries, are a full crop.—Edward Gilman.

Bedale, Yorkshire.—The fruit crops in the north of Yorkshire are generally very light. Apples are bad, although here and there odd trees have a good crop. The large trees of local kinds are worse than I have ever seen them; we have some trees on the Paradise stock bearing good crops, such as Echlinville Pippin, Blenheim Orange, Lord Suffield, Worcester Pearmain, and Abbot's King; the latter is so hardy that it rarely ever fails; unfortunately, it is a bad keeper, and a great stock of it would be useless. Pears are only a moderate crop; Jargonelle, Marie Louise, Doyenné du Comice, and Glou Morceau are about the best. Cherries were a good crop, but the early sorts were nearly all spoiled with the wet; Morello and Kentish Cherries promise well. Bush fruits are a good crop, but half spoiled with the rain. Strawberries generally are bad about here. The bloom was poor, and what was good was spoiled by a terrific hailstorm. In some few places where the storm did not reach the crop is pretty good. The flavour is not good for want of sun. The Apples we use for dessert are Gladstone, Irish Peach, Kerry Pippin, followed by Ribston Pippin and Lord Burghley; the last is a good flavoured Apple, but rather shy in bearing. —William Culverwell.

Madresfield Court, Malvern.—Apples on the whole are a good average crop and promise to be of good quality, much better than was at one time expected, seeing how suddenly a plague of caterpillars came and nearly devastated the trees of their leaves. However, the insects disappeared almost as suddenly as they came, and the trees have nearly recovered themselves. White Astrachan is our earliest, followed by Juneating and Irish Peach, each useful where early Apples are required. Worcester Pearmain and Duchess's Favourite are also grown, but quality poor. Blenheim Orange, Cox's Orange Pippin, Ribston, Claygate Pearmain, Ashmead's Kernel, various Nonpareils and Russets. Sturmer and Lord Burghley are the best flavoured Apples in this district; that excellent Apple, Cornish Gilliflower, is too shy and of too slender growth to be recommended. We are making experiments by double grafting some of these high-class Apples upon Blenheim, previously grafted on free Crab stocks, specially prepared by a system of root-pruning, or rather a series of lifting and replanting. We hope to gain productiveness; the results shall be made known in due course. Pears are a good crop; the best are Beurré Giffard, Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Pitmaston Duchess, Marie Louise, Thompson's, Beurré Superfin, Doyenné du Comice, Glou Morceau, Winter Nelis, and Josephine de Malines. These can always be relied on for excellent flavour; occasionally Easter Beurré and Ne Plus Meuris ripen up properly. Plums and Cherries are good crops. Apricots extra good. Bush fruits excellent. Strawberries rather a poor return, excepting young plants. Wilson Jun. Blackberry promises an abundance of fruit. Experiments are being carried out in double grafting Beurré Superfin and Doyenné du Comice on Pitmaston Duchess, previously worked on prepared free (Pear) stocks.—William Crump.

Membland, Plympton, South Devon.—The fruit crops here and in the neighbourhood are below average, with the exception of bush fruits and Strawberries. Apricots are not grown; the trees canker and die in a few years. Apples, very promising in the bud, were three weeks late in coming into flower; the cold and unseasonable weather caused the blossoms to set badly, especially on the orchard trees. Keswick Codlins are below average in quantity and size of fruit, and now that the season is far advanced, there is but little chance of the fruit attaining its usual size. Many of the pyramid trees in the garden have good crops; Lord Suffield and Warner's King we are obliged to support. I find if we take one year with another the pyramid-grown trees give us very satisfactory returns. In this part the Apple and Pear trees suffer from canker; in some seasons old and young wood are alike affected, and the trees become very much disfigured. In one corner of this garden an old Nonpareil Apple that has borne good crops for years has totally failed this year. The following sorts are the best flavoured here: Irish Peach, Kerry Pippin, American Mother, Cox's Orange (this is the best of all Apples for dessert), King of the Pippins, Blenheim Pippin, Margil, Ribston Pippin, Fearn's Pippin, Nonpareil, Claygate Pearmain, Court Pendu Plat, and Lord Burleigh, which is a good late sort. Pears are a light crop, the trees suffered much from drought last year, the blossom was small. Williams' Bon Chrétien, Louise Bonne, Doyenné du Comice, and Duchess are a fair crop. Peaches and Nectarines are poor; the foliage was much blistered early in the season; nevertheless three miles farther inland Peach crops are good. Cherries are good. Plums below average. Small fruits, especially Strawberries, have never been finer or better.—G. Baker.

Crewe Hall, Cheshire.—Apples under an average. The best bearing sorts are Irish Peach, Lord Suffield, Keswick Codlin, Pott's Seedling, Minchal Crab, Catshead, Rymer, Mère de Ménage, Lewis's Incomparable, and Old Nonpareil. The following are a few of our best dessert Apples: Irish Peach, Early Margaret, King of the Pippins, Cox's Orange, Margil, Old Nonpareil, Cellini, and Ribston. Pears rather under average, some trees bearing good crops, others none. Those bearing best are Citron des Carmes, Bon Chrétien, Beurré d'Amanlis, Baronne de Mello, Louise Bonne, Thompson's, Easter Beurré, and Winter Nelis. Peaches are an average crop. The best are Alexander, Early Alfred, Noblesse, Bellegarde, Barrington, Diamond, Walburton Late Admirable, and Prince of Wales. Nectarines an average crop. The best are Lord Napier, Rivers' Orange, Elruge, and Victoria. Apricots are below the average; some of the trees of large Early, Moorpark, and Hemskirk are bearing well; others have very few. Plums are about an average crop, those bearing best being Orleans, Victoria, a local variety called Crewe Hall Seedling, Kirke's, Magnum Bonum, and Pond's Seedling. Damsons, where sheltered, very plentiful, but in exposed situations injured by cold winds in spring. Strawberries have been a poor crop, the worst we have had for many years, and owing to the wet weather throughout July the flavour was not as good as usual. President is best with us for main crops, and Waterloo, a new kind, as a late variety. Gooseberries, Currants, Raspberries, and Nuts plentiful.—Wm. Whitaker.

Clumber Gardens, Worksop—The Apple crop here this season is one of the most plentiful we have hitherto had; owing, however, to the lateness of the season and the absence of sunshine the fruit is small and deficient in colour. The greater part of our Apples are grown on bush trees, grafted on the free and Paradise stocks. We find that the free stock is best adapted to our sandy soil, the trees grafted upon it yielding a greater return, and the fruit is of a much finer quality. The trees also are less liable to canker. White Moncrieff, grown on a west wall, is now ready. This is an Apple of fine appearance and of fairly good quality. Among other dessert kinds that find most favour with us are Cox's Orange Pippin, King of the Pippins, Maltster, Mr. Gladstone, Ribston Pippin, Worcester Pearmain, and Radford Beauty. The cooking varieties that give us the best results are Lord Suffield, Lord Derby, Echlinville, Keswick Codlin, Cellini, Dumelow's Seedling, and Cox's Pomona. Pears are a good crop, but the fruit will be deficient in size, and many of the late varieties will be worthless. Cherries have been a fairly good crop; while Plums and Apricots are unfortunately the reverse. Peaches, too, are a good crop, but the fruit will not be so fine as in other years. Small fruits were above the average, the yield of Strawberries especially being abundant, but much of the fruit was rendered worthless by incessant rain.

Potatoes so far indicate a good crop, and the disease has not as yet appeared among them.—M. Gleeson.

Albury Park Gardens, Surrey. — The tropical weather of last year gave us well ripened wood and plumped up fruit buds. This spring, with a lot of fine bloom, and fine weather for a good set of fruit, many looked forward to a good crop of Apples, but the great plague of caterpillars destroyed both leaves and fruit. Only a few trees here have escaped, and these are laden with fruit. The Apple crop will be a light one; in many cases the fruit will be small and much deformed. Blenheim Orange is one of the best both for dessert and for kitchen use. Cox's Orange Pippin is a good Apple on some soils, but requires a good soil to do well. It lacks the vigour of Blenheim Orange. The following sorts are good and useful: Keswick Codlin, Nonsuch, Hawthornden, Worcester Pearmain, Bess Pool, Prince Albert, Pott's Seedling, Northern Greening, Betty Geeson, Norfolk Beaufin, Hanwell Souring, Duke of Devonshire, King of the Pippins, Adams' Pearmain, Mannington's Pearmain, Scarlet and Old Nonpareil, and Sturmer Pippin. Strawberries here were a splendid crop, both as regards quality and quantity. My plants were put out in August last at a distance of 3 feet apart every way, the ground being trenched and made firm. Such beds will bear heavily for years. No gardener can get a heavy crop of fruit the first year. The second, third, and fourth years are the best provided the plants are looked after. I have not had a blind plant this season. The best kinds here are: Keen's Seedling, Sir J. Paxton, President, Marguerite, British Queen, Sir C. Napier, and Filbert Pine. Pears, Plums, Peaches, Cherries, and Nectarines are a fair crop. Raspberries and all bush fruits very heavy crops and of splendid quality.

Potatoes are a heavy crop, but will be much blighted, the sun coming too late.—W. C. Leach.

Great Gearies, Ilford, Essex.—Black Currants are an immense crop, and none of the fruit was spoiled. Red and White Currants a good crop, but the quality not so good. Strawberries suffered much from the cold winds early in the year. There was not a green leaf on the plants in February. Frogmore Late Pine suffered the most, and James Veitch the least. We had excellent fruits on King of the Earlies; it came in with Black Prince. Pauline was good on an early border, but only in that position. More than half the crop rotted before it was ripe. Raspberries were good and plentiful. Nuts are very good, the trees growing very vigorously. Cherries were an abundant crop, but a large portion of the fruit, both on walls and on standards, decayed from the excessive wet. Plums are very abundant on young pyramid trees; they are, in fact, much more fruitful than those on walls. Apricots are a poor crop, but the trees are growing well, and what fruit we have is likely to be of good quality. Pears on walls have not set so well as those trained as pyramids in the kitchen garden borders. Jargonelle has set well on the dwarf trees, but a large tree has not half a crop. The fruit is also cracking since the hot, dry weather set in on the 7th of August. Williams' Bon Chrétien, Beurré d'Amanlis, Beurré d'Aremberg, Beurré Superfin, Doyenné du Comice, and Pitmaston Duchess have good crops. The trees are healthy, and the appearance of the fruit is very promising. Apples on large trees are much below the average in quantity, but promise well as regards quality. We have been free from the attacks of caterpillar. The pyramid trees have in some instances a heavy crop; in others quite a failure. Nearly all the trees were well furnished with blossom, the only exceptions being three trees of Winter Peach, which had not a blossom amongst them. The weather was fine all the time the trees were in blossom, but they did not set well. Amongst kitchen Apples, Lord Suffield, Alfriston, Cox's Pomona, Wellington, Annie Elizabeth, and Hawthornden are all laden with fruit, which only requires dry, warm weather to ripen well. Dessert varieties comprise the following, and I may say if we were confined to one, Cox's Orange Pippin is by far the best, and should be grown as a pyramid on the Paradise stock. It is in use for quite three months, but does not come in until the end of October. The earliest to ripen is the Juneating; it is usually free bearing, but this year two

large trees laden with blossom have not a dozen Apples on them. A small tree on the Paradise stock has a fair crop. The first ripe fruit dropped from the tree on August 10. It will not keep good ten days after it has been gathered. Devonshire Quarrenden follows it closely, and produces much more beautiful fruit; it is the highest coloured of all Apples, and is a beautiful dessert fruit. Kerry Pippin is the first really good dessert Apple to ripen, and precedes Cox's Orange by five or six weeks; it has an abundant crop. Braddick's Nonpareil is also laden with fruit, and is one of the best late dessert Apples. It does well on the Paradise stock. Winter Pearmain is a good late dessert Apple, and is also very fruitful this year. Fearn's Pippin has a full crop, and we can always depend upon it. It is a fairly good variety, which we cannot dispense with for winter use.—J. Douglas.

Woburn, Bedfordshire.—The fruit crops in this district are very disappointing, particularly Pears, Plums, and Damsons, which are far below the average. Apricots are a fair crop. Morello Cherries good, but late. Peaches and Nectarines almost a failure, the foliage suffering much from cold in the spring. Strawberriew were an average crop, but quantities decayed through continuous wet. Currants, Gooseberries, and Raspberries were clean and of good quality. The Apple crop is but second-rate, and far below the average, myriads of caterpillars attacked the foliage, almost stripping the trees. The best flavoured dessert Apple for late keeping is Cox's Orange Pippin, but I cannot recommend it for general use, as here it is a shy bearer. Worcester Pearmain and Mr. Gladstone are early showy varieties. Kerry Pippin very useful, but King of the Pippins, Bess Pool, Golden Russet, and Ribston Pippin, though old, still hold their own for table use.—Alex. M'Kay.

Bradfield, Cullompton, Devon.—The fruit crop of this season here and in the neighbourhood is not at all satisfactory. Apples are a very poor crop, some kinds quite a failure, and only a few kinds have fruit upon them; those root-pruned are the best. Pears a fair crop, but much spotted and cracking badly. Peaches and Nectarines out of doors very poor and much blighted. Apricots under average, owing to much wet with low temperature while blooming. Cherries average. Plums that survived last season average. Bush fruit over average, Gooseberries especially so. Strawberries had too much wet when ripening, or they would have been good. Nuts and Walnuts under average, but it is not surprising, the trees suffered so much last season from drought. Apples vary much in flavour on the different soils around here. Should we have a fair amount of sun during ripening the flavour will be well brought out. American Mother, as a rule, is always good. Adams' Pearmain, Ashmead's Kernel, and the improved kind are also good. Blenheim Pippin, Boston Russet, and Braddick's Nonpareil are very good. Claygate Pearmain is good, but Cornish Gilliflower is, as a rule, tough. Court Pendu Plat is good if kept till June. Cox's Orange Pippin is not a great bearer here; it is best as a standard. Kerry Pippin is good, but soon decays. King of the Pippins is very handsome. Other good kinds here are Pearson's Plate, Reinette du Canada, Ribston Pippin, Ross's Nonpareil, Scarlet Nonpareil, Sturmer Pippin, and Mannington's Pearmain.—J. James.

Orchardleigh Gardens, Frome.—The fruit crop here is not good this season. Bush fruits of all kinds are good and above an average crop; also Strawberries. Apples and Pears are much under average, and some trees of the former much blighted. Apricots are a fair crop and the trees look clean and healthy. Plums are very partial, some varieties a failure, others bending under their load. Cherries are a failure and the trees much blighted. Morellos are a good average crop and the trees looking well. Walnuts are an average crop. The best varieties of dessert Apples here are Cockle Pippin, which bears well and is of good flavour; Court Pendu Plat, Cox's Orange Pippin, fine flavour, Golden Harvey, Fearn's Pippin, Gooseberry Pippin, good in quality and quantity, King of the Pippins, a great bearer and good flavour, quite a favourite at table; Nonpareil (old), a fair cropper and keeps well. Sturmer Pippin does extremely well, is a famous bearer, and keeps well; the flavour is excellent. Lamb Abbey Pearmain is a good bearer and of fine flavour.—John Chalmers.

Benham Park, Newbury.—Apples are very thin and not of first quality. There was plenty of bloom, but blight was so bad that few set properly. Pears are an average crop on most sorts, both early and late. Apricots on walls with coping are a full crop. Peaches under the same conditions are good. Dessert Cherries the same, Morellos extra fine crop. Bush fruit full average crop. Plums, such as Orleans, Early Purple, Green Gage, and Denver's Victoria, are very good; also Golden Drop. Standard and pyramidal Apples and Pears are shy. Raspberries and Strawberries were far above the average, but owing to the continuance of rains we were not able to gather them in good condition.—Charles Howe.

Waddesdon Gardens, Aylesbury.—In this part of the country fruit cultivation is much neglected, excepting in private gardens. The unusually heavy falls of snow from the middle of February to the early part of April rendered the ground very cold and wet; consequently the period of blooming was very late. Plums, Pears, Apricots, and Apples bloomed very irregularly; the bloom also being weak it set badly. They are under half a crop. The trees having kept fairly clean what fruit there is promises to be of fair quality, provided there is sufficient sun to ripen it. Cherries on walls are good, but small. Gooseberries, Currants, and Raspberries a full crop, and of good quality. Strawberries a full crop, but much damaged by rain. Damsons quite a failure. Walnuts a very heavy crop.—J. Jaques.

Abney Hall, Cheadle, Cheshire—Small fruits have been good and abundant, excepting Strawberries, which were a failure, both with us and in the neighbourhood; ours showed no bloom, being parched up with drought last summer. The Apple crop is not going to be so good as it promised. Owing to the extreme cold and dull weather we had some weeks ago the fruit when about the size of marbles fell off. Our best dessert Apple here is Cox's Orange Pippin. Ribston Pippin, King of the Pippins, Cockle Pippin, and Quarrenden are carrying good crops. Some kinds of Pears have good crops, especially Williams' Bon Chrétien and Louise Bonne of Jersey. Morello Cherries are late, but fair crops. Victoria Plums and Damsons in orchard are good crops. Peaches and Nectarines are very uncertain in this part, and are not much grown.—Robert Mackellar.

Swanmore Park, Bishop's Waltham.—Apricots none. Plums, Victoria and Coe's Golden Drop, fair crop, others none. Cherries excellent crop, White Heart, May Duke, and Morello notably heavy. Peaches and Nectarines average crop; the trees suffered much from blister in the early spring. Pears average crop on walls, few on pyramids, Marie Louise, Beurré Diel and Pitmaston Duchess are the best on walls, Doyenné du Comice is the best on pyramids. Small fruits of all sorts extra heavy and good in quality, particularly Gooseberries, which never fail to produce a heavy crop. Strawberries were a heavy crop, but owing to continued wet they rotted on the ground and the slugs devoured them largely. Apples are under average crop, particularly dessert varieties. Cox's Orange Pippin is the best, Ribston Pippin is fair, so is Worcester Pearmain, Irish Peach, and Golden Pippin. Lord Burghley is a capital dessert fruit here in most seasons. King of Pippins is a good crop with fair flavour generally. Ashmead's Kernel Improved is a good variety here. In this neighbourhood dessert varieties are not so much grown. Blenheim Orange is largely grown, and is always of good quality. Cornish Gilliflower is also grown. Hambledon Deux Ans is a favourite kind here, but kitchen varieties do better than dessert kinds.—E. Molyneux.

Euston Hall, Thetford.—Apples are much under average, the lightest crop we have had for years. Apricots are a failure, with the exception of Kaisha, which is carrying a light crop. Although a small sort, it is very acceptable when others are scarce; it seldom fails to bear a crop. Peaches and Nectarines are a full crop. We winter-dress the walls and trees annually, and seldom have they been so free from insects. The trees are making satisfactory growth. Plums, both on walls and standards, are a light crop. Pears are much under the average. Strawberries have been both abundant and good. Raspberries have made up for last year's deficiency, both in size and quantity, though they were rather insipid. Morello Cherries are large and good. Outdoor Figs, when winter protected, are above the average, but I have the same report to make as last year with regard to non-protected trees, viz, that they are fruitless. Gooseberries and other small fruits are both good and abundant, and Nuts are plentiful.—William Low.

The Wilderness, Earley, Reading.—The Apple, Pear, and Plum crops here are almost a failure this year owing probably to the drought of last autumn and winter, and the severe attack of maggots in the spring. Strawberries, Raspberries, Currants, and Gooseberries have been plentiful. Respecting the Apple as a dessert fruit, there are two kinds that do well here, Cox's Orange Pippin and Rosemary Russet. The former is in use from November till March, and the latter from March to June. These two kinds are the best either for dessert or cooking. Although I grow upwards of a hundred varieties of Apples, I could not select two more suitable for general use here than the two above named.—W. Lees.

Allerton Priory, Liverpool.—Apples generally are a good crop, though in some instances they are nearly barren. This I attribute to the very dry time we had last summer in conjunction with our poor hungry soil, in some places not more than a foot in depth and resting on the red sandstone. Pears are a heavy crop, but rather small. Cherries are plentiful, Morellos especially so, but the cold wet weather has sorely damaged the sweet kinds. Plums are a good crop, and Damsons are abundant. Strawberries generally in this neighbourhood have been blind, but have grown excessively, although in some instances good crops have been gathered from young plants. Raspberries, Currants, and Gooseberries have been very good. Figs are promising well, and Peaches are quite up to the average. The best dessert kinds here are Cox's Orange Pippin, Ribston Pippin, Irish Peach, Blenheim Orange, Duchess of Oldenburg, and a handsome looking Apple locally known as Pomona Pippin, conical in shape, rather large, pale yellow, but a bright red on the sunny side, and a good keeper. If you cannot make it out from my description I shall be pleased to send you a few fruits when ripe. Of the coarser kinds Court of Wick is a useful one.—J. J. Craven.

Leigham Court, Streatham Hill.—Apples, taken as a whole, are decidedly a thin crop, but what we may term our constant bearers have a fair amount of fruit. Fortunately, Blenheim Orange is included in this short list. We regard this as our most useful Apple, and with a good supply of it we feel safe for a great part of the season, both for table and the kitchen. Other sorts we find good for dessert are Kerry Pippin, a fine Apple for autumn use, and never fails to bear a crop of some sort. King of the Pippins is good if used in season, but should not be kept too long. Ribston Pippin is always good in quality. Scarlet Nonpareil is a first-rate Apple, firm, rich, and juicy. Lemon Pippin is not a first-rate dessert Apple, but it is a constant cropper, and last year we found it very useful, as it kept better than most sorts. Pears set well, but cold weather soon thinned them considerably. Some sorts, however, such as Bon Chrétien, Jargonelle, Marie Louise, and Comte de Lamy, are bearing full crops. Plums set well, but were soon reduced to a poor crop, with the exception of Victoria. Dessert Cherries soon fell after setting. Morellos are a full crop. Damsons are a heavy crop, and promise to be good. Peaches and Nectarines are very poor about here; in one or two cases a full crop has been secured. The only trees in our garden bearing a full crop are some Nectarines of the Orange type.

There is a fine lot of Figs, but some are falling since the weather has been milder. Currants are fine and clean, but lack flavour. Gooseberries have been plentiful, but the heavy rains injured them. Raspberries have been a fair crop. Strawberries.—Of these, Vicomtesse Héricart de Thury has been our mainstay, carrying a good crop and ripening up well during the wet weather. Plants of other kinds over one year old have gone blind wholesale. The blossom on Apples, Pears, and all kinds of stone fruits was very fine. There was no injury from frost, and where there is a thin crop it is owing entirely to a continuance of cold, sunless weather. —Ed. Butts.

WALES.

Cardiff Castle.—The Apple crop is very good here, most of the trees are young and in fine bearing condition. They are clean and healthy and free from insect pests of any kind. But the fruit, as a rule, is later and smaller than usual, on account of the cold, wet, sunless summer. The following are some of the cooking varieties which are bearing best: Echlinville, Lord Suffield, Wellington, Keswick Codlin, Emperor Alexander, Lord Dudley, Reinette du Canada, Lord Grosvenor, Radstock Pearmain, Hawthornden, Sturmer Pippin, Rymer, Annie Elizabeth, and a large healthy old tree of Blenheim Orange which is heavily laden, while a number of fine healthy young trees of this variety—planted some twelve years since—have not yet come into bearing. Beauty of Hants resembles Blenheim Orange—the only difference I can observe in them is that Beauty of Hants has been bearing good crops for some years past, and the trees were planted at the same time as those of the Blenheim Orange. I can strongly recommend intending planters to plant the Beauty of Hants in preference to Blenheim Orange. Of dessert varieties the following are bearing good crops: Cox's Orange Pippin (which I consider one of the best and a sure cropper), Beauty of Hants, Irish Peach, Worcester Pearmain, Rhydd Court Seedling, Syke House Russet, and Braddick's Nonpareil; several other varieties have only half a crop. The following varieties of Pears, both on walls and pyramids in the open quarters, are bearing good crops, and, like the Apple trees, are clean and healthy. Wall trees on south aspect—Beurré Diel, General Todtleben, Bergamot d'Esperen, Glou Morceau, Ne Plus Meuris, Marie Louise, Beurré Bosc, Beurré Magnifique (very like Beurré Diel) Easter Beurré, Williams' Bon Chrétien, Pitmaston Duchess, Jargonelle, Beurré d'Amanlis, Louise Bonne of Jersey, and Brockworth Park. Trees of the same varieties as above on the east and west aspects, with the exception of Winter Nelis, Beurré d'Amanlis, Marie Louise, and Autumn Bergamot, have not more than half a crop, but the fruit is large on that account. Of pyramids, Jargonelle, Gansel's Bergamot, Beurré d'Amanlis and Williams' Bon Chrétien are loaded to the ground, and have to be supported to keep the branches from breaking. The following varieties are bearing good average crops: Pitmaston Duchess, Beurré Magnifique, Louise Bonne of Jersey, Early Windsor, and Beurré Clairgeau. Plums are below the average here, but plentiful in some places in the neighbourhood. Apricots a good crop here, but poor in some places in the district. Peaches and Nectarines are a poor crop, the fruit small and late. Vines at Castle Coch a complete failure this year. Vines on the Castle wall at Cardiff about half a crop, but I am afraid the fruit will not ripen.

Vegetable crops have done fairly well, with the exception of Potatoes, which are badly diseased and very poor in quality.—A. Pettigrew.

Quinta Gardens, Chirk, Ruabon.—The fruit crops in this district are decidedly under average. Apples are a very partial crop, some sorts having a full crop, while others have few or none. Pears are the same. Plums much under. Peaches and Nectarines average. Apricots average. Cherries under, Morellos over. Raspberries and Currants (Black and Red) a full crop. Strawberries under, and, owing to the long-continued wet, cold weather, of bad quality. I find the following sorts of Apples to be the best in this district for dessert: Irish Peach, Early Margaret, Red Astrachan, Devonshire Quarrenden, Worcester Pearmain, Kerry Pippin, King of the Pippins, Cox's Orange Pippin, Gravenstein, Ribston and Blenheim Pippins, Scarlet Nonpareil, and Okera, a splendid new sort, Duke of Devonshire, Reinette du Canada, Sturmer Pippin, and Allen's Everlasting. There are many other sorts that might be named, but these are a select few.—J. Louden.

GUERNSEY.

The Gardens, Somerset Terrace.—The fruit crop here this year is very partial and much below the average. The drought of last year, the long-continued cold in winter and spring, followed by a cold, moist, almost sunless summer, has made what fruit there is small, deformed, and flavourless. The Strawberries flowered well, but many of the blooms turned blind. What fruit there was had little flavour and many rotted on the ground. Gooseberries and Currants in some places have heavy crops, in others scarcely any fruit; the Gooseberries dropped off wholesale. I have a Cherry tree which was covered with bloom. I noticed one day a quantity of the bloom on the ground; on examining it I found the sparrows very busy among the flowers, and to these I attribute the loss of a crop. Raspberries are a very heavy crop. Peaches and Plums very few. Pears thin; the trees bloomed and set fairly well, but the fruit dropped badly. Apples are an average crop, in some places heavy, but owing to the dull, cold weather and insect pests the fruits are small, and many seem to be ripening prematurely. The best sorts for dessert are Ribston Pippin, Eldon Pippin, Cox's Orange Pippin, Duke of Devonshire, Blenheim Orange, and Lord Burghley. Indoor fruit has been fairly good, but Grapes have not coloured as well as usual. Greenhouse Grapes are heavy, but very late, and unless we get warmer weather and more sunshine will not ripen well. Tomatoes, of which very large quantities are grown, are badly diseased, many crops being completely ruined.

Early Potatoes were very good, but late sorts are badly diseased.—E. Peters.

Saumarez Hall, Castel.—The fruit crop in Guernsey is not very abundant this year. Of stone fruit there is scarcely any. Apples are not very plentiful. The Pear crop is very poor, especially on standard trees. Grapes very fair. Tomatoes are much blighted in places, and some will not produce half a crop. The very cold rough spring we have had injured the trees greatly when they were in bloom. The Apples which prove to be the best in this neighbourhood for dessert are Red Quarrenden, Irish Peach, Kerry Pippin, King of the Pippins, Ribston Pippin (which is very rich and one of the best), Blenheim Orange (large and richly flavoured), Reinette du Canada, Pearmain Falla, and Maingay's Favourite. As regards Pears, some of the best and most prolific are Williams' Bon Chrétien, Chaumontel, Doyenné du Comice, Duchesse d'Angoulême, Conseiller de la Cour, Louise Bonne of Jersey, and Josephine de Malines. These do well either as standard or trained trees.—H. Carre.

JERSEY.

Beau Sejour, St. Heliers.—There are but very few Apricots, Peaches, Nectarines, Plums and Green Gages this season, owing undoubtedly to the late frosts and cold winds we experienced here when the trees were flowering. There is a good crop of Figs and a fair crop of Morello Cherries, but the White Hearts have rotted and all dropped from the trees owing to the excessive rains. Apples will not be abundant. Pears will be a fair crop. Black and Red Currants have been exceedingly good. Gooseberries fair; also Raspberries. We may expect a good crop of Raspberries next year, as they have made very strong canes this season.—Wm. Shave.

Carnations dying.—I enclose the root of a Carnation just taken up and infested with a tiny white worm. Three days ago I cleared out all Carnations and Auriculas, as I thought, attacked by them; however, this morning I found the enclosed dwindling away.—H. B.

*** In reply to the above, the worms in the earth which was round your Carnation roots are young earthworms, which I do not think can have injured the roots in any way. They may be killed by watering with lime water, or a solution of corrosive sublimate in water—1 oz. of corrosive sublimate dissolved in a little warm water, and mixed with 20 gallons of cold water. The centre of the Carnation stem was much decayed and quite hollow, but from what cause I cannot say. This decay evidently killed the plant.—G. S. S.

CARNATION COMPETITION—RESULT.

Our Carnation competition has brought out several distinct and beautiful Carnations of undoubted merit. The season has been one of the very worst for the purpose and may have affected some kinds. In accordance with the conditions announced, they were planted fully in the open, away from shelter of any kind. The trial ground, though on a southern slope, was 400 feet above the sea-level, and open to a long valley of some 15 miles, through which the east winds in winter sweep. The Carnations withstood these winds bravely, but in spring another enemy made its appearance—the wireworm. The ground had been broken up within two years, and although little wireworm was seen when the Carnations should have been growing, there were traces that the enemy was at work. Although some kinds suffered, we have in most instances been able to see what they are, while many have surprised us with their vigorous growth and flower. A Carnation that will grow well and flower freely in such a season must be at least hardy. The heavy rains have also been prejudicial, causing the petals to rot. Ninety-seven kinds were sent, and of these ten were lost through wireworm

Prizes of £3 each have been awarded to the following:—

Ketton Rose.—A distinct and beautiful rose of good form. From Mr. W. H. Divers, Ketton Hall, Stamford.

No. 44.—A prettily striped kind. From Mr. Jas. Douglas, gardener to Mrs. Whitbourne, Great Gearies, Ilford.

A beautiful kind, distinct in colour, white, deepening at the base to rose, and prettily named by Miss Home, Border Maid. From Mr. J. Graham, Milne Graden, Coldstream, Berwick.

Emma Lakin.—Good white. Mr. J. Lakin Temple Cowley.

Many were sent which were beautiful, but do not appear to be better than others already known; it is extremely difficult to beat many of the rose, scarlet, and red kinds now in cultivation. The following kinds were noted as being very good, and some worthy of further trial:—

Ida.—A very beautiful apricot self, worthy of further trial. From Hon E. Willoughby, Settrington House, York.

No. 3, Scarlet self.—A beautiful red, hardy and free. From Dicksons and Sons, Edinburgh.

No. 4, Rosy carmine.—Beautiful kind, free and of good form; warm colour. Harkness and Sons, Bedale.

Gentle Jacky.—Pretty rose colour, free. Mr. J. Cliffe, Nisbett Hall, Leeds.

No. 113.—A beautiful variety, remarkably vigorous in habit, with pretty pink flowers. Miss Erskine, Warkworth, Acklington, Northumberland.

No. 112, Light red.—A distinct and pretty shade of red and a free bloomer, but splits very much. Mr. James Hutchinson, Beauparc, Slaw, Co. Meath.

Yellow, red, and white.—A very pretty yellow ground, which the season affected; worthy of further trial. Hon. R. Henley-Eden, Hilhampton House, Stourport.

Hetty.—White, hardy, and free, but somewhat like the White Clove. Mr. R. Dean, Ranelagh Road, Ealing.

Amanda.—Very fine scarlet self. Mr. J. Roberts, Gunnersbury Park, Acton.

No. 71.—Fine rose self, good and free. Mr. J. Douglas.

No. 85, White self.—A pretty kind, with well-formed flowers faintly tinged with pink, and tufted habit of growth. Mr. J. Douglas.

No. 37, Picotee.—A beautiful red-edged Picotee, dwarf and free. Mr. J. Douglas.

A very interesting collection was sent by Mr. Rogers, of Whittlesea, Cambs. All the kinds were remarkable for their robust habit and free-flowering qualities. The following were specially noted:—

No. 33, Scarlet self.—The colour of this kind was vivid scarlet, brighter than that of anything we know. The flowers split all to pieces, but they are so freely produced, that when seen from a distance the glowing effect produced is very telling.

Miss Harding.—A pretty rose and yellow flaked kind.

No. 35, Carmine self.—Distinct and free.

No. 95, Clove-crimson.—Strong and very free.

La Brillant.—A brilliant red worthy of further trial. Mr. F. Hooper, Bath.

Societies and Exhibitions.

CRYSTAL PALACE.

Sept. 7 and 8.

Dahlia Show.

This is not a great Dahlia season, but, considering the trial the plants have undergone, the exhibition at the Crystal Palace on Friday and Saturday last was an agreeable surprise. The Dahlias are as backward as was the case with the Carnations, the result of absence of sun, cold, and wet, that prevented the flowers acquiring the high finish, fulness, and regularity of outline so marked in the show and fancy varieties in a good year. The exhibition of Friday last showed two things—the increasing love for the Cactus class, and the continued appreciation of the single Dahlias. There is one section that we do not value, and that is the fancy, with the exception of such boldly-coloured kinds as Peacock and Mrs. Saunders, in which the tints are decided, not confused and crudely mixed. If the florist works with the Cactus class he will continue to give us flowers of exceeding beauty, and against which no charge of severe formality can be brought.

The great class of the exhibition was of course for seventy-two show or fancy blooms, and here Messrs. Keynes, Williams and Co., of Salisbury, showed flowers of great freshness, well finished, and even. Such varieties as the following were amongst the best: William Rawlings, deep maroon-crimson; Thomas Goodwin, a deeper shade even than this; Eclipse, brilliant scarlet; Nellie Cramond, bright rose; James Service, deep maroon; Mrs. Gladstone, blush, one of the loveliest of the light-coloured flowers; and Fred Smith, rich lilac. The collection from Mr. Charles Turner, of Slough, was not far behind, especially the blooms of W. Flack, lilac tipped with a deeper shade; Peacock, deep maroon, tipped white; R. T. Rawlings, yellow; Ethel Britton, Mrs. Kendall, brilliant lilac; and Flag of Truce, white. Although a large class, the Slough collection of forty-eight blooms was neat, even, and well furnished. We singled out such blooms as those of Georgina, very soft yellow; Prince Bismarck, deep crimson; Lady Herbert, white, decidedly tipped with rosy red; Crimson King, crimson, and James Cocker, maroon, as superb for quality, viewed from the florists' aspect. Nor was there any great falling off in the class for thirty-six, in which the Oxford grower, Mr. J. Walker, of Thame, showed a fine collection of flowers. Here the light-tinted blooms of such as Ethel Britton and Mrs. Gladstone, both of which were superb throughout the exhibition, were noticeable. There is room for a few more delicately tinted flowers; of maroons and shades of the same we have a sufficiency, but in other colours there is still a space to fill. Messrs. Saltmarsh were second, and the Chelmsford flowers were of general excellence. The class for twenty-four brought a good competition, which we may remark was fairly brisk throughout, especially in the trade division. Messrs. Saltmarsh showed the best twenty-four, amongst the number being excellent flowers of R. T. Rawlings, Mrs. Saunders, and Lady Gladys Herbert. Messrs. Rawlings had the best twelve.

Amateurs in the case of an exhibition of one special flower are always numerous, and there was no exception on this occasion. Mr. Henry Glasscock, Bishop's Stortford, had twenty-four show Dahlias of most faultless quality, fresh, splendidly coloured, and of great finish. The same varieties as have been previously mentioned, together with a fine flower of the beautifully coloured Queen of the Belgians, are also here shown well. The second prize went to Mr. W. Mist, Ightham, near Sevenoaks. Mr. J. T. West showed well in the amateurs' division and his twelve blooms told of skilful culture, having a desirable freshness and regularity—a marked feature in the show Dahlia. Mr. T. Hobbs, Lower Easton, was second.

The fancy class was well filled, evidence of the popularity of flowers we dislike. The blooms were of average excellence, and none better than those of Mr. J. T. West, who was first for twelve, having good examples of the distinctly marked kinds of which Peacock is a characteristic type; Mr. Henry Glasscock was second. Mr. Steer, Southwood, near Eltham, had the finest six blooms.

In an exhibition of a single flower the classes for blooms of a set colour are always most interesting and effective. Mr. J. T. West showed the best six dark-coloured kinds, exhibiting James Vick, Rev. J. Goodday, Prince of Denmark, Shirley Hibberd, and Lord Chelmsford all of a maroon shade, some deeper and some lighter than others. A contrast was the class for light-coloured Dahlias, and here the beauty of such delicately tinted varieties as Mrs. Gladstone, Mrs. Harris, pale cream, and Flag of Truce is brought out. Six superb blooms were put up by Mr. Charles Turner, and in the class for tipped flowers none were so good as those from Messrs. Keynes, Williams and Co, though Messrs. Saltmarsh showed well. The Salisbury growers also had the best six striped Dahlias, and in this class are striking flowers, especially where purple is laid on a lilac ground, as in the variety Rebecca.

The decorative Dahlias that comprise the Cactus varieties are a beautiful class, and deserve encouragement, especially as many of the faults seen when this class was first promoted are now overcome. The six bunches staged by Mr. Charles Turner were exceedingly well arranged, and the varieties shown, Henry Patrick, white; Empress of India, dark maroon colour; and Mrs. Hawkins, were of fine quality. Messrs. Keynes and Co. were second, showing amongst others Panthea, a flower of a curious shading of scarlet, scarcely beautiful, but striking. Mr. H. Glasscock exhibited the best four bunches.

We are glad to see the Pompon Dahlias keep up their position, and we have not often seen a better twenty-four than those of Mr. Charles Turner: Darkness, deep maroon; Ernest, purple; White Aster, white; Mabel, lilac; Innocence, white, tipped with lilac; and Golden Gem, golden yellow, were well worth a note. Messrs. Keynes, Williams and Co. were second. Mr. Burrell, Howe House Nurseries, Cambridge, exhibited in the class for twelve, admirable flowers, fresh, full, and well arranged. Mr. G. Humphries, Chippenham, was the second. For six blooms Mr. J. T. West was first.

Single Dahlias increase rapidly, as shown by the numerous certificates given, and in the first prize collection of twenty-four shown by Messrs. Cheal, of Crawley, was a new departure in colour in the variety Duke of Albany, a mixture of pale brown and white, some petals wholly of one colour. It is a flower that will create a stir for its novelty more than for its beauty. The exhibit of Messrs. Cheal was faultless, and the staging of them deserves notice. Brutus, scarlet; Duchess of Westminster, white; and Queen of the Singles, rose, were the finest. Messrs. Paul and Son, Cheshunt, were first in the class for twelve, and Mr. V. Seale, Vine Nurseries, Sevenoaks, second. In the miscellaneous class was a group of single, decorative, and pompon Dahlias from Mr. T. S. Ware, of Tottenham.

A considerable number of seedling Dahlias were submitted for the consideration of the judges. The show and fancy varieties were few, and evidently required more time for development. A first-class certificate of merit was awarded to fancy Dahlia Matthew Campbell, bright buff ground, shaded with apricot and striped with crimson, fine petals and outline; a very good and distinct variety. But of new Pompon, single and decorative or Cactus varieties there were many, some of them of a novel character. Messrs. Keynes, Williams and Co., who exhibited the foregoing fancy, received the same award for the following new Pompon Dahlias: Little Ethel, white slightly tipped with deep purple, a very pleasing and novel variety; Fairy Tales, delicate primrose, a very pure and charming shade of colour; Whisper, bright yellow, a small, compact, and beautifully-formed flower of the highest quality; and Eden, deep bright shaded primrose, very free and of good shape. Other promising new varieties from this firm were Little Darkie, bright maroon, shaded scarlet, excellent shape; Red Indian, deep bright red, very good; and Eurydice, blush tipped with purple, a very pleasing flower. Messrs. Keynes and Co. received also a certificate for decorative Dahlia Panthea, of the Juarezi shape, colour very bright pale reddish cerise, free and distinct. They also had Amphion, yellow flushed with cerise, fine and distinct; and Honoria, pale bright yellow; both the foregoing are of the Juarezi type. The same award was made to Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, for the following single Dahlias: R. C. Harvey, yellow shaded with salmon, with a red ring round the eye, good and distinct; Florrie Fisher, white band round the eye, with broad edgings of mauve shaded with purple; and Mrs. Ramsbottom, pink shaded with cerise, a very distinct, novel, and charming flower. Mr. Ware also had the following new decorative varieties: William Rayner, yellow, shaded with cerise and tinted with purple; Sydney Hollings, maroon shaded with purple; and Professor Baldwin, pale orange-scarlet, with the shape of Juarezi. First-class certificates were awarded to Mr. J. T. West for decorative Dahlia Beauty of Brentwood, which is quite the shape of Juarezi, and of a pale-shaded purple colour, the petal edgings being of a light bright purple; and for Pompon Dahlia Dolly Keith, white, the centre yellow, tipped with white, a very pleasing and well-formed flower; to Mr. T. W. Girdlestone for single Dahlia Daisy, pale ground, with an edging of mottled rosy pink, very pretty and distinct; and The Mikado, having a golden ring round the eye, then crimson-scarlet, with slight tips of pale yellow, bold and distinct, but somewhat large in size; Marguerite, rich orange-crimson, small, and of good shape, is a very promising variety. From Mr. D. T. Fish came a batch of six single Dahlias, very pretty, but not considered sufficiently distinct. Messrs. H. Cannell and Son received a first-class certificate of merit for decorative Dahlia Yellow Juarezi, clear yellow, very pleasing, and of a good colour. Of this type, they also had W. T. Abery, Lilian Abery, Sir Trevor Lawrence, and Lady Ardilaun. A certificate was also awarded to Mr. Charles Turner for Pompon Dahlia Rubens, maroon-crimson, shaded with bright crimson, a small compact flower of a very showy and striking colour. Kathleen, Innocence, and Juliette are pretty varieties also, but scarcely distinct enough in character. The following new show varieties were also in the Slough collection: Glowworm, a bright scarlet self; Mary Anderson, a pale variety in the way of Mrs. Gladstone; and Corsair, buff, shaded with gold, the reverse of the petals pale purple. Messrs. J. Cheal and Son received certificates for single Dahlias Victoria, white, the side margins crimson, a charming flower of excellent shape; and Duchess of Albany, a novel and distinct flower, silvery white, with faint pink lines and side margins

of orange-brown. The same award was made to Mr. Henry Glasscock for single Dahlia Gertrude, having a yellow ring round the eye, then a zone of white, with a margin of rosy purple, a pleasing and novel flower.

Fruit Show.

The exhibition of fruit at the Crystal Palace on Friday and Saturday last was of unusual interest, as the conference, at which a large number of growers from all parts of the country were present, was held on both days. Of the show itself it must be recorded as disappointing, and this state of things was only to be expected, owing to the general failure of the hardy fruit crop. Our reports that have been appearing for several weeks tell us this, but there were redeeming features in the display of indoor fruit, of which the Nectarines, Peaches, Plums, and in many instances Grapes were admirable. The effects of the unusual character of the past season were seen in the badly-coloured, half-ripened Grapes, the colourless Apples and Pears, and in the general smallness of the various exhibits. The Grapes made, as is usual, a great show, and it was noticeable that Alnwick Seedling is in increasing favour with gardeners. Many bunches were exhibited, and these generally of that superb finish, evenness, and splendid colour characteristic of this fine Grape in high-class samples. In the classes devoted especially to one variety of Grape there was a most interesting display, and amongst the black varieties none were finer than the three bunches of Gros Maroc, from Mr. M. Gleeson, Clumber, Worksop. They were the finest type of Gros Maroc we have seen, having the immense berries, heavy shoulders, and lustrous black colour that mark this Grape. The bunches of Muscat of Alexandria from Mr. Wm. Taylor, gardener to Mr. J. Chaffin, Bath, also deserve special mention, as the Muscats on the whole were not so fine as usually seen. It seems thorough waste to exhibit bunches quite unripe. Several of those shown were in this condition.

The great class was for a collection of fruit of ten kinds, and Mr. J. H. Goodacre, Elvaston Castle, Derby, was placed first for a thoroughly good all-round display, in which were splendid bunches of Foster's Seedling Grape, Kirke's Plum, Downshire and Bellegarde Peaches, and the delicious Red Warrington Gooseberry. Mr. H. W. Ward, Longford Castle Gardens, Salisbury, had also a good collection, in which Smooth Cayenne Pine-apple and Castle Kennedy Figs showed the highest culture. In this class there was considerable competition, and this was the case throughout the exhibition, except in the division for hardy fruits, where we naturally expected a falling off. Mr. A. Miller, Ashton Park Gardens, Trowbridge, had the best twelve dishes, and the Plums and Grapes were again excellent, also the Smooth Cayenne Pine. Mr. W. Pratt, Longleat, Warminster, was a good second. The fruits in the first prize collection of eight dishes shown by Mr. Parker, Impney, Droitwich, Worcester, were hard to find fault with, especially the bunches of Muscat of Alexandria, which were of capital finish and size. The second was Mr. A. Waterman.

The Grapes we have already referred to, and offering prizes for special kinds is a good way to test the rise or fall of any particular variety and the effect the season has upon it. The most interesting class was for a collection of ten kinds, and here Mr. Pratt was the most successful. On the whole the bunches were clean, well finished, and of good colour, especially those of Muscat of Alexandria, Barbarossa, Madresfield Court, Alicante, and Foster's Seedling. Mr. H. W. Ward was second. The best collection of five kinds was shown by Mr. W. Allan, of Gunton Park, whose clusters of Gros Maroc were splendid for size of berry and colour; and he also staged creditable bunches of the Duke of Buccleuch Grape that seems to try the grower's abilities to the utmost to bring to anything like perfection. Mr. Osman, Ottershaw Park Gardens, Chertsey, had small-berried, but finely finished clusters of well-known varieties. The best Black Hamburgh Grapes were those from Mr. J. Taverner, gardener to Sir A. K. Macdonald, Bt., Woolmer Lodge, Liphook, and these were about the finest in the exhibition. Black Hamburgh, as a rule, was inferior, wanting finish, colour, and size of berry. Some excellent clusters of Muscat of Alexandria were shown, especially by Mr. W. Taylor, whose exhibit we have already mentioned, and the second prize exhibit from Mr. W. Pratt showed skilful culture, but the Grapes lacked ripeness. The Gros Maroc of Mr. M. Gleeson we have especially referred to, and those of Mr. Taylor, who was second, were not far behind in merit. This class was well represented. Mr. Taylor showed the finest clusters of Madresfield Court Muscat, and Mr. Goodacre—evidently by those exhibited—knows well how to handle this peculiar Grape. Alicante Grape brought many exhibitors, the first prize going to Mr. J. Hollingworth, Woodseat Gardens, Uttoxeter, who showed this popular Grape as it ought to be. Of any white Grape other than those specified, Mr. F. Lee, Mumford, was first with Buckland Sweetwater of splendid colour. In the corresponding class for black, Mr. Goodacre was the most successful. Several baskets of Grapes were shown, and the best one of black was from Mr. J. Bury, Forest Hill, consisting of superb clusters of Alnwick Seedling, and to show the popularity of this Grape, it was also exhibited by Mr. Taylor, the winner of the second prize. For white, Mr. G. Duncan was first, having perfectly coloured and heavy bunches of Muscat of Alexandria. Mr. Lane, of Ascot, had the same variety.

This is not a bad Plum year, and, as could be seen from this exhibition, the fruits are of excellent size, the result of the not too heavy crop, as was the case last season. The best fruits of yellow and green varieties were from Mr. T. Lockie, Oakley Court, Windsor, and consisted of Washington, Jefferson's, and Golden Gage, three standard kinds. For purple Plums, excellent fruits of Royale and Dry's Seedling came from Mr. W. Iggulden, Marston House Gardens, Frome; and the examples of Belgian Purple, Nectarine, and Kirke's, from Mr. H. W. Ward, were well worth notice. Red Plums were plentiful, and none better than those from Mr. A. Waterman, who had Pond's Seedling and the famous Victoria in perfection. Mr. T. Lockie also showed Pond's Seedling. In every class for Plums there was brisk competition, so a good show of this useful fruit resulted.

Peaches and Nectarines were of remarkable colour in most instances, especially the Nectarines, and of these such kinds as Pine-apple, Dryden, and Lord Napier were the finest. For four dishes of this fruit Mr. W. H. Divers was first and Mr. Goodacre second, showing the richly-coloured Pine-apple in true character. For one dish of Nectarines Mr. J. Douglas had fruits of the Humboldt variety, and was placed first; while in the corresponding class for Peaches the best came from Mr. G. Goldsmith, Floore Gardens, Weedon, who exhibited the delicious Violette Hâtive, Mr. W. Manning, Reigate, having the handsome Noblesse. An interesting class was for six Peaches and six Nectarines distinct; and Mr. W. H. Divers showed extremely fine fruits, especially of Nectarines, the leading varieties being Pine-apple, Dryden, and Lord Napier. The Crimson Galande and Princess of Wales Peaches were clean, well coloured, and of average size. The fruits sent by Mr. Goodacre were rather smaller, but they were an even, handsome collection.

There was as much competition in the classes for Melons as in any of the others, and excellent fruits were exhibited, especially by Mr. J. H. Goodacre, who was first for one green fleshed Melon; and in the other class for a scarlet-fleshed variety, Mr. C. J. Waite was the chief prize-winner. The Figs, Bourjassotte Gris and White Marseillaise, from Mr. C. Ross, were excellent types of these kinds.

Hardy fruits we have noted before; and we shall this year see very little of the brilliant colour that characterised the show last season. Even those fruits generally so marked in this respect were as green as Grass, though Louise Bonne of Jersey and Windsor in one or two cases approached their truest splendour. The collection of Apples from Mr. A. Waterman, who was first for twelve kinds, was the best in the exhibition; such kinds as Lord Suffield, Stirling Castle, Echlinville Seedling, and Lady Henniker were of average merit, and these were amongst the leading varieties exhibited. Mr. J. Butler, who was second, had the showy Red Astrachan and Worcester Pearmain. Mr. Waterman also had the best three dishes of Apples, showing, besides the two last-mentioned, the finely striped Duchess of Oldenburg. The first prize-winner for a collection of Pears was Mr. McIndoe, who had well-coloured fruits of Clapp's Favourite, Pitmaston Duchess, and Duchesse d'Angoulême; Mr. J. Butler, who was second, having Louise Bonne of Jersey and Windsor in excellent character. The three dishes of Pears from Mr. Butler were the best in the show; they were of good size and colour, and comprised Beurré d'Amanlis, Beurré Goubault, and Windsor.

Mr. Waite was first for six Tomatoes, and special prizes were offered by Messrs. James Carter, of High Holborn, and Sutton and Sons, Reading; the fruit of Reading Perfection variety was especially fine, the colour exceptional.

Of miscellaneous fruit there was a good display, Messrs. Rivers, of Sawbridgeworth, having several fruiting trees in pots, comprising Apples, Pears, Cherries, and Plums; good fruits of the richly coloured Goldoni Nectarine and also of the Conkling Peach, the colour clear, rich yellow. Messrs. George Bunyard, Maidstone, had a collection of 110 dishes of Apples, besides Pears and Plums, representing the leading kinds in the several sections. Messrs. Cheal, of Crawley, also showed an interesting collection of Apples. Messrs. John Peed and Sons, Streatham, had a similar display. The Apple trees on Paradise stock from Messrs. J. Laing, of Forest Hill, showed what tremendous crops can be obtained from these almost toy trees. In the Royal Horticultural Society's gardens at the present time the branches are breaking with their burdens, and this on quite dwarf specimens. The Pines from Mr. C. Ross, of Newbury, must also have special mention. Mr. Allan showed a dish of splendidly coloured fruit of Vicomtesse Héricart de Thury Strawberry, and Mr. Miller had examples of his special mode of grafting. Very fine fruits of the Queen Apple, also Echlinville Seedling, Lord Suffield, and Stirling Castle, were sent by Mr. W. Taylor, Osborn Nursery.

There were in addition to fruit several classes for flowers, such as Gladioli, Asters of various kinds, Hollyhocks, Cockscombs, and early flowering Chrysanthemums. There were also miscellaneous groups. Tuberous Begonias came from Messrs. J. Laing and Co.; Cannas, Begonias, &c., from Messrs. H. Cannell & Sons; and Chrysanthemum Improved Mme. Desgrange from Messrs. Davis and Jones, Camberwell—we shall make our remarks later on regarding this excellent acquisition. Gladioli, Gaillardias, and Delphiniums were shown by Messrs. Kelway and Sons, of Langport; and Dahlias, including Cactus varieties, from Messrs. Daniels Brothers, Norwich; hardy flowers from Messrs. Peed; Pansies from Messrs. Dobbie, of Rothesay; and a varied collection, comprising excellent Roses, from Messrs. Paul and Son, of Cheshunt, were also amongst the chief features in the miscellaneous division.

A full list of awards will be found in our advertising columns.

THE FRUIT GROWERS' CONFERENCE.

Under the chairmanship of Mr. T. F. Rivers a very large gathering of persons interested in the more national culture of hardy fruits was held in the southern dining saloon of the Palace on Friday. The chairman himself contributed the chief paper, in which he set forth that whilst corn culture now gave but indifferent profits to the farmer, the need for further helps to living were being forced upon his notice, and the culture of fruit presented itself in that light when that cultivation was conducted with intelligence; in fact, he held that the wider cultivation of fruit should presently form a valuable native industry. In Great Britain, till almost just now, very few meetings for the discussion of such topics were held, but in the United States and

Belgium such gatherings were constant, and thus the stimulus to fruit culture which was quite lacking here was given in those countries. Generally our climate was very good, being neither too hot nor too cold. In selecting sites for fruit orchards, soil should have due attention, and Mr. Rivers gave various analyses of soils and of fruits to show what were the needful constituents. These would, however, be found in most of the soils of the country, and with proper manuring might be aided. Low positions should be avoided, because of frosts, in favour of higher lands and favoured slopes. The soil should be well cleaned, drained, and trenched before planting, as a thorough working of the entire area of an orchard at the first was far more profitable in results in the end than was the mere making of holes for the trees at planting time. The reader then somewhat fully entered into the various sorts of fruits likely to prove the most profitable for the farmer to plant—Apples, Pears, Plums, Morello Cherries, &c. Describing very largely methods of culture, Mr. Rivers favoured the orchard house for gardens, as enabling high class fruits to be grown in that way in all gardens.

Mr. Earley read a capital paper from Mr. Webber, of Covent Garden, in which the writer dealt very fully with the subject of packing for market and for rail transit. With respect to Grapes, Peaches, &c., Mr. Webber said that fully one-third which came to market were spoiled by bad packing. For outdoor fruits, medium-sized baskets and much greater care in sorting and selection were needed. This matter was also ably referred to by Mr. Rawson in his somewhat discursive, but still admirable address upon the better methods of fruit packing, pointing out specially how far ahead the French and Americans were of us in such matters. Mr. Albert Bath read a short, but admirable paper upon the important subject of the most desirable form of land tenure, under which tenants would be encouraged to plant fruit trees, and demanding very liberal agreements between landlords and tenants, with as little of the intervention of the official valuer as possible. A Mr. Smith introduced his lined fruit baskets for hardy fruits, these having an inner coating of felt to keep the fruit from contact with the rough sides of the baskets. This, it was thought, however, can be more cheaply done by using stout soft paper. Mr. Beach, the jam maker, referred to Lord Sudeley's huge plantation, describing its area, number of trees, &c, but gave no information as to the market profits arising from the same. It was not the object of the conference to favour enterprises of that kind, which simply help to crush the small grower. In proposing a vote of thanks to the readers of the papers, Mr. A. Dean specially referred to the particular objects of the prompters of the conference in making fruit culture an adjunct to agriculture. Mr. Pearson, of Nottingham, who seconded the proposal, stated that there was too much crowding of fruit into centres, as he found that he could sell more profitably nearer home. Mr. D. T. Fish stated that it was the cottager and allotment-holder he wished to see benefited also by fruit growing. Several other gentlemen having spoken, the vote of thanks was unanimously carried. The conference was continued on the following day, when the subject of fruit as food was ably discussed.

ROYAL HORTICULTURAL.

Sept. 11.

Gladioli, Asters, and Lilies were prominent at the meeting on Tuesday. One of the features was the fine group of highly-coloured young Crotons from Mr. May, of Edmonton. The plants were very tastefully arranged with Maiden-hair Ferns. It was an interesting group and well merited the silver Banksian medal awarded. Hardy flowers were not numerous with the exception of the fine group from Mr. Ware.

First-class certificates were granted as under:—

Carnation Mme. Carle.—A tree variety of sturdy habit with pure white flowers of good form and substance. The plants appeared to flower very freely, and it is undoubtedly among the best white Tree Carnations. From Mr. H. B. May, Edmonton.

Chrysanthemum Mrs. Hawkins.—This is a sport from C. Wermig, and whilst having the form and fine flowers of that beautiful variety, the colour is a deeper yellow. Three plants were shown, each carrying three well developed blooms. It is a most valuable addition to the early-flowering section. Shown by Messrs. Hawkins and Bennett, Twickenham.

Eremurus Olgæ.—This is a late summer and autumn flowering species. The spike shown was about a yard high. The flowers are flesh-white and are rendered more attractive by reason of the projecting orange-coloured stamens. The peach-tinted unopened buds are also pretty. From Mr. T. S. Ware.

Romneya Coulteri.—This is now too well known to need any further description here. From Mr. Ware.

Dahlia (single) Mikado.—An orange-scarlet variety with a suffusion of yellow. Sent by Mr. T. W. Girdlestone, Sunningdale, Berks.

Dianthus splendens.—A fine flowered plant of this was shown. It was growing in a pot, and bore a profusion of medium-sized, crimson, single flowers. From Mr. R. Dean, Ealing.

Oncidium ornithorrhynchum album.—This plant bore a fine raceme of about ninety flowers. The wavy sepals and petals give the blooms a crisp appearance. The colour is pure white except the centre, which is yellow. It is sweetly scented, and will be an acquisition to any collection of Orchids. From Mr. B. S. Williams.

Tritonia aurea.—This appeared to be a distinct and pretty form so far as we could judge from the one flower left. The petals were a clear orange-yellow, but three of them had a rich crimson bar across the centre. Sent by Mr. J. O'Brien, Harrow-on-the-Hill.

Lilium nepalense.—This is the first time this Lilium has flowered, and it proves to be quite distinct from anything we have. The flowers are of medium length, tubular, and dependent, the tips of the petals recurving in a similar way to those of L superbum. The throat both inside and out is a greenish yellow. The petals are a deep, dark blood-red colour except the recurved tips, which are of a greenish yellow hue. From Messrs. H. Low and Co., Clapton.

Gladiolus Castro.—A fine variety with very large, well-formed flowers, the colour being a rosy red with white bands running down the throat.

Gladiolus Bester.—A distinct and beautiful variety with cerise-red flowers suffused with crimson and scarlet, the throat marked with magenta. This and the preceding kind were from Messrs. Kelway, of Langport.

Mr. May's fine group of young Crotons was greatly admired. The plants were in perfect health and clothed with foliage down to the pots. The following kinds were noted as the best: Etna, a broad-leaved kind; Countess, with long leaves; Caudatum tortulosum, a distinct kind, with twisted yellow leaves; Warreni, of similar habit; roseo-pictum, with broad red and yellow leaves. Lady Zetland, as also Sunset, formosum and Massangeanum were noteworthy. Mr. May also sent some Tree Carnations, amongst which Dr. Raymond seemed very fine. It is a crimson-flowered, sweet-scented kind, distinct and free. Some pots of Reseda grandiflora (Vilmorin) sent by Mr. May proved what a good strain it is. He also sent that fine scarlet Bouvardia President Cleveland, and a salmon coloured sport from it named Excelsior, an exact counterpart of President Cleveland in habit of growth and size of truss and flower. Some seedling Coleus with large coarse leaves were sent by Mr. Peebles, Tiverton, Devon. Mr. W. Soper, 307, Clapham Road, sent a new Coleus, as well as a seedling Adiantum. It very much resembled A. cuneatum mundulum.

Aranja albens, sometimes called Physianthus, came from Mr. F. Ross, Pendell Court, Bletchingley. It is a greenhouse climber, with narrow, woolly whitish leaves, and from the axil of each leaf is produced a raceme of large tubular white flowers. It is allied to the Stephanotis. A pillar well clothed with this plant would be very beautiful.

Orchids were not numerous. Mr. B. S. Williams had a little group in which were noted, besides the pretty Oncidium certificated, Miltonia candida and Mesospinidium vu'canicum superbum, which was carrying several spikes of its rosy red flowers. Cattleya Eldorado was represented by a nice piece. Lælia monophylla is a dwarf-growing species, with orange-scarlet flowers about 2 inches across. A fine plant of Oncidium macranthum Williamsi, bearing thirty expanded flowers, came from Mr. F. G. Tautz, Studley House, Hammersmith. The flowers were large orange-yellow in colour, the hastate lip being richly marked with violet-purple. From Mr. Tautz also came Disa graminifolia. The hooded flower is azure-blue, with purple markings on the lip. It was awarded a botanical certificate. Mr. Cook, of Kingston Hill, sent a nice form of Lælia elegans.

Dahlias were not numerous. A box of seedling single kinds was sent by Mr. T. W. Girdlestone. A box of seedling show Dahlias came from Mr. J. T. Harris, Scads Hill House, Orpington, and Mr. Ware had several boxes of a Cactus Dahlia named Professor Baldwin, which was of Juarezi form, but of a lighter shade of red. Messrs. Kelway sent a fine single pinkish white kind named Amner.

A fine group of Lilies was staged by Mr. W. Gordon, of Twickenham. Some very fine forms of L. auratum were noted. Mr. Gordon has a still better form of virginale, in which while the petals retain the yellow band down the centre, they are entirely smooth and have none of those little protuberances so characteristic upon the flowers of L. auratum. Some well-flowered L. lancifolium roseum and its var. album, with L. Leichtlini and L. pardalinum, made up an interesting and beautiful group, to which was awarded a bronze Banksian medal. Mr. G. F. Wilson exhibited some fine cut spikes of L. auratum and its varieties to show how they have been damaged by the bad season. The flowers had large brown marks like bruises.

A pretty pink Carnation named Blushing Bride was sent by Mr. Butcher, of Croydon, and some enormous heads of flower of Hydrangea paniculata grandiflora came from the Society's Gardens at Chiswick. There are few more beautiful shrubs for the open garden in autumn than this. Wet does not hurt the blooms, and if the plants are cut down annually it is surprising what enormous panicles of flower they will produce.

The Asters from Chiswick showed how useful these are when well treated.

The Gladioli from Langport were again very fine. Auber was noted as a good kind, of rich crimson-scarlet colour, splashed with maroon at the tips of the petals; Henry Irving was a fine yellow kind with rosy markings; Malcolm was also pretty. Messrs. Kelway also sent a Vallota named purpurea bicolor. The colour was a bright shade of red, but we could not detect any bicolor about it.

Hardy flowers from Mr. T. S. Ware made a showy group, which was awarded a silver Banksian medal. Romneya Coulteri and Eremurus Olgæ were most conspicuous; but Lilies figured well in the group, and included L. auratum in its varied and beautiful forms; also L. tigrinum, lancifolium, and superbum. L. neilgherrense was represented by a plant bearing a noble bloom. The white Œnothera speciosa and Tritomas enhanced the beauty of the group. The scarlet Delphinium nudicaule and the deep blue chinense were shown in large bunches. Two distinct Peruvian Alstrœmerias were A. peruviana, deep blood-crimson; and A. psittacina, a lighter red, with some green in the flowers. The various and best forms of perennial Sunflowers were well shown; also Helenium pumilum. Some fruiting branches of Torreya myristica were sent by Mr. A. Harding, Orton Hall Gardens, Peterborough. This is a North American tree sometimes called the Stinking Yew, on account of the unpleasant odour given out by the leaves when bruised. The foliage is much like that of the Yew, but longer. The fruits are nutmeg-shaped, have a green, leathery coat, and are about the size of a Walnut.

Fruit committee.—Several new things were presented, but no awards made. Mr. Whillans, Blenheim Gardens, and Mr. Young, Barton Court, Kintbury, each sent a seedling Melon. Apple Early Harvest was shown by Mr. A. Dean, of Bedfont. A medium-sized seedling Apple was sent by Mr. Anthony Waterer, and Mr. Wilks, of Croydon, sent one named The Vicar. The merits claimed for it were, "that for the last seven years it has not failed to bear a crop; that it is good either for cooking or dessert; that the tree grows so robustly that the fruit is not easily blown off; and, lastly, that the tree will grow well in poor hungry soil without manure."

A fine collection of fruit, containing the best sorts of Apples, Pears, and Plums now in season, was shown by Messrs. Veitch. Of Apples, Irish Peach and Kerry Pippin were the best for present eating. Among Pears were Jargonelle, Beurré Giffard, and Clapp's Favourite, this last being very good. Some well-fruited cordon Plums had been lifted and placed in pots to show their adaptability to this mode of training.

Mr. Wilks, of Croydon, showed some very fine samples of Hormead's Pearmain and Cox's Orange Apples, Durondeau, Beurré Hardy, Fondante d'Automne, and Rivers' Princess Pears grown on bushes in 10-inch and 12-inch pots. The samples of Cox's Orange were certainly the finest and best we have ever seen. A medium-sized blackish purple coloured Fig named Violette de Bordeaux was sent from the Society's Gardens at Chiswick. Mr. W. Roupell, Harvey Lodge, sent a basket containing fine samples of Irish Peach and Devonshire Quarrenden Apples grown on bush trees on the Paradise stock.

Tomatoes in perforated pots were sent by Mr. Crute, Netherby, Honor Oak, S.E. The pots were 8½ inches wide and had been plunged, the Tomato roots emerging through the perforations and feeding in the soil. Mr. Crute contended that the plan facilitated ripening and the plants were carrying ripe fruit, of which there certainly is not much in the open air this season. A basket of Tomatoes was sent by Messrs. Hurst, of Houndsditch, but the kind proved to be Chiswick Red. Mr. H. Marriot, Skirbeck, Boston, sent Peas Pride of Lincoln and G. F. Wilson.

NATIONAL CHRYSANTHEMUM SOCIETY.

The Chrysanthemum season has commenced, and, as far as we can judge at present, is likely to prove as interesting as that of last year. The exhibition held on Wednesday and Thursday last at the Royal Aquarium showed the great progress that is being made with the early varieties, and great credit is due to the National Society for so strongly promoting their culture and improvement. Certainly the flowers exhibited were a surprise to those who remember that three or four years ago the varieties of early Chrysanthemums could be almost counted upon the fingers. Another season we shall possibly find a show of early varieties only, but at present there are not sufficient, and so recourse is had to Dahlias and hardy flowers to supply the place. Apart from the Chrysanthemums, there would have been an excellent display, as the Dahlias were quite up to the usual standard.

The most beautiful flowers were those of Madame C. Desgrange, and those exhibited by Mr. J. Blackburn, gardener to Mr. J. Scott, jun., Elmstead Grange, Chislehurst, were of the finest type—full, fresh, of great substance, and pure white. Those of Mr. J. Hudd, the winner of the second prize, were also noteworthy for their freshness and extreme delicacy. There was a large competition in this class, and throughout the blooms were as fine as usually seen. There was also a class for twelve blooms of any kind except Madame C. Desgrange, and the first prize-winner, Mr. J. Elliott, gardener to Mrs. Harrison, Mortlake, brought splendid examples of the soft yellow-coloured G. Wermig, a companion to Mme. C. Desgrange and quite as acceptable. Mr. A. D. Clarke, gardener to Mr. W. B. Brand, Elm Grange, Finchley, who was second, showed a miscellaneous collection, mostly of those seen in November, such as the crimson reflexed George Gordon. Beautiful blooms of Mme. C. Desgrange were seen in the class for six bunches, those of the first prize-winner, Mr. W. Scott, South Kensington, showing to what perfection this variety can be brought even in London. The second prize blooms of Mr. J. Hudd were also of excellent quality. In the corresponding class for six bunches, any varieties except Mme. C. Desgrange, Mr. J. Doughty, gardener to Mrs. M. Tomlin, Cranbrook, Kent, was first, and Mr. H. Neary, gardener to the Rev. H. Powell, Hornsey, second. Pompons are in perfection during the early autumn, and on the present occasion were extremely well shown. This section was at one time on the decline, but there seems now to have been a reaction again, which, we hope, will continue. The pompon varieties are certainly an interesting and beautiful class. In the collections of cut flowers, of which Mr. T. S. Ware's, of Tottenham, was the best, there were many kinds exhibited, a large proportion of Mr. W. Piercy's raising, who has taken an especial interest in this section. Amongst the best in Mr. Ware's exhibit were the yellow Précocité; Nanum, white, with a yellow tinge in the centre; Early Blush, rose; La Vierge, pure white; Mrs. Pitcher, rose-coloured when grown in the open, but quite white when grown under glass; Mrs. Barrell, Mrs. Cullingford, Fred Pele, deep crimson; Piercy's Seedling, bronzy brown; and Canary, small and yellow. Mr. R. Owen, of Maidenhead, who was second, also had an excellent collection, one (Mons. Robert Owen) having narrow petals and a distinct orange-red colour. In the class for twelve pompons, Mr. J. H. Witty, Highgate, showed very good flowers of Golden Fleece, yellow; Mme. Piccol, crimson; and Blushing Bride, blush. The last-named exhibitor also had the best group, an excellent arrangement, in which Lyon, crimson, tipped with white, Mrs. Cullingford, Mme. Desgrange, Golden Fleece, and G. Wermig were the leading varieties. Mr. H. Neary showed the finest plants.

Gladioli, especially those from Messrs. Burrell and Co., Howe House Nurseries, Cambridge, were quite a feature, amongst them varieties of surprising colours, some of very delicate shades, others as rich as a scarlet-flowered Pelargonium. Of Dahlias there was a great display, and in almost every class the superiority of the Slough flowers was manifest, Mr. Charles Turner gaining most of the chief prizes. Successful exhibitors were also Messrs. Keynes, Williams and Co., of Salisbury; Messrs. J. Cheal and Sons, of Crawley; Messrs. Saltmarsh, Chelmsford, Essex; and Mr. E. V. Such, Maidenhead, the last-mentioned exhibitor having splendid decorative Dahlias, a class now as important as that of the pompon. Amongst the show flowers were splendid specimens of Harry Turner, deep purple; Mrs. Gladstone, a lovely pale-coloured flower; Purple Prince, bright rose; Mr. W. Slack, pale rose, very fine; and Excellent, brilliant scarlet. Of the decorative Dahlias, such kinds as Lady M. Marsham, scarlet; A. W. Tait, white; Mrs. Hawkins, Prince of Wales, rich scarlet, broad petals; Zulu, deep velvety purple, almost black; and Empress of China, deep red, striped and suffused with purple, were conspicuous.

Of miscellaneous exhibits a fine collection of tuberous Begonias came from Messrs. J. Laing and Sons, Forest Hill, hardy flowers from Mr. T. S. Ware, Tottenham, and Mr. E. F. Such, Maidenhead; a splendid bank of Lilies, from Messrs. W. Gordon, of Twickenham, was awarded a silver medal; and a collection of early Chrysanthemums from Mr. Stevens, of Putney. Mr. Owen had single and double Begonias; Messrs. H. Cannell, Swanley, Dahlias of various kinds and Cannas; Messrs. Saltmarsh, Dahlias; Mr. W. Taylor, Osborn Nursery, Hampton, splendid fruits of the Queen Apple, also of a few other leading kinds, and Messrs. Peed, Streatham, Apples.

Special prizes were offered by Messrs. H. Deverill and Co., Banbury, for Runner Beans, Beet, and Carrots, and the produce was remarkably fine.

First class certificates were awarded to the following:—

China Aster Comet.—An exceedingly beautiful variety of the Victoria type, reminding one most of Pride of the Market. The full, broad, handsome flower is of a lovely rose-pink and white colour, the petals narrow and graceful, not stiff. From Mr. H. Glasscock, Bishop's Stortford.

China Aster Triomphe.—This is of a distinctly incurved shape, and most valuable for its surprisingly rich port wine colour. From Mr. H. Glasscock.

Mimulus moschatus ruber.—An exceedingly dwarf fragrant Musk, the flowers of a pale bronzy colour. From Mr. R. Dean.

Chrysanthemum Mrs. Hawkins.—There is about as much distinction between this variety and C. Wermig as there is between the last-mentioned Chrysanthemum and Mrs. Burrell. It is merely a matter of a shade of difference in colour. Mrs. Hawkins is of a deeper golden yellow than C. Wermig. From Messrs. Hawkins and Bennett.

Carnation Mrs. Reynolds Hole.—Sufficient is known of this beautiful apricot-coloured self Carnation to need further mention unnecessary. From Messrs. Dickson, of Chester.

Dahlia Mikado.—A massive single-flowered variety, fully described in our report of the Royal Horticultural Society. From Mr. T. W. Girdlestone, Sunningdale.

Chrysanthemum Fanchette.—A beautiful Pompon variety, in the way of Lyon, but brighter in colour, being of a lively rose shade, the reverse of the neat petals silvery white. From Mr. Owen, Maidenhead.

Pelargonium Robert Owen.—A very fine double-flowered Ivy-leaved variety, the colour scarlet, and the truss of large size. This ought to become one of the most popular of the shrubby habited kinds. From Mr. Owen.

Dahlia Beauty of Brentwood.—A decorative variety of a shining rose-purple colour, the petals broad and strong. From Mr. J. T. West, Brentwood.

Chrysanthemum Mrs. J. Pitcher.—A white variety with the outer petals blush, especially at the case of the bloom. From Mr. Pitcher, Surbiton, Surrey.

Dahlia Gertrude.—A single variety, yellow in the centre, around this a ring of white, and the lower half of the petals rich rose. A beautiful addition. From Mr. H. Glasscock.

Dahlia Miss Ramsbottom.—This is of a curious shining rose colour. From Mr. T. S. Ware.

To Messrs. Keynes, Williams and Co. for the following pompon Dahlias: Fairy Tales, pale sulphur, with just a trace of blush; Little Ethel, white, central florets touched with maroon; Little Darkie, deep purple; also the decorative variety Panthea, the colour brilliant shining scarlet.

Dahlia Victoria.—A single variety, white, with the petals margined with crimson; very striking. From Messrs. Cheal.

Gladiolus Mrs. Lindrell.—This is of a rose colour, striped with a darker shade. From Messrs. Burrell.

G. Phyllis.—Pale cream, lower segments yellow and white. From Messrs. Burrell.

Dahlia Admiration.—This is a pompon variety, of a deep crimson colour, the florets tipped with white. From Mr. C. Turner.

D. Kathleen.—Also a pompon kind of a scarlet colour. From Mr. C. Turner.

BOOKS RECEIVED.

"The Australian Irrigation Colonies." Illustrated.

"Bulletin of Miscellaneous Information." No. 21—Colonial Fruit. Royal Gardens, Kew.

"The Flowering Plants of Wilts, with Sketches of the Physical Geography and Climate of the County." By Rev. T. A. Preston, M.A. Published by the Wiltshire Archæological and Natural History Society.

Inarching Vines (*J. W.*).—Consult Barron's "Book on the Vine."

Names of plants.—*Mrs. Benett-Stanford.*—Areca lutescens.——*Lassodil.* Œnothera pumila var.——*H. Langley.*—Xanthoxylon shinifolium.——*D. C.*—1, Staphylea pinnata; 2, Syringa Emodi; 3, Prunus Padus var.; 4, Rhododendron Blandiæflorum.——*Young Gardener.*—1, Lythrum Salicaria; 2, Tradescantia virginica.——*W. Robinson.*—A very poor form of Lælia purpurata.

WOODS & FORESTS.

THE SWISS STONE PINE.

(PINUS CEMBRA.)

In The Garden, September 1 (p. 214), "Swiss Tourist" says:—

Being desirous of planting a few acres of poor, stony land with Larch, and having recently been in Switzerland, I shall feel obliged if you could inform me whether the Swiss Pine. . . . . is in commerce in this country, and where I could procure a few thousand fair-sized plants for the coming autumn. The timber appears so much more valuable than that of the ordinary Larch, that I should like to know how it is that it is not more planted in this country.

The principal reason that the tree is not planted on an extensive scale for profit in this country is owing to its slow rate of growth when compared with that of the Larch and many other hardy coniferous trees. Nevertheless, its merits are of a very high order, inasmuch as it is one of the hardiest of hardy trees, grows on the poorest of soil among the chinks and crevices of rocks at a high exposed elevation, and is exceedingly ornamental in any position. I have no doubt but "Swiss Tourist" can get a sufficient number of plants for his requirements from any respectable nurseryman, and if convenient it would be an advantage to call and satisfy himself as to their health and general condition previous to giving his order. Early orders are likewise to be commended, as there is generally a better choice to be had in early autumn than further on in the season when the stock begins to get exhausted. As the price of the Swiss Pine in this country is much higher than that of the Larch, it might be advisable to plant a mixture of the latter along with the former, by which means the cost of the formation would be reduced, and in after years the Larch could be gradually cut out as circumstances may direct, and thus leave the Swiss Pine for the permanent crop.

As the planting season is drawing nigh, a few additional remarks regarding this hardy ornamental tree might not be altogether out of place, and although it cannot be recommended as a profitable tree from a commercial point of view, yet its merits for planting for effect on poor soil at a high exposed elevation are of the highest order. In the Highlands of Scotland I have planted it with great success at an elevation of upwards of 1000 feet above sea level, and in places where the soil consisted of poor gravel, rock, and shingle mixed together. Although the soil was so poor, yet the tree seemed to appreciate the pure mountain air in a remarkable manner. Its contour is strictly conical, and although of slow growth, yet when allowed free space it produces and retains its side branches from the ground upwards, and as these are well furnished with leaves from 2 inches to 3 inches long, five of which are contained in each sheath, slightly twisted, and of a green silvery looking colour, they contrast well with those of other trees in a mixed plantation, or when planted out as single specimen trees in the park or lawn, on any or both of which situations I have used them with the most happy effects. As the tree is impatient of wet at the roots, particular attention should be paid to the drainage of the soil some considerable time before the plants are inserted, in order to allow the ground time to become dry, otherwise the growth and healthy development of the trees will be retarded to a serious extent. On the whole, it thrives best on loose inorganic matter on the sloping sides of hills where no draining is required, but in cases where the subsoil is of a hard impervious nature such ought to be broken up and pulverised with a pick previous to inserting the trees. Although of slow growth, yet under favourable circumstances it attains a height of from 50 feet to 80 feet. The grain of the timber when cut up for use is of a very high order; the annual concentric rings are so fine and firmly packed together, that they are scarcely in some cases perceptible, and as the wood is very resinous and gives out an agreeable aroma, it is highly prized by cabinet-makers and others who use it for fancy work of various kinds.

The Swiss Pine is propagated from seed which ripens in this country. The seed should be sown in well-prepared nursery ground, or in places here and there in the forest where the trees are to remain, and particular attention paid to their protection from vermin, otherwise the seeds may be eaten by mice and the young plants cut over by rabbits. Cultivators, however, should be wary and not dig up the ground where the seeds have been sown. The seeds sometimes lie dormant during the first year and vegetate the second.

The Siberian Stone Pine (P. sibirica) is a desirable variety of the former, and found at high altitudes in Siberia, where it is said to attain a height of about 100 feet. Like the species, it is of slow growth in this country, and not so densely furnished with side branches; but as it is perfectly hardy on exposed situations, it is well worthy of a place in all cases where contrast and variety are desirable. The timber of matured trees in its native country is said to be resinous, fragrant, and very durable, which enhances its value very much. Many of the Pine tribe on high, exposed situations naturally contract and draw their leaves close around the twigs during a storm, as if to present a firmer and diminished surface to the blast, and this tree protects itself in that way in a remarkable manner.

P. Cembra Pumilio is a small dwarf variety of the above, and is found growing naturally on bare, rocky, exposed situations in Eastern Siberia, where it attains a height of about 5 feet. It is perfectly hardy in this country, and as it is well furnished with small branches, twigs, and leaves, it presents a close, dense habit of growth, and is well fitted for planting as a single specimen on the lawn or Grass plot of villas and other places where the grounds are of limited extent. When amateurs use this tree they should be careful to have the ground well drained and trenched to a depth of about 20 inches, and in planting the trees keep the roots as near the surface as is consistent with the stability of the plant. J. B. Webster.

Trees on ironstone soils.—This district is on the coal and ironstone, which are usually united, and vast quantities of Rhododendrons are raised in the district every year. As a rule, all over the locality the top soil is shallow, and the subsoil consists of a yellowish rag or loose rock largely impregnated with iron. In this poor material, among which, in many places, nothing that can be called "soil" exists, and below which lie the coal and ironstone seams at various depths, just according to the "lie" of the measures, a great many trees and shrubs grow extremely well. Rhododendrons I cannot say penetrate far into it, but their roots are on it and in it, and the bushes grow to a large size, are long lived, flower well, and seed. Timber trees, like the Spanish Chestnut, Oak, Ash, Sycamore, Elm, wild Cherry, Birch, Beech, and forest trees generally, that send their roots down deep, thrive well in this rag, and draw their main supplies from it. Larch does well, but Spruces fail. Most Conifers, however, grow pretty fairly if sheltered, but their roots are generally confined to the surface soil. With regard to the other deciduous trees mentioned, however, I have been surprised to notice the depths to which the roots descend. In shafts that have been sunk and in wells I have found many roots penetrating the crevices of the rock in every direction to a depth of 10 feet or 12 feet, and quite healthy. I have also several times, in sinking for water, seen worms unearthed at that depth.—J. S.

Pinus ponderosa.—In England the young trees of this handsome Californian Pine are of rapid and robust growth, quite hardy, and of noble aspect; the branches are few, in regular whorls, horizontally placed, robust and more or less bent, with the lower ones inclined to assume a somewhat drooping habit as the tree becomes old. The lateral branchlets are somewhat slender, more or less drooping, and growing in various directions; while the top or leading shoot is of more than an inch in diameter, and of very considerable length. The buds are bluntly domed, with a prominent point and full of resin; the leaves are thickly set on the branches in threes, from 8 inches to 10 inches long, rather broad and straight, but twisted at the base, with persistent sheaths 1 inch long and smooth when young, but much shorter and shrivelled on the older ones. This Pine is very subject in England to be attacked by the small Pine beetle, a species of Hylurgus, which destroys the young shoots by boring in their centres.—A.

Podocarpus andina, or spicata.—I see it stated in The Garden, August 11 (p. 136), that this handsome little tree or shrub is not only hardy about London, but also one of the best for planting in smoky districts, recommendations of no mean order when we consider that so few of the Conifer tribe are capable of holding their own under such conditions. Plants as well as animals appear to be sometimes whimsical in their choice of a home, and it seems strange that I have had this Podocarpus killed by frost when planted in a moderately sheltered, but open situation in Ireland at an elevation of something less than 80 feet above sea level. The plants, I daresay, had been a little coddled in their early career, which may partly account for the failure, but, be this as it may, it is quite clear that we have yet to learn a good deal regarding the climatic conditions under which some species of plants will thrive. P. japonica, known also as P. coriacea, I have found to be quite hardy. It is of slow growth, but when planted on good soil it makes a nice specimen, the contour of which is something like that of the upright Yew; the leaves, however, are about twice as long, thicker, and of a lighter green colour than those of that species. It is a native of China and Japan, where it is said to attain a height of about 40 feet, but I have never seen it attain anything like that height in this country. It is not liable to be eaten by hares and rabbits. P. nubigæna, known also as Saxe-Gothæa, is another hardy species from the Andes of Patagonia and Chili, where it is said to attain the size of a large tree, but in this country it is of remarkably slow growth, even when planted under the most favourable conditions as regards soil and aspect. Its leaves are nearly an inch in length, of a thick leathery texture, light green above, and with a glaucous band on each side of the mid-rib underneath. It may be planted for the sake of variety, but I have never seen a really good specimen in this country.—J. B. W.

An enemy of timber.—The Teredo navalis, that terrible enemy of wooden ships, dock piles, &c., is an inhabitant of salt or brackish waters, and lives within timber, most of which has been carried out to sea by rivers. It is of a translucent and jelly-like consistence, varying in size from a creature invisible to the naked eye to a specimen 1 foot, 2 feet, or more in length, with a diameter five-eighths of an inch. It seems to grow about 2 inches in length in a month, and to live from eight to sixteen months. It is a solitary animal, living in a cell alone, and having no communication with its fellows. It is probably hermaphrodite, and like other low forms of life is very prolific, a single one depositing from one million to three millions of eggs in a season. The eggs are only hatched by the action of salt water, as no young appear when the water is fresh. If they come in contact with timber which suits their taste they attach themselves by a foot or sucker and enter, boring their way through.

No. 879. SATURDAY, Sept. 22, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

HARDY PLANTS IN BEDS.

THE present is a fitting time for taking note of hardy plants that are suitable for massing or bedding with the object of making the garden bright and cheerful during the late summer and early autumn months, and helping to diminish the number of bedding plants that require to be wintered under glass. Some of the undermentioned combinations are very pleasing and effective. The first is Clematis Jackmanni edged with Rudbeckia Newmani. Our method of dealing with the Clematis is to clear away late in November the wires to which it is trained, select some of the Clematis shoots and layer them, by covering them over with soil, then cutting all the rest down to the ground and giving the bed a good dressing of rotten manure. The Rudbeckia is divided and replanted in the spring, and the bed is planted with Daffodils for spring flowering, as they make a fine display, and by the time the foliage has died down the Clematis covers them up. As soon as the Clematis commences growing the wires are fixed in position. The plants need constant attention in training during the growing season, or the young shoots soon get entangled, and a little extra attention is well repaid with a regular bloom during the months of August, September, and October. The golden-leaved Japanese Honeysuckle makes a very good edging when cut down close to the ground in spring, for it has a bright appearance during the winter as well as the summer. C. Jackmanni and its white variety intermixed make a very good bed. The C. Jackmanni alba is the best white-flowered autumnal bloomer for beds I have ever tried, and it is a good grower. Lady Bovil is a variety that makes a good bed of a pleasing French grey or mauve colour; Rubella so far is the best claret-coloured kind; Beauty of Worcester promises to be a good purple bedder, but I have not given it a sufficient trial yet, for many new sorts are very disappointing as bedders. Those of the Jackmanni type are the best for bedding. The old China Rose, edged with Rudbeckia Newmani, makes a very pleasing bed, and one that will furnish cut flowers until late in November. The common Torch Lily (Tritoma Uvaria), edged with Dactylis glomerata variegata, makes a most striking bed, for during summer and autumn there is seldom less than 100 spikes of bloom on the Tritomas. I find it is best to replant the latter every second year to keep them strong. Hollyhocks in the centre of a bed of the Giant Reed (Arundo conspicua) form a noble bed for a lawn. Hyacinthus candicans is also an excellent subject, and is perfectly hardy. The best plants we have were raised from seed sown three years ago. A bed of Gladiolus brenchleyensis, mixed with Aster ptarmicoides, is very beautiful. Tree Celandine (Bocconia cordata), edged with Helianthus rigidus, also makes a fine display. The above beds may be varied in planting, but as given they are very effective and pleasing. Many other combinations could be added—say, for early summer, a bed of the variegated Maple (Acer Negundo variegata), mixed with blue Delphiniums and edged with Veronica Traversi, not to mention beds of seedling Antirrhinums, Pentstemons, tufted Pansies, and a host of other hardy and half-hardy plants. N.

FLOWERS IN PUBLIC PARKS.

I HAVE recently inspected the flowers in many of our public parks, and the chief thing which strikes me, after the sunless summer we have had, is the great absence of colour. The usual bedding plants are in many cases a mere mass of foliage, and if the bedding-out system were not (happily, I think) fast dying away, I imagine that this season would help to give a great blow to it, when the fine effect produced by freely using annuals and perennials is carefully noticed. At Hampton Court the carpet beds are not up to their usual standard, and the herbaceous borders are not quite so well filled as they might be. At Kew one of the most interesting features is the rock garden, which is rapidly becoming a charming retreat. In Battersea Park the same absence of colour is seen, but a good mixed border by one of the gates is well worth inspection. In the small botanic garden at Chelsea the single Dahlias—originally introduced by the late Mr. Thomas Moore—are very good, and there are some charming beds filled with Zinnias, German Scabious, and Phlox Drummondi; while to the botanical student the general collection is a good one. Admission to this garden can only be had by special ticket, obtainable at the Apothecaries' Hall, Blackfriars. In Hyde Park the dell by the Serpentine is doubtless the prettiest "bit" in London. The wild rabbits and wood pigeons thrive here. I have seen as many as forty of the latter at feed on the lawn. The herbaceous borders to the west of the Albert Hall are fairly gay, but the plants present a somewhat starved appearance. The beds by Park Lane are still bright, and present some tasty arrangements in dot groups; while close by the Marble Arch is a rather striking mixed border, which this year has escaped much of the dust from the Bayswater Road. But I have left the best piece of the London gardening of 1888 to the last, viz., that at the south-east entrance of Regent's Park. Here is a real Corisande's garden, as immortalised in "Lothair." It certainly reflects great credit on the judgment of Mr. Jordan, late of Victoria Park, in his first year of office here. To pick out one of the many successes, the scroll herbaceous border towards the northern end is worth going a long way to see. W. H. TUCK.

Kensington.

ROSE GARDEN.

T. W. GIRDLESTONE.

THE DEVON ROSERY, TORQUAY.

FEW lovers of flowers probably stay long at Torquay without paying a visit to Messrs. Curtis and Sanford's well-known nursery. The beautiful situation and surroundings and the substantial, albeit picturesque, buildings combine to make the establishment additionally attractive, although in late summer the beds of fine Gladioli, Carnations, and many brilliant herbaceous plants near the main entrance constitute a pressing invitation to the passer-by to make a closer investigation of their many beauties. The many hundreds of feet of glass houses indicate clearly enough that during the more conventionally recognised part of our English winter than that which falls between July and September flowers will still be found in abundance in the "Devon Rosery," so called because though there are few things not to be found in Messrs. Curtis and Sanford's grounds and houses, the cultivation of the queen of flowers has always been made a speciality by the firm.

The middle of August is not the time of year at which most Roses are at their best, but a visit to an extensive collection at that time affords an excellent opportunity for observing which of the Perpetuals are really continuous bloomers; and where, as in Devonshire, the Tea-scented Roses are largely grown there cannot fail to be much of interest.

Of the Hybrid Perpetuals, there was of course one which, as is invariably the case, was conspicuous in every quarter, covered with bloom, however green its neighbours, the irrepressible, though unsurpassed, La France—a Rose which always seems to be doing the work of ten in a frantic and jealous endeavour to maintain the prestige of its class against the growing supremacy of its own near relatives, the Teas. In this loyal effort it was, however, being ably seconded by a still nearer relative in Bennett's magnificent novelty, Viscountess Folkestone—a Rose whose exquisite colouring and form, great size, vigorous growth, and immense freedom and continuity of flowering combine to render it one of the most valuable additions at a period not lacking in new Roses of the highest distinction. A third hybrid which was very conspicuous was the same raiser's exquisite Grace Darling, a most constant and reliable Rose, beautiful in all stages, and always flowering throughout the entire season. Etienne Levet was also showing some fine blooms, as it often does late in the season, although as a Perpetual it is not to be compared to that grand Rose, Ulrich Brunner, which flowers early and late, never seems to get mildew or have anything the matter with it, and is undoubtedly one of the most invaluable Hybrid Perpetuals in cultivation. Margottin's immensely vigorous Bourbon Madame Isaac Pereire was also flowering with great freedom, the flowers being, as in most places this year, far more refined than in many previous seasons, and almost entirely lacking the too common disfigurement of a green centre. When this Rose does not come coarse and rough it is a very useful variety, the plant being exceedingly hardy and vigorous, the flowers large, freely produced throughout the whole season and deliciously fragrant.

W. F. Bennett was blooming freely enough, but to no better purpose than to show that however valuable it may be as a forcing Rose to supply the cut flower market in America, it is not well adapted to out-of-door culture in this country. In fact it becomes every year more abundantly manifest that the value or success of any given Rose on one side of the Atlantic is practically little or no criterion of its value on the other side. The conditions of Rose-growing in England and in America are so widely different that it has now been repeatedly proved that varieties most valuable to growers in the one country are quite useless to growers in the other. During the past few years the Americans have found several old Roses which have been long since discarded in England as of insufficient merit useful to them, and some of these have been so lauded as to make English growers imagine that they must have been premature in their adverse verdict. One of these Roses is Papa Gontier, a small purplish red, semi-double Tea sent out half a dozen years ago by Nabonnand, and now being proved again by Messrs. Curtis and Sanford, as they make a point of testing all the new Roses. The flowering plants, however, prove to demonstration that the variety has no chance of ever becoming popular in this country, and while some of the American growers consider it better than Goubault, a superiority which is not conspicuous on this side, it has at any rate this obvious demerit in a Rose intended for the cut flower market, that it is practically scentless. There was flowering at Torquay a red Tea, sent out more than thirty years ago by Robert under the name of Souvenir de David d'Angers, a good deal brighter in colour than Papa Gontier,

though not quite so deep in the bud state; it might possibly be found useful in America, if it has not been already tried there.

Among the Tea-scented Roses, many were flowering in considerable beauty. Mme. Lambard, as it has been constantly this year, was excellent in form and colour; Amazone, one of the most charming yellows, and not yet grown nearly as widely as it deserves to be, affording long buds, externally sun-painted with bright red; Devoniensis was appropriately bearing some splendid blooms, and the Hon. Edith Gifford, near by, well maintained the family reputation. Such well known sorts as Innocente Pirola, Madame Charles, Souvenir d'un Ami, and Niphetos, were affording fine blooms, and the old rosy David Pradel appeared quite to rival Mme. Cusin in size and colour. William Allen Richardson, stretching out long flower-laden arms, as if to emphasise the fact that the distribution, far and wide, of its brilliant orange blossoms can never be overdone; the reliable and beautiful Francisca Kruger, covered with deep coppery yellow flowers; Mme. de Watteville at her daintiest, quite in character in the disposition of the tender rose colour on the margins of the white petals, all contributed materially to the demonstration of the fact that the Teas are the true autumnals. It was gratifying to see the beautiful and deliciously fragrant Socrate in such good cultivation, some of its blooms of mingled yellow and rose almost vieing in colour with the neighbouring Ma Capucine, the pick of all button-hole Roses, and in association with which Mme. Chedane Guinoisseau was flowering with great freedom. There were two other good Teas among the older varieties, which are not grown so often as they might be, and which were affording, as is their wont, excellent blooms, namely, Cornelia Koch, a fine Noisette Tea, in colour about identical with The Bride, but larger and quite distinct in form, and La Princesse Vera, a very full flower tinted white, with generally a pale rosy margin. Beside one of the quarters of Teas, attention is rather liable to be distracted from the Roses by a most splendid specimen of Berberis Darwini, some 60 feet in circumference, and getting on for 20 feet in height. The plant is completely clothed down to the ground, and when in flower in the early summer must present a most striking appearance—a perfect dome of gold.

Among the more recent Teas, Souvenir de Thérèse Levet (1882) was very free and fine in its dark brown-crimson colour; Souvenir de Gabrielle Drevet (1884) was charming, and its delicacy of colour continues to extend its popularity; the almost white flowers of The Bride (1885) were, as usual, perfect; and Marquise de Vivens, of the same year, though only a button-hole Rose, proved extremely pretty in colour—white with a bright rose margin. Of the 1886-87 Roses, Luciole was displaying beautiful long buds, most various in shade, of mingled rose and yellow, but it still seems unlikely to prove full enough to be valuable for exhibition. Ethel Brownlow, on the other hand, while very free and valuable for cutting and forcing, is also a welcome addition to the exhibition Teas, the erect, stout-petalled flowers being of a charming rosy colour, with a yellow base to the petals. Château des Bergeries showed to advantage with its handsome, pale canary-yellow flowers, and quite confirmed the good impression made by the fine blooms seen in the early part of the summer. But the Tea that was flowering best of all was Docteur Grill, a coppery yellow Rose, in colour not unlike Francisca Kruger, but a deeper and better-formed flower than that variety; in fact, Docteur Grill appeared extremely constant, every bloom being of perfect form and fine colour, and it seems strange that so promising an addition should appear in so few growers' collections besides that of Messrs. Curtis and Sanford.

There is one other point in connection with the Devon Rosery to which it may not be altogether without interest to draw attention, namely, that the whole of this fine collection of Roses is grown within sound, if not within sight, of the sea. There has been some correspondence lately in the columns of The Garden as to the best kinds of Roses to grow by the seaside; but it seems almost a question whether it would not be more useful to inquire what Roses there are that will *not* thrive in sea air. Certainly these were not conspicuous in Messrs. Curtis and Sanford's well-filled quarters, and there are undoubtedly many gardens immediately facing the sea where Roses are grown in great perfection. The record of the experiences of cultivators by the seaside will be very welcome, and very likely there may be varieties which thrive less well on some coasts than inland; but it would probably be safe to predict a considerable majority of successes, and in any case it will be a very brief list of failures from the Devon Rosery.

Own-root Roses.—Although so much has been written from time to time about striking Rose cuttings, own-root Roses seem to be still far from common. Having been rather successful with a large batch which were put in the open ground last autumn and left entirely unprotected ever since, it may be of use to again draw attention to the ease with which they may be struck, as the time will soon be here when they should receive attention. In October, cuttings of the current year's growth were taken, with a heel if possible, and about 9 inches long, but without using unripened wood; unripe tops were taken off and all the leaves except three or four at the top of the cutting removed. A piece of ground fairly sheltered from the north, east, and west was selected, and the cuttings were placed rather thickly in rows 15 inches apart, a shallow trench or notch being made in the ground to take them. This is preferable to dibbling them in, as the base of the cutting can be placed firmly on the bottom of the trench, which is an important point. As each row was inserted the soil was replaced and trodden, and the cuttings were heavily watered in. Almost all the sections of Roses were tried, and there were over fifty varieties. Of these I only failed with Belle Lyonnaise, Lamarque, Crimson Moss, Mme. Lacharme, and Devoniensis. Very few Teas were tried, as I prefer striking cuttings of these on a slight hotbed in spring, taking them from the forced plants, to running the risk of losing them through the winter. Cuttings of Homère and Gloire de Dijon, however, struck freely, while a few weakly bits of Maréchal Niel have managed to survive and will each make a good plant. In all about 200 plants have been struck, and many of these have made over 3 feet of growth with four or more shoots each.—John C. Tallack, *Livermere.*

Rose Comte Henri Rignon.—The coloured plate in the current issue of the "Journal des Roses" represents a new Rose of considerable interest, to be sent out this autumn by J. Pernet-fils-Ducher, under the name of Comte Henri Rignon. This novelty is said to have been raised from a cross between Baroness Rothschild and Ma Capucine, and, judging from the plate, is much in the way of Gloire Lyonnaise, but that it has thorny instead of smooth wood. Baroness Rothschild has been the reputed parent, generally fertilised by Madame Falcot, of several of the best Hybrid Teas, including the new and beautiful Germaine Caillot, sent out last year by the same raiser, and Guillot's Gloire Lyonnaise—two Roses which have proved very attractive in this country. The main interest attaching to the appearance of Comte Henri Rignon lies in the fact of its following Gloire Lyonnaise in producing upon a plant with the external characteristics of the Hybrid Perpetual flowers of a more or less yellow shade. According to the coloured plate, the flowers are of a decided pale yellow, with a coppery or deep salmon shading towards the margin of the petals; but it is probable that the colours printed, as in colour-printing on a large scale seems most unavoidable, somewhat deeper than was intended, as that good and discriminating judge of Roses, M. J. Nicolas, who has seen the Rose, describes it as "large, globular, with broad, concave petals well imbricated, of a yellowish white colour, with a salmon-yellow base, lightly tinted with coppery rose; reflexed margins of the petals coppery yellow; the buds also coppery yellow." From which it may be gathered that though a first-rate yellow Hybrid Perpetual has yet to be raised, still, another advance has been made towards the wished-for end. A good many Roses whose expanded flowers are practically white have decidedly yellow buds, notably Madame Perny and some seedlings of Rosa multiflora, but the buds of Gloire Lyonnaise are as nearly as possible white, the only yellow tint being observable in the centre of the half-expanded flower. If, therefore, the buds of Comte Henri Rignon are of a decided yellow shade, the variety must be considered, even should the flowers open nearly white, to be a decided step forward in the direction of the looked-for yellow Hybrid Perpetual.—T. W. G.

SHORT NOTES.—ROSES.

Dupuy Jamain is now blooming freely, and in addition to being one of the finest Hybrid Perpetuals is a most reliable autumnal Rose.

Victor Hugo is also affording an abundance of charming flowers, glorious in colour, well formed, and delightfully fragrant.

Cannes la Coquette continues to produce charming blooms in great numbers, and, in company with Charles Lefebvre, contrives to keep its part of the rosery quite gay.

Comte de Paris.—This new Hybrid Perpetual (Lévêque, 1886) continues to flower freely. The rich crimson flowers are of good size and form, and the variety appears a promising addition.

Lady Helen Stewart (Dickson, 1887) is one of the freest Hybrid Perpetuals yet raised. It has been in flower throughout the season, and still carries charming examples of its bright crimson blossoms.

Elizabeth de Grammont (C. Levet, 1886).—It is to be feared that this new Tea will prove quite worthless, the flowers, though of good size, being short-petalled, quite flat, and of a very common shade of blush colour.

Comtesse de Caserta.—A large plant of this Tea-scented Rose is a most conspicuous feature in the Rose garden. The flowers are of a metallic rose tint, with a pointed centre when half open, and are produced in the utmost profusion.

List of garden Roses.—In the list of garden Roses that appeared in The Garden (p. 250), Sept. 15, the four Austrian Briers ought to have been asterisked, and the variety Grace Darling should follow after Cannes la Coquette among Hybrid Teas, as, beautiful as it is, it is not a pure Tea.

Mrs. John Laing.—An exquisitely perfect bloom of this Rose was cut on the 12th inst., and a good many other flowers and buds are expanding in the welcome sunshine, so that it may be hoped that this fine novelty will prove valuable in the autumn as well as in the summer. The colour appears more refined and delicate now than in July.

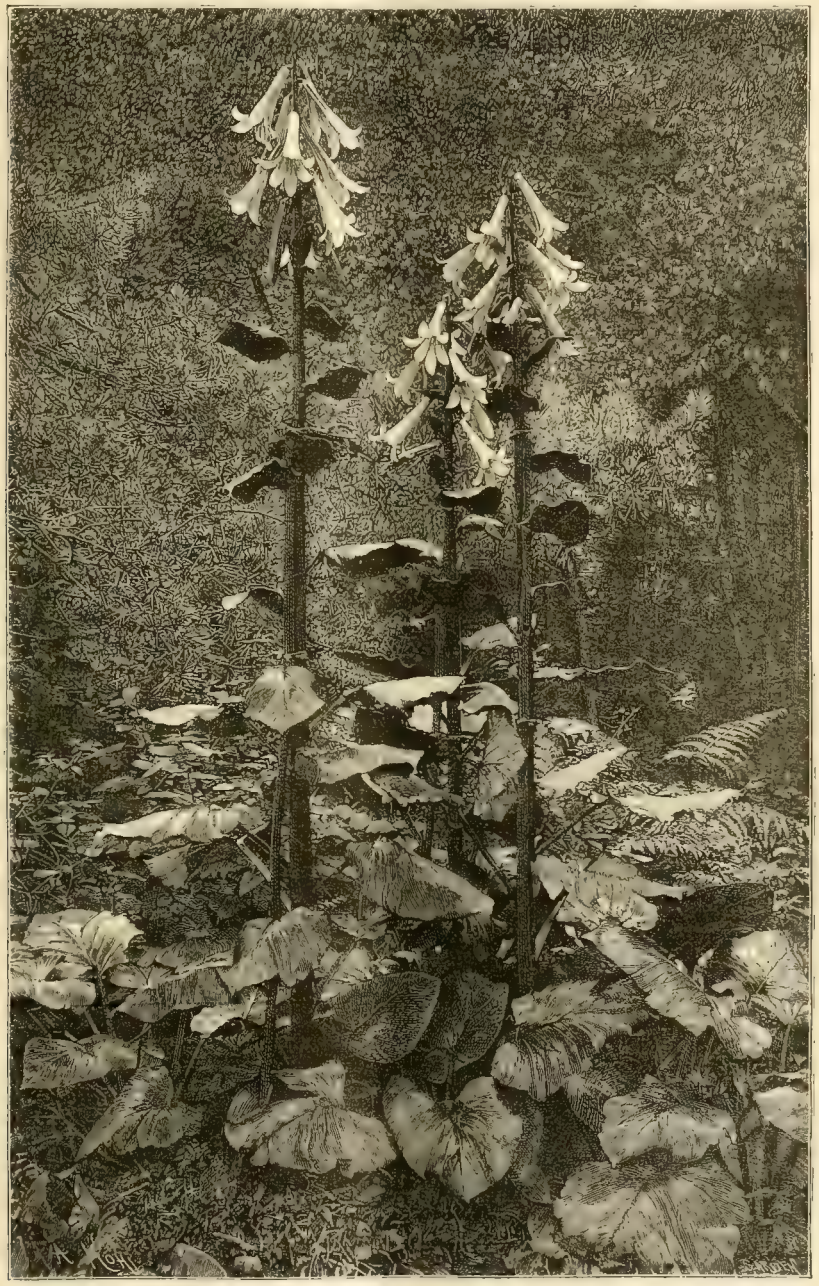
Princesse de Sagan (Dubreuil, 1887).—Plants of this new Tea-scented Rose have been flowering freely all the month, and fully bear out the raiser's description. The petals are of the most brilliant velvety crimson colour, sometimes with a deeper shade at the base, but far brighter than anything previously obtained among the Teas. Even if it cannot be grown large enough for exhibition, it will be a charming garden Rose.

L'Ideal (Nabonnand, 1887).—This Noisette Rose is now attracting a great deal of attention in the garden and seems likely to prove a most charming addition. The plants appear to be of vigorous climbing habit and are now blooming freely, the flowers, though only semi-double, being of the most bewitchingly mingled shades of red and yellow, something between Fortune's Yellow and Ma Capucine. If fairly hardy it will be an invaluable addition to garden Roses, though why a Noisette Rose rather than a Tea is not quite obvious.

Flower Garden.

LILIUM GIGANTEUM.

This most stately Lily is well worth the time and patience needed for its cultivation. Nothing can be more striking than a bold group of it well placed in some secluded nook in shrubbery or wood. The group shown in the engraving stands in such a spot, where garden merges into



Lilium giganteum. Engraved for The Garden from a photograph taken in a Surrey garden.

wood, and where the great Lilies, 9 feet high, have as a background the natural growth of Scotch Fir, Birch, and Bracken. The plant is beautiful in all stages of growth, as the leaves are grand in the young state, and do not, as in the case of other Lilies, turn yellow as soon as the flowers are over, but remain in their broad glossy beauty till late in autumn. G. J.

Single Dahlias.—These charming flowers have come through the ordeal of a wet summer wonderfully well; indeed, I have never seen them more fresh and beautiful or blooming so profusely. In this respect they seem to have excelled the large double kinds, the blooms of which have much more quickly succumbed to the continuous rains. Most single flowers seem to have done better than double ones with the exception of Petunias, and these have in all cases suffered severely from the rain. Perhaps the greatest success of the season has been the giant Daisy (Chrysanthemum maximum), for plants of this have never bloomed more profusely. Every large garden should possess a rod at least of this grand Daisy to furnish cut flowers. Those who would have single Dahlias in their greatest beauty should plant either old roots, or have some small pot roots preserved for planting from the previous year.—A. D.

Hollyhocks.—Although in some places these hardy border plants have been quite eaten up by the well-known fungus, yet in other districts they have been most beautiful. I have noticed that in cottage gardens just two or three plants here and there, carrying five spikes, seem wondrously healthy; also that freedom from the fungus is by no means in all cases found in seedling plants; whilst many old plants are quite healthy. The moist season, whilst beneficial to Hollyhocks generally, has not checked the fungus; indeed, it has in some instances been worse than during three or four previous seasons. Probably the best course to take whenever the disease presents itself is to destroy the plants entirely and to raise a fresh stock from seed. However, no amount of care and precaution will entirely prevent the appearance of the fungus after it has found a habitation in a garden.—A. D.

HARDY GERANIUMS.

To one who is always ready to give any information which may be useful to amateur gardeners, a theme is suggested by the editorial note in The Garden, Sept. 8 (p. 215), which suggests Geranium sanguineum and G. armenum as two of the best Geraniums for the herbaceous border. Both are good, but I think I can suggest at least two better, judging from the comparative notice which they attract in my garden.

G. pratense, it is true, is seldom as good in gardens as it is when wild. About the end of July I was one day waiting for an excursion boat on the bank of the Weaver, about 2 miles from the very smoky town of Northwich. The bank was covered for many yards square with G. pratense in full flower, and I never anywhere saw the flowers so blue or so large. I wondered in vain why it is never so blue or so flowery in my garden, treat it as I will; but the fact remains that G. pratense, whether blue or white, single or double, is seldom a good garden plant. The best garden Geranium where it will do well I consider to be G. Wallichianum. The colour of the flowers is that of G. pratense at its best, the size larger, and the habit of the plant dwarf and spreading. The flowers on some plants vary to clear pink. The intermediate shades are not pleasing. It continues to flower from the beginning of July to the time of destructive frost. I have cultivated it for many years, and have found no way of increasing it, except from seed, which it ripens sparingly (this year probably none at all), and seedlings are rather difficult to transplant; so the plant is not a favourite with nurserymen. It does best on a dry, well-drained soil. Many of my plants die prematurely from getting their roots into stagnant moisture, but where conditions suit the plant it is quite first-rate.

The next best Geranium—I am speaking of my own Cheshire garden—is G. ibericum. I have bought the same plant, or one for all garden purposes identical, under the name of G. platypetalum, also as G. eriostemon; but this is a wrong synonym, and belongs properly to the Himalayan G. Grevilleanum, a plant too leafy to be good on a moist soil like mine. G. ibericum, however, a Caucasian kind, is a very fine showy plant during the month of June. The foliage is ornamental after the flowers are over. The habit of the plant is good, especially where it can grow on a steep slope; the large flowers are of a rich blue-purple.

G. armenum is the largest and perhaps the most showy of the genus; the colour, which is a very red-purple, almost magenta, is not a favourite colour with artists, but whilst the flowers last it is an effective plant in the mixed border. With me it grows at least 4 feet high, and a three-year-old plant occupies a space 6 feet square. This and the last-named may be divided to any extent, and seedlings come up,

from the habit these plants have of shooting out their seeds, to a distance of three or four yards.

G. Endressi, a Pyrenean plant, has flowers of a good clear pink, and has a dwarf habit. The flowering season is indefinitely prolonged, though it is at its best in July. It is a species which may be safely recommended for all gardens, doing well in any soil and situation.

G. sanguineum looks better on its native rocks at Llandudno, where it hangs down from sunny crevices in an elegant bush, than when growing on a border of ordinary soil. In a moist garden like mine it spreads inordinately. It is a good subject for an old wall, on the sides of rough stone steps, but hardly for a bed of rich soil. I have tried several others.

G. phæum, with its black flowers, is worth growing in places too dry or too poor for other plants.

G. striatum makes no show, but the elegantly pencilled flowers improve on the closest inspection.

G. macrorrhizon has a neat habit, but the flowers are poor both in colour and form. Of rockwork Geraniums, G. argenteum, with its shining silvery leaves and its large flowers of delicate rose, is a beautiful plant, and then it shoots its seeds into crevices in which it could never be planted, and saves all trouble of propagation. But I never know how to draw a line between this species and

G. cinereum, into which the seedlings growing in deep soil seem to pass by imperceptible gradations. And I may say the same of G. cinereum passing into G. subcaulescens. I do not question the distinctions which botanists can draw, but these three species seem to me what Asa Gray calls "concurrent in series." This spring I had a seedling of G. argenteum with flowers of the purest white, but these forms are difficult to reproduce.

Edge Hall, Malpas. C. Wolley Dod.

CACTUS DAHLIAS.

Whilst the true Cactus Dahlia Juarezi still upholds its supremacy at the head of its class, vigorous attempts are being made to support it with other colours of a similar type or form; hence we have several so-called white Cactus Dahlias, such as Constance and Mrs. Tait, the yellow Cactus, or Mrs. Hawkins, and Glare of the Garden and Scarlet Constance, or Lord Lyndhurst. Other additions are being rapidly made to the colours of this most ornamental and useful class of Dahlias. Among the most striking of these are Black Knight, with an orange-petalled centre—a unique form and colour in this class of Dahlias; Empress of India, dark crimson, shaded maroon and magenta, with a raised centre crowded with petals, as in the true Cactus Dahlia—a very rich and striking flower. Charming Bride forms a good contrast to these and all other members of the Cactus family of Dahlia. The variety Blushing Bride has been called the Queen of Beauty. It is little more than half the size of a full-sized Cactus Dahlia. Its whitish petals are deeply tipped and partially suffused with a most delicate light pink, something of the tint of the old Maiden's Blush Rose. The habit of growth of this variety resembles closely that of Juarezi, two or three buds rising up above the expanded blooms. The yellow Juarezi has more of the type in it than Mrs. Hawkins, the colour being also lighter. There is also a yellow A. W. Tait, with peculiarly arranged laciniated petals, that approaches pretty closely to the Juarezi type. In Lady Kerrison we have a rich amber-yellow flower of great beauty, edged almost like a Picotee. Lady Ardilaun is a bold brilliant self, if its rich half and half of scarlet and crimson may be so defined. Most observers would probably define the rich blend as a deep scarlet. Lady M. Marsham is another most brilliant crimson-salmon variety. Prince of Wales is another brilliant variety with broad twisted petals. This is by no means an exhaustive list, only a few of the more striking in a class of Dahlias becoming every year more indispensable both in the garden and house.

D. T. F.

ASTERS AT CHISWICK.

All those privileged to see the very large and interesting display of annual Asters grown in the Royal Horticultural Gardens, Chiswick, during the present season have been enabled to enjoy a sight rarely to be met with anywhere else in England. We have to thank several Continental firms for having enabled us to see such a charming show of a favourite autumn flower. Whilst the varieties grown may be perhaps counted by hundreds, there can be no doubt but that sameness is as marked a feature as diversity. There is, however, much of beauty and excellence of quality amongst them. If the collections could have been reduced one-third by eliminating all duplicates and all inferior varieties, the show would have been not less excellent whilst occupying much less valuable space. The varieties are peculiarly rich in the dwarfer forms, but specially in intermediate dwarf sorts, which range in height from 11 inches to 14 inches, the plants being compact and even in their respective kinds. These have the merit of producing flowers hardly less fine than are found on the tallest varieties, and of exceedingly good quality and beauty of colouring. The very dwarf or miniature forms also are pretty, some of them, of course, being specially adapted for lifting into pots or forming edgings for Aster beds, assuming that it be thought desirable to utilise them in that direction. Market growers of Asters who annually lift tens of thousands of plants into pots for market would doubtless find in the collection some useful novelties, although it must be admitted that the market men are a little behind the time in what they grow of Asters, whilst the Continental raisers are always creating distinctions of sorts or sections, such as dwarf multicolor, dwarf pyramidal, dwarf Victoria, and many others, distinctions not always so apparent as could be desired. They seem to indulge in somewhat odd interpretations of shade which, according to their descriptions, hardly seem to agree with our judgment as to colour when seen in the flowers. Thus, a really first-rate dwarf kind, which is at Chiswick, and which I have grown this year, described as "brilliant crimson," is really a deep rosy red, and though good, it is, according to the grower's description, rather disappointing. I found, on looking over the Chiswick Asters, many other instances of improper description, simply because, owing to the wonderful variability of the Aster in producing new and distinct shades of colour, the raisers were at a loss to find proper descriptive terms. Generally, it should be remarked, that the Chiswick collection, because sown in the open ground, and also because of the nature of the season, is rather late; indeed, some sorts will not be in full bloom until the end of September. Could the plants have been raised in frames, and had, say, a score of each been dibbled out into the open ground, the trial might have been more even in character. Of plants of the medium height very beautiful indeed were rich crimson, glowing dark scarlet; white, with dark blue stripes; dark brown-red, with white centre; rosy red, light blue, and white. A section called dwarf pyramidal, 13 inches high, gave amongst others crimson, carmine, white, and peach-coloured blooms. A very dwarf form, Triumph, 7 inches high, glowing crimson, is a great beauty in pots. The dwarf Chrysanthemum-flowered section had scarlet, rose, lilac, and white, all very beautiful. The half dwarf multicolor strain, 9 inches to 11 inches in height, gave rosy lilac, white, reddish lilac, and violet edged white, all beautiful forms. The tall forms, especially some termed imbricated Pompons, the flowers of medium size and very dense, were beautiful, especially for furnishing cut flowers, and the popular Victorias were very beautiful also. Really notes of these flowers must be very imperfectly descriptive, because tastes in Asters differ, and what may please one will hardly please another. The best thing for lovers of this flower to do is to hasten, if not too late, and see for themselves what a wealth of beauty the collection gives. A. D.

ENGLISH FLOWER GARDENS.

It is evident that there is a growing taste for a more natural style of planting and a freer use of hardy plants in our flower gardens. It takes time to break down prejudices even when they have little to recommend them. A transition period is necessary in many cases, and this we have been going through lately, as shown by the use of "dot" plants on our hitherto flat and monotonous beds, but even this is not satisfactory, and the whole system must be swept away to make room for a better. Many and great are the difficulties which beset those of us who have at heart the better planting of our gardens. While deprecating the sameness and patterns of the bedding-out system and the extensive use of tender plants, we must not run to the other extreme and exclude many of our best plants on the plea that they will not stand our inclement winters out of doors. As well discard those hardy annuals which will not reproduce themselves in the soil where the seed falls without some sort of preparation, and the perennials which want an annual division and an occasional renewal or manuring of the soil. It may be taken as an axiom that, whatever style is used, our gardens cannot be beautified without thought, skill, and labour, and no good end can be served by encouraging the idea that a garden once planted, however carefully, will take care of itself. Undoubtedly there are a few—very few—beautiful plants that will hold their own in almost any company, but in time they become troublesome weeds if left to themselves. Variety is one of the great charms of the garden, of which we must not lose sight, and I, for one, should be sorry to discard many tender things. Who is there amongst us, having once seen a good bed of Heliotrope, would be induced to do without it in the garden? And yet it is one of our most tender plants.

"A. H." says truly (p. 119) that a "wider knowledge of plant life is needed" before a change for the better takes place. But this is not the only thing needful. There are many gardeners who thoroughly understand the requirements of the plants under their care, but all are not able to make the best use of the material at hand, and before our gardens can be made beautiful this knowledge of plant life must be combined with the eye of an artist and the means of carrying out the requisite work. The great dislike to change arises from the fact that unhappy combinations may result in something offensive to good taste. The average "bedding-out" gardener makes exact copies of some beds seen elsewhere and is safe. But this is not possible or desirable in artistic gardening, the end and aim of which should be the production of beautiful living pictures not seen quite in the same way elsewhere; they should be, in fact, masterpieces instead of copies.

Unfortunately, most places where natural gardening might be well carried out already possess a so-called "flower garden," which is generally a flat piece of ground with a set of small, geometrically-shaped beds, sometimes on Grass, but more frequently on gravel, and close to the mansion. An attempt to grow anything out of the ordinary run of bedding plants in these beds must result in failure, for we must give the advocates of bedding-out credit for using the very best material for their purpose.

With formal beds a somewhat formal style of planting must be used. But how much better it would be to do away with them altogether, bring the ground back to its natural shape, and cover it with greensward. Apart from the dwarfing effect to the mansion of the close proximity of flower beds, the eye is disturbed by the presence of so much and such varied colour brought together, while the patterns suggest wall papers or carpets, and not the best of these. If the flower garden must occupy this position, the beds should be considerably reduced in number and increased in size, of the most simple shapes, and set in a good breadth of turf. This would give a good chance of using larger and better plants. If there were a series of terraces, I should have no flowers on the upper one, and should depend wholly on borders for the lower levels, if possible. These borders should not be jumbled masses of all and sundry, but the plants should be carefully grouped, and only those things which would not get shabby during the most important part of the season should be used, room being found elsewhere for other good things. The mixed border, through injudicious or over-mixing, has fallen into disrepute; still it is an old friend that one would not like to lose, providing, as it does, shade and shelter, sunlight and exposure, and all the elements essential to its occupants.

But there are other gardens which have none of this formality or where it can be easily swept away, and these are the places that gladden the hearts of those who are striving to give us something better than lessons in geometry, or in making thousands of plants look as nearly as possible like one. In these we shall see artistic grouping of flowering and ornamental foliaged plants here, there, and everywhere, except in the positions most often selected, where they break up and spoil a fine stretch of landscape. Many of our best plants require beds of some kind, that is to say, prepared soil, to grow in and to be kept free from weeds, and such beds could be easily made for them without any approach to formality in planting or arrangement. Even carpet plants would have their place, but they would not be cut into diamonds, squares, circles, and worse forms; they must form a natural carpet and fringe to other things. I cannot agree with Mr. Hemsley (p. 191) that "carpet or pattern bedding has its merits," unless the merit lies in showing us how not to do it. Mr. H. is scarcely logical when he speaks of the cruelty of turning out Palms, Pandanus, and Dracænas, and would yet retain carpet bedding, for a very poor show would result if carpet bedding was carried out without the aid of Alternantheras, Iresines, Mesembryanthemums, Coleus, and others equally as tender as the Palms, &c. I think one season of pattern bedding without the plants I mention would strike the death-blow to the system, and it would therefore be worth a trial. Palms and other tender exotics take no harm when put out in a suitable place during the summer months, and they give us distinctive foliage effects that we cannot match with native or hardy plants.

What is wanted is to make the best possible use of all good things that will grow out of doors for a season so long as it gives us distinctive beauty, and not to find fault with anything that is not thoroughly hardy, but be thankful that there is so much beauty to be had. —Cornubian.

—— In his very unbiassed remarks in The Garden, September 1 (p. 191), concerning the above, Mr. Hemsley differs with me upon a few minor points only. Perhaps if I can be more explicit on these points, differences of opinion will be still further diminished. I am not entirely wedded to the sole use of hardy plants; far otherwise; for among annuals and biennials there are many charming things that should, but do not find a place in hundreds of gardens. Mr. Hemsley still sees merit in carpet bedding, and on this point I cannot agree with him. I am not, as Mr. Hemsley would imply, judging them solely from their wretched appearance after this trying season. The pattern arrangement, whether simple or complicated, is offensive to the eye of the lover of natural beauty, and is totally devoid of interest, for the wretched pinched plants lose individuality.

I grant that these plants are often used where taller things would be inadmissible, but there is such a wealth of dwarf hardy plants of neat habit, with varied hues of foliage and flower, that by grouping and combinations, and by rigid avoidance of pattern, we may attain the desired object, and our beds possess ten times the interest and beauty. I should like to see what could be done by using exclusively Saxifrages, Sedums, and Sempervivums. There is variety among them, and Mr. Hemsley will doubtless admit that the cushions of foliage are neat and pretty, even when destitute of flowers. We have yet much to learn about the use of hardy plants, for many people are unaware how easily numbers of these plants grow in ordinary garden soil. As an instance, I have seen the Cobweb Houseleek starved in a pot, and I have seen it planted out on a heavy loam, where it grew rapidly into handsome vigorous tufts.

Mr. Hemsley, whilst agreeing with the grouping suggestion, has doubts concerning its practicability; whereas experience proves it is simplicity itself. Apparently his doubts lie in the possibility of establishing the different subjects. The orthodox fashion is to grow hardy plants in huge clumps, which I grant would if bodily moved take some time to recover themselves. But this system is not the best. In moving large tufts of most hardy plants I would not hesitate to wash the soil from the roots and divide them into as many pieces as was consistent with safety. Such pieces grow away readily if firmly and carefully planted. I believe this to be the proper treatment of numbers of our border perennials. I know of a garden where the beautiful Coreopsis lanceolata produces flowers double the size of those usually seen, and blooms from July till the end of October. This is nothing else but the result of annual division and transplanting. This year the plants were not divided till early in June. Many of the shoots had barely any root, but enough pieces were obtained to plant a group covering several square yards of ground, nearly a foot being allowed between each plant. Of course the wet season favoured the growth, but when I saw the plants in the middle of August every shoot had grown, the ground was hidden, and there was a profuse growth. There was neither stake nor tie, each shoot supporting its neighbour, and the fine flowers waved in the breeze in natural grace and beauty. This is no overdrawn picture. Let all who are sceptical try the plan, for it is obvious that to leave a vigorous perennial in the same spot exhausting the soil for several seasons is not a fair trial of its capabilities as a garden plant. I recently noted the before-mentioned Coreopsis in a border where it had stood for years, and the flowers were considerably less than half the size of those of the annually divided plants, while the shoots were weak and needed support. I have heard people assert that the increase of hardy plant culture in gardens will cause a great decrease in labour, but they argue from the faulty, let-alone, mixed border system; whereas a very slight experience will soon prove the contrary. Instead of the "establishment" trouble it would be possible to produce new combinations annually with the hardy flowers, and not the least of the advantages gained would be the possibility of doing all this work in mild winter and spring weather instead of having to defer planting one's garden until the first days of summer and then have to wait another month before it is presentable. Lastly, by all means leave some open spaces for summer bedding, but let us not entirely rely upon it. Even if our choicest hardy plants were difficult to establish, might we not just as reasonably expend a little extra trouble upon them even to the extent of working up a stock in pots ready for transplanting? We should at least have the satisfaction of knowing that such stock was permanent, and, unlike our carpet bedding stuff, liable to be converted in one night into a decaying mass of corruption, which has cost us hours of labour, weeks of anxiety, and months of expense in providing artificial heat.—A. H.

COLUMBINES.

The common Columbine is one of the handsomest of hardy flowers. It is so hardy that the most severe English winter does not injure it, and, unlike many things, there are no troublesome details connected with its culture. Old stools last a long time even when in the poorest and driest of soils and fully exposed to the fierce rays of a summer sun. In cold, damp ground it is equally at home, so that Aquilegia vulgaris may truly claim to be everybody's flower. Young seedlings are continually coming up to replace old stools that die out. This also, although in one respect an advantage, is not an unmixed benefit, for it generally leads to a serious deterioration in the strain. The dull shades of blue and red reproduce themselves most freely, and the beautiful double forms and clear whites least; consequently when no care is taken in selecting seed-bearers some of the most attractive features of the common Columbine are lost. The flowering of the Columbine marks for me a most pleasing epoch in the blooming season of hardy flowers. I know of two hardy flower borders that run through a large kitchen garden; Columbines are there in great force, not planted, but allowed to remain where they come up. They bloom in charming profusion, and nothing is more delightful than to walk among them and note the infinite variety of tints they display.

Whilst many hardy flowers resemble each other in form of bloom or habit of growth, Columbines are as distinct in these respects as the Lily. Admirable though the old species is, the various kinds that have been introduced within the last few years surpass it in grace of growth, and are most valuable additions to our hardy garden flora. Some are rather delicate and do not seem to thrive so well as could be desired in cold soils, though but little fault can be found with the yellow-flowered A. chrysantha in this respect. It is a reliable hardy flower, and one I have remarked that excites the admiration of all who see it for the first time. The same may be said of A. glandulosa, certainly one of the loveliest garden flowers we possess. It has been said that the hybridisation of the various kinds is a mistake, but who can fail to be struck with the grace, beauty, and curious combination of tints that a bed of these hybrids presents. Seen from a little distance, the flower, poised on a long footstalk so slender as to be almost invisible, seems to be floating in the air. For cutting these Columbines are excellent. The seed germinates surely, though somewhat irregularly if sown as soon as ripe. There is a great advantage in sowing at that time if the protection of a cold frame can be given through the winter. I do not approve of planting small seedlings of hardy flowers in the autumn. The soil becomes cold and wet before they can get a good root-hold, and then what with worms trying to drag them in and frost heaving them out of the soil, they are often in the worst possible condition for making a good start in spring. Sown in boxes, it only suffices to get them well up, and with extremes of weather warded off they will be making roots all through the winter and will start into growth finely in spring. Seedlings of hardy flowers thus raised are, of course, sure to make much finer specimens by autumn than when the seed is sown in spring, and it is as well to get through any work that it is possible to do at the close of the summer, for spring is sure to bring with it a large amount of labour. When the young plants are raised in spring, the planting falls just in the hot summer weather and frequent waterings are required; whereas early spring planting saves this labour, as the young plants get a good roothold by the time hot, dry weather sets in. I have two lots

of these Columbines, the difference in which is very marked. They came from seeds gathered at the same time, half of which were sown as soon as ripe, the other kept over till spring. From the former I shall get double the quantity of bloom than from those sown this year, and they have not cost half the trouble to grow. Those who may have to grow these hybrid Columbines in heavy soil should select for them as dry and sunny a situation as possible. It is not cold, but a saturated condition of the soil in winter that harms them. They are not so strong-rooted as the old kind, and are consequently apt to suffer in low-lying situations. Those who need flowers for dry banks should utilise Columbines; they are as well fitted for such positions as Antirrhinums, Wallflowers, and similar things. The important point is to get them strong before planting and to put them out in autumn. This remark indeed applies to all plants intended for such situations. J. C. B.

ANNUAL DIANTHUSES.

Of these there are two or three groups of a very pleasing character, in each case free blooming, easily cultivated, and very useful to the gardener for cutting from. There is first of all a group known as Dianthus imperialis or hybridus, and was obtained probably by crossing D. sinensis, the ordinary Indian Pink, with D. barbatus, the Sweet William. The plants of this section may be said to have a taller and looser growth than those of D. sinensis, and they are of various colours with double flowers, the crimson and crimson-purple being the most popular. But more popular still and better known are the Indian Pinks, single and double, grouped under the head of D. sinensis. The double forms have come to take the lead, and there are now several pleasing varieties ranging in colour from white to deep crimson; some are of more than one shade of colour, having paler tints upon their petal edges. All are very free bloomers, and particularly useful for cutting. They are good decorative plants for massing in little clumps, and as some are of dwarfer growth than others, they can be used in beds as an edging to taller growing forms. The seeds can be sown in the open ground, and any good free soil appears to suit them.

D. sinensis is of Japanese origin, and so is its aristocratic congener, the later introduced D. Heddewigi. We are indebted for this fine form to M. Heddewig, of St. Petersburg, who obtained the seeds from Japan direct, and subsequently sent a few to some of the principal seedsmen in London, where the plants bloomed for the first time in 1859. The flowers were so far in advance of those of D. sinensis in brilliancy of colour that it was welcome as a very fine addition to our hardy annuals. A variety with much deeper toothed margins named laciniatus was selected from it. Since then many seedling varieties have been produced and double forms selected. Of the new varieties of the single type one of the latest and most distinct is named Brilliant, a rich, deep, bright crimson kind of great beauty. Of the double varieties, the newest is a fine double white named Snowflake, which requires a little more selection to make it perfect.

I sometimes wonder that the best forms of the single Dianthus Heddewigi are not more generally grown in pots for greenhouse decoration than they appear to be. They make very nice, compact, and yet free-blooming and branching plants, and with a little care in their culture can be made very effective indeed. The seeds might be sown in August or early in September, and the young plants kept in a cool, dry, airy place, where it is simply necessary that they be kept from harm by frost, and have ample supplies of light and air to keep them in health. In February they should be shifted into 4-inch pots, and when thoroughly established potted into their blooming pots. The compost most suited to their culture for greenhouse decoration is one made up of a good yellow fibry loam, sand, and well decomposed manure that will crumble to pieces.

It is found that particular varieties will reproduce themselves from seed, but if anything of merit should occur among the seedlings it is not difficult to increase it by means of cuttings. Young shoots can be used for this purpose, but this method is only adopted in the case of something of a particularly novel character. R. D.

Mesembryanthemum cordifolium variegatum from cuttings.—The present is a capital time to strike a batch of cuttings from which other cuttings can be obtained in the following spring. As this plant is so easily propagated during the early part of the year, it is not necessary to insert many cuttings now to secure a sufficiency of plants later on. Select short pieces free from flower buds, say 1½ inches long, and insert them thickly in sandy soil, consisting of loam, leaf-soil, and peat in equal parts, to which is added a good portion of sand. Dibble the cuttings in shallow boxes and give some water gently so as to make them firm. Place the boxes in a cold frame, shading from bright sun for a few days. Sufficient air should be given to dry up condensed moisture, when roots would soon form. They should then be placed in their winter quarters.—M.

Pyrethrums.—A good practice is to sow a few seeds of Pyrethrums annually. If sown in heat in February or early in March, hardened off with other things, and planted out in well-prepared and fairly rich soil the young plants will come into flower soon after the established ones have finished blooming, and will continue in full beauty for several weeks. Plants that commenced to bloom in July are still throwing up flowering stems and will probably do so until frost checks them. Of course, the majority of seedlings have single flowers, but this is no fault, as the single and semi-double varieties are far prettier, and last longer in bloom than the double kinds. For a pretty and lasting effect I would suggest that a few old plants be planted thinly, and the ground beneath them carpeted with Daisies, or some other early-flowering plant, for spring bloom, these carpet plants to be removed when past their best and their places taken by seedling Pyrethrums. Where cut flowers are extensively used they are indispensable, for the Marguerite-like flowers stand for several days in water, and have a very light and graceful appearance when cut with long stems and not overcrowded.—J. C. Tallack.

ARCHED TRELLISES FOR CLIMBERS.

I always feel sorry when I see wire trellises put up in gardens. They are seldom appropriately placed, and when required for climbers that lose their foliage in winter their obtrusive ugliness is then very conspicuous. There can be nothing more formal-looking than wire trellises, and when, as is often the case, they are dotted about in the flower garden, they have a gaunt appearance when not covered with foliage of any kind. A trellis of this form constructed of wood is far preferable. I have seen some good examples made of Oak, the pieces being portions of crooked boughs, and put together so as to avoid formality as much as possible. This kind of trellis is, of course, more natural-looking than that made of wire, but in any case I think it is a mistake to place a trellis in any part of the garden except where the path leads away to other portions of it. It seems quite natural to enter the flower garden through an archway, or to pass through one in some quiet corner of it, but one fails to see that any good purpose is served by placing one in the centre of the pleasure grounds. A too common mistake is that of covering either partially or entirely with a trellis the path that runs from the highway to the dwelling. The owners of villa gardens often make a mistake in this way. In small and moderate-sized gardens especially, that portion immediately in front of the dwelling should be left free from tall objects. A friend who wished to grow Clematises put up a trellis for them in the manner above mentioned. The garden is a square piece of ground, fronting the road, and could be made to look very pretty all the year round—in fact, it was so until the arches were put up. In summer, when the Clematises are in bloom, there is a grand show, though rather too much of one thing for such a small space, but in winter the ugliness of this trellis-work makes me wish that I had a free hand in that garden for a few hours. Had these arches been placed at each corner of the house where the paths lead away to other portions of the garden, the effect would have been as good, while they would not have interfered with the general arrangement of the garden. I know of another instance where half-a-dozen of these arched trellises are dotted about in conspicuous positions in front of the dwelling. The garden is prettily laid out, and there does not happen to be any large trees and shrubs to hinder an uninterrupted view of the lawn and flower beds. This the trellises much interfere with, and in the winter they sadly mar the natural features of the garden. Byfleet.

PROPAGATING.

Clerodendron trichotomum.—This hardy Japanese Clerodendron which has recently attracted attention by reason of its autumn-flowering qualities can be propagated by cuttings of the young growing shoots, taken during the summer and kept close in a frame after the manner of many other hardy shrubs. This Clerodendron can also be easily increased by cuttings of the roots. Taking and inserting the cuttings is a very easy matter, for if occasion arises to shift an established specimen, plenty of cuttings can without difficulty be obtained, and all that is necessary is to cut them up into pieces from 2 inches to 3 inches long, and dibble them into boxes or pans of sandy soil. The cuttings should be put in an upright position at such a depth that the upper part is just below the surface of the soil. They may then be put in a cold frame, where, except covering during severe weather and occasionally watering, no further care will be needed till they start into growth in the spring. When this takes place and the young plants are sufficiently advanced to be shifted, they are better if potted off for a little time, and when established in the small pots, planted out. It is unnecessary to use glass in propagating this Clerodendron by means of root cuttings. My attention was first called to the readiness with which the plant can be increased by a number of young ones making their appearance above ground during the spring and summer at a spot where a large specimen had been moved the preceding winter. The young plants originated from the roots that had been broken off and left in the soil, which was light and sandy. Another subject that can without difficulty be increased in this way is

Tecoma radicans, which readily adapts itself to just the same conditions as above recommended for the Clerodendron.

Olearia Haasti. — Among hardy evergreen shrubs of recent introduction few have attracted more attention than this. To propagate it, cuttings should be formed of the young clean grown shoots cut off at a joint, and after removing some of the bottom leaves, dibble them firmly into well-drained pots of sandy soil, and after a thorough watering, place them in a frame and keep close and shaded when necessary till rooted. A length of about 4 inches is a suitable one for the cuttings, as the plant is not a vigorous grower, and consequently if longer shoots are taken the base will be too old and will not root so readily as the younger shoots. I put in some cuttings in the early part of July, and they are now well rooted, but owing to the backward season only a few shoots were in good condition for cuttings at that time, so that I put in the remainder about the middle of last month. The very strongest shoots should not be chosen as cuttings, as they take longer to root and are more liable to decay than the weak or medium-sized ones.

Gaillardias, which increase in popularity year by year, are raised in considerable numbers from seed, but to propagate the named varieties other means have to be resorted to, and as division is but a slow process, root-cuttings are generally employed. They are readily increased in this way, and so is the pretty autumn-flowering

Stokesia cyanea, of which a large stock can be soon obtained, whereas if division were the only means at command it would take much longer to work up a stock.

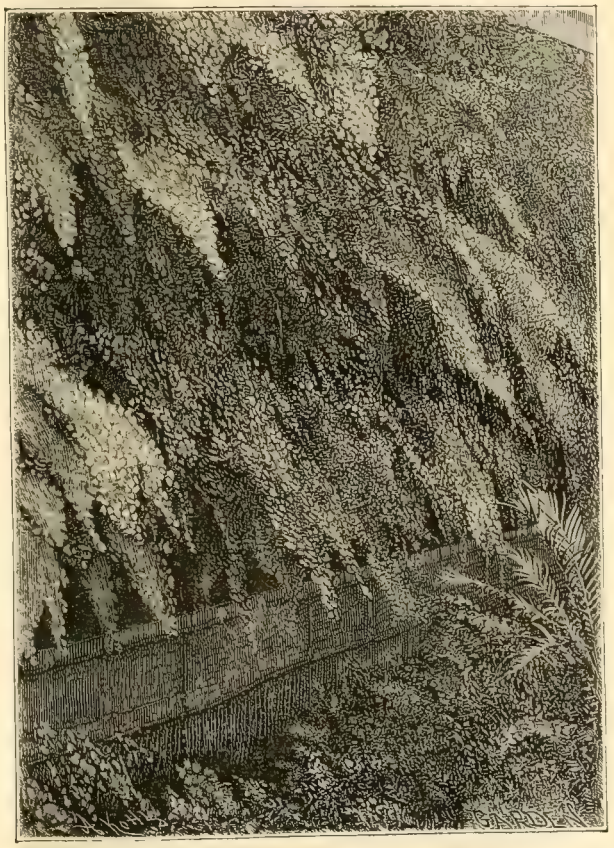
Rhododendrons of the Princess Royal class are more or less in a growing state throughout the year, so that it is often possible to find on one plant flowers, seed-pods from the preceding blooms, young shoots in their most succulent stages, and shoots that have just got firm and woody. Cuttings in a suitable condition for insertion are nearly always to be met with, except during the depth of winter, when the probability is that even could they be got not many of them would root. Where it is intended to put in any more before winter, no time should be lost in doing so, and judging by our plants there is a quantity of good cuttings now available. These should be cut off at the base, which in most cases will give a length for the entire cutting of 3 inches to 5 inches (a very suitable one), and dibbled very firmly into pots of sandy peat, to which some fine pounded crocks and charcoal have been added. The cuttings after being watered may be placed in a close propagating case in the intermediate house or the stove, and in either case they should, if attended to during the winter, be well rooted in the spring. Even if some of them strike before that time it is as well not to pot them off till the spring. T.

Ferns.

A FERN WALL.

On a recent visit to Harrogate I had a walk through the nurseries of Messrs. Arthur Booty and Co., the feature of which, as I had previously been told, was the extensive range of low glass houses in which Ferns for the million are grown. The Messrs. Booty, having found out the way to raise and grow Ferns, as it were, at express speed, can afford to dispose of them at an extraordinarily cheap rate. The demand exceeds the supply, and the Messrs. Booty, to cope with such demand, and particularly in respect of Ferns for cutting for bouquets, conceived the idea of Fern walls, one of which, on the north side of one of the houses 110 feet long, the cut gives a good, but as regards extent a very faint idea. This wall is furnished from end to end with masses of Maiden-hair Fern that it would be impossible to get by any other means. Cork, bark, wire netting, and Moss have hitherto been the only materials adopted for the growth of Ferns on walls. All of these materials are greatly improved upon by the invention of the Fern tiles of Messrs. Booty. In these the Ferns shown in the engraving are growing, there being some four or five lines of them running the entire length of the house, and every inch is as well furnished as the piece shown in the engraving. The supply of Maiden-hair fronds to be had from this house is enormous. This is not the place to give particulars of the tiles, other than that they are extremely neat, made of good pottery ware, and can be readily fixed to any kind of wall by a handy labourer. I think so highly of the invention, that I have no hesitation in saying that had I blank walls to cover with vegetation these tiles would be employed. As regards the nursery stock generally, being essentially a market growing establishment for supplying a shop in the town with cut flowers, plants, &c., everything has to be subservient to these, and though nothing is neglected, the most casual observer can easily see that Ferns, Roses, Carnations, and Pelargoniums are the special favourites.

W. Wildsmith.



A Fern wall. Engraved for The Garden.

PLEOCNEMIA LEUZEANA.

This handsome and large growing species, although originally found in the Island of Luzon —one of the Philippines—has since been found in other islands of the same group; also in Malacca, the Fiji and Samoa Islands, and other places. Plants from some of these localities vary considerably from the type, and have been recognised as distinct species. These characters, if they are maintained when the plants are grown side by side, will entitle them to distinctive names. If this will be borne out I cannot say, not having any experience with any but the typical form, which was, I believe, introduced to this country by Mr. Bull, of Chelsea. It is of large proportions, apparently having some affinity with Lastrea. Hooker makes it a section of Nephrodium. The stem is stout and clothed in the crown and at the base of the fronds with dense chaffy, brown scales; the fronds are three or four times divided, and are said to attain to a length of 12 feet or more, and from 2 feet to 3 feet wide. Under cultivation it, however, has not yet attained such proportions, so that its full beauty is as yet unrevealed. At present I only know it as a plant with somewhat deltoid fronds some 3 feet or 4 feet in length, with broad, obtuse lobes, crenated on the edges and deep green. In this condition it is a superb stove Fern, but it is still amongst the rarest of the cultivated kinds.

W. H. G.

FERN NOTES

What is more interesting than a well-kept fernery? yet how rarely do we find anything like a good representative collection where all the various species and varieties are seen in their best characters. There are various reasons which prevent ordinary cultivators from being able to maintain a collection in a manner to show off the peculiar charms of this lovely class of plants to the best advantage, and I am afraid that even where we might expect better things many of the most beautiful Ferns are represented by puny and stunted specimens, which, although they may be interesting on account of their rarity, are certainly anything but elegant to look upon.

I think it is too often the case that Ferns are grown under conditions which are supposed to meet their natural requirements. Now, although I believe in taking into consideration the conditions under which any particular plant is found growing naturally, I do not hold with the idea that such conditions are always calculated to bring out the most attractive features of a plant, more especially Ferns, and yet in no class of plants are cultivators more careful to take into consideration what are supposed to be their natural requirements with results which, to say the least, are often far from satisfactory. If those who grow collections of Ferns would be induced to depart a little from the orthodox rules and treat Ferns more liberally, better results would be obtained. Those who grow Ferns for commercial purposes, or rather I should say for supplying Covent Garden Market, do not pay much attention to what are considered their natural conditions, but give them every encouragement to make rapid growth. The result is that clean, healthy plants are established in a very short time. For market purposes the number of sorts is limited and confined to those that are naturally of free growth, but I have found that most of the slender-growing and choicer species are quite amenable to the same kind of treatment.

In the first place, it is necessary to renew the stock periodically, for although many species may be grown on for a number of years, and, where sufficient room can be given them, may develop into splendid specimens, yet many of the species deteriorate after the second or third year, and gradually dwindle away. In some cases, I admit, it is difficult to obtain young stock, but with care and perseverance the difficulty may be overcome in one way or another.

Of the various methods of obtaining fresh stock, the most desirable is from spores. Seedlings make more compact and better furnished plants than can be obtained from division. But as many Ferns are rarely obtained from spores, other means must necessarily be resorted to. In many instances the only certain way to increase stock is by division, and this generally applies to the rarer species. Unless the plants are in a good condition this is a critical operation. The best time to propagate by division is while the plants are in active growth, and if the plants have been standing long in the same pots and have got pot-bound they should be prepared by re-potting them, removing as much of the old surface soil as possible, and potting the plants down a little deeper, so that they may make a few fresh young roots near the surface. This applies more particularly to some of the Adiantums, which cannot be obtained from spores. Such sorts as A. Veitchi, A. curvatum, A. tetraphyllum gracile, A. speciosum, &c., are rarely obtained from spores, while the beautiful A. farleyense, as far as I am aware, has never been reproduced from spores. The Davallias, Polypodiums, Goniophlebiums, or any species that have spreading rhizomes may be more readily increased, as a few of the rhizomes

may be taken off without disturbing the old plants. The Nephrolepis, too, produce young plants freely on the long slender stems. By plunging a few plants in suitable soil, young plants may be obtained almost as freely as Strawberry plants can from runners. They should not be disconnected from the parents until they are pretty well established, when they may be taken off and potted and will grow away freely enough.

The viviparous sorts may be increased either by taking the young bulbils off and treating them as young seedlings, or by plunging the plants and pegging a few fronds down on some good light compost, in which case the young bulbils will take root, and young stock quickly be established. The Asplениums are the most prominent of this class, and are certainly among the most beautiful Ferns cultivated. Woodwardias, some of the Polystichums, and one or two Gymnogrammas, especially the beautiful Gymnogramma schizophylla gloriosa, should be propagated in this way. Adiantum dolabriforme and A. ciliatum also belong to this section. In the cultivation of Ferns it should be remembered that to have them in good condition it is of the first importance that they receive every encouragement during the growing season, and such sorts as make rapid growth and attain to a large size must either be discarded for younger plants after they attain a certain size, or plenty of room given for the full development of their natural size and beauty. In the case of delicate and slender-growing forms, care must be taken that they are not overgrown by the more vigorous sorts. A fault that I have noted in several cases is that these slender forms often get overpotted. In re-potting the smaller growing sorts they may often have the old soil reduced sufficiently to pot the plants into the same sized pots again, and in some cases even in smaller ones, with advantage. Many of the slender sorts with creeping rhizomes will succeed best in shallow pans, and these should be filled up a little above the rims, so that the rhizomes may spread over, and they are also less liable to suffer from excess of moisture, which is frequently the case when potted in the ordinary way. Although Ferns are chiefly moisture-loving plants, they should not be kept continually saturated, as is often the case, but avoid excess in either direction. Except in the case of Filmy Ferns, give sufficient ventilation to avoid a stagnant atmosphere, but always avoid excessive shading, and, above all, I may say, the use of green glass, or green shading of any kind to grow them under. In making this last remark I may be considered by some a little bold to condemn what has been held by high authorities to be beneficial. I admit that while under green shading the plants have a more verdant appearance, but remove them and compare them with plants grown under ordinary light canvas shading, and I think it will be admitted that the latter have a decidedly better appearance; and, moreover, the sickly hue which this green casts over everyone while under its influence is a sufficient reason why it should be abolished. A.

Stove and Greenhouse.

SHRUBS FOR FORCING.

A great many shrubs forced into bloom are employed for greenhouse decoration during the spring months, and where they are required for this purpose and are not grown in pots, they should be lifted early in the autumn just before the leaves fall. Treated thus the plants get partially established before winter, whereas if potted late in the season they may flower just as well, but the blooms have not so much substance and do not last so long in beauty. In selecting plants for forcing, only those that are of good shape, with well-ripened shoots and plenty of flower-buds should be chosen. Where a number of shrubs are forced every year it is a good plan to have a couple of sets, giving each set a season to recoup itself. Some people keep the shrubs for forcing in pots, others plant them out, this last method giving the least trouble. Many of the Ericas are suitable, as they possess the advantage of forming a dense mass of fibrous roots, and they can be lifted and potted at almost any season of the year without injury. Besides the endless forms of Rhododendrons and hardy Azaleas, there are two varieties of Andromeda — floribunda and japonica — that flower beautifully under glass, as also do the different Kalmias and the pretty little Zenobia speciosa, of which there is a variety (pulverulenta) with bright silvery foliage, which under glass is remarkably striking. The little Erica carnea or herbacea, which in mild winters commences to bloom in the open ground soon after Christmas, is very bright and cheerful in the greenhouse for the first two months of the year. A great many rosaceous plants are also forced into bloom, but the majority of them will not bear so much shifting about as the Azaleas and things of that class, although they are extremely beautiful when in flower. Of these, may be mentioned the Almonds, Peaches, Cherries, and Thorns, especially the double-blossomed kinds, as they last longer in bloom than the single forms. Cydonia japonica and its numerous varieties that flower so early are also available for the purpose, and so is Pyrus Maulei, whose peculiar orange-red blossoms supply a very distinct shade of colour. Pyrus Malus floribunda, too, I have also seen forced into bloom, and very pretty it is in the shape of little standards with long graceful shoots. Spiræa Thunbergi is very pretty, and can be forced into flower readily. It has little white Hawthorn-like blossoms, which are borne on slender arching shoots. Prunus triloba and the double-flowered form of the dwarf, much-branched Prunus sinensis are both very easily forced, and remarkably showy when in bloom. Deutzia gracilis is one of the first plants to be obtained when shrubs are needed for forcing, as it readily lends itself to such treatment. Besides this, the double-flowered form of Deutzia crenata is very beautiful, but it cannot be had in flower so early as the single form. Lilacs are commonly forced, and give but little trouble provided suitable plants are obtained. For small bushes the Persian Lilac is the best, but both the double and single-flowered forms of the common kind may be forced just as readily. Hydrangea paniculata grandiflora is now largely grown in pots and brought into Covent Garden Market in considerable numbers during the season, but it does not naturally bloom till the end of the summer or in the autumn. Forsythias, especially viridissima, may be grown into neat bushes, and they are valuable for flowering under glass, as blooming naturally early in the season, they will expand their blossoms in the temperature of a greenhouse. Berberis stenophylla, though rarely used for the purpose, will do well forced, as also will Styrax japonica, a neat growing shrub with slender branches, from the undersides of which depend its pure white, drooping, bell-shaped blossoms. Staphylea colchica must be included in the list, but though very pretty, it is difficult to get good bushes of it. The Snowball Tree (Viburnum Opulus sterilis) will flower well if not brought on in too high a temperature, and good sized plants should be chosen for the purpose. I have succeeded very well in forcing some of the hardy Magnolias, viz., the Yulan (M. conspicua), M. Lenne, and the pretty double-flowered M. stellata and Halleana. As the Magnolias dislike greatly to be shifted, the plants are grown in pots and plunged outside during the summer, when they set their buds for the next year's display. M. stellata is especially valuable in this respect, as it retains its neat, compact habit for years and flowers freely every season. Weigela rosea and some kinds of Ceanothus will flower well under glass, though they are but seldom employed for the purpose. Another subject rarely seen is the Laburnum, whose drooping clusters of golden blossoms are very effective. One thing to be borne in mind in the case of forced plants of all kinds is, that when the flowers are over they should not be turned out of doors at once, but should be gradually hardened off. In the case of Azaleas that are forced every year, they go to rest earlier than those that are in the open ground, and consequently they may be had in flower earlier in the spring.

H. P.

WORK IN PLANT HOUSES.

Carnations. — Perpetual-flowering Carnations generally make much more growth when planted out during the summer months than when confined in pots. Like most other things, they have made less progress this sunless summer than usual. Cuttings that were struck last autumn or during the winter have suffered more than older plants that were planted out; consequently it is necessary to assist them. It will be better to lift and pot them now, as if put in a pit or house where they will have plenty of light and the aid of what sun heat we get during the next month or six weeks, the flowering shoots, which should now be conspicuous, will make considerable progress. In lifting the plants care should be taken to secure all the roots possible. The condition of the roots depends a good deal on the soil in which the plants have been grown. If the soil is moderately free, more of it can be got away without breaking the fibres than is possible when the soil is heavy and tenacious. They should be put in moderate-sized pots with enough room to hold a fair quantity of new material. The soil should consist of rich loam; if it is of a heavy, retentive nature a little leaf-mould may be added, which with the rotten manure required should be sifted. Add to the whole enough sand to make it fairly porous, but not too light.

New Holland and Cape plants.—The various kinds of hard-wooded plants that have been stood out of doors during the latter part of summer will now be safer under glass. Such things as Boronias, Aphelexis, Hedaromas, and Adenandras should be housed first. In putting them in their winter quarters the three first-named should have as light a position as the house affords. Acacias, Correas, Eriostemons, Cytisus, Diosmas, and Epacrises will do under somewhat less favourable conditions, but they are better for being kept well up to the roof.

Heaths.—Though these are less susceptible of injury from a few degrees of frost than the plants already named, it is better not to risk them out much longer, except in the warmest parts of England. They should have a light airy house and be stood near the roof, for many of the sorts will keep on growing slowly all through the winter. The more light they get the better, as they will be likely to bloom more freely. Let them be sufficiently apart to admit of the light reaching the lower branches.

Kalosanthes.—These plants do not like a low temperature. A position near the glass where the light can reach them all round is essential to their flowering satisfactorily. Less water will be required by all the plants mentioned, but the stock should be looked over every day, and when the soil needs water, enough should be given to well moisten the whole of it. The dull moist summer has been favourable to mildew, and the soft state of the current season's shoots and leaves has made the plants much more liable to be attacked by mildew, both at the present time and during the coming winter. As the stock is brought in, each plant should be closely examined, and any part affected should be dressed with sulphur. When this is done the safest way is to lay the plants down on their sides, wet them thoroughly with the syringe, and when a little of the water has drained off, to dust the whole over

with sulphur; the old-fashioned sulphur puff is still the best contrivance to use. After applying the powder, the plants should remain on their sides until dry enough, so that the sulphur water will not run down into the soil, as sulphur is highly injurious to the roots. After the sulphur has been allowed to remain on the plants for five or six days they should again be laid down on their sides and have it washed off. To do this use the syringe freely, turning the plants round so as to get the whole away; finish by washing off any sulphur that has reached the surface of the ball. After this let the foliage dry before standing the plants upright. It is very necessary to see that all plants which are subject to mildew are free from it when taken indoors, as, if only a little affected, the pest will increase fast under glass.

Azaleas.—Where Azaleas have been stood out of doors, they should also now be taken in. The plants should be looked over to see that they are free from thrips, for though these insects will not increase so fast now as earlier in the season, it is better to try and get rid of them altogether. The living thrips can be killed by fumigating with tobacco or some other preparation made from it, but not so the eggs, which are under the small varnish-like black specks on the under side of the leaves, where they are secure from harm by fumigation. As soon as the eggs come to life the brood deposit a fresh set of eggs, which in their turn are hatched. It is therefore best to dip or syringe the plants with tobacco water, by which the eggs as well as the insects are killed, providing the dipping or syringing is thoroughly done. To be effectual the liquid must reach every part of the plants, both wood and leaves. It is a good plan to give a second washing at an interval of ten or twelve days after the first, and if any of the insects escape the first application they will probably be destroyed by the second. If about 2 ozs. of Gishurst compound are mixed with each gallon of the tobacco water, it makes the mixture more effectual. The flower-buds on Azaleas that flowered late in spring will not yet be so large and plump as desirable. To help them to mature the growth a little fire-heat should now be turned on at nights, and in the daytime when the weather is cold. A mistaken idea often exists respecting Azaleas that are wanted to bloom late in spring. It is supposed that if the plants are kept quite cool as soon in autumn as the flower-buds are just formed they will be easier to keep back the following spring. Such is not the case. Plants that have their buds large and plump can be kept back later than when the buds are indifferently matured. The buds also are not nearly so liable to go blind in winter when they are prominent as when they are scarcely visible.

Azaleas for forcing.—Where cut flowers are required in quantity during winter a sufficient stock of the old white or of Fielder's White should be grown. There are plenty of the hybrid varieties that have more perfect flowers, but there are none that combine the elegance of form, purity of colour, and freedom of growth which these two old sorts named possess. After all the new kinds that have been raised it seems an anomaly to give preference to the old kinds mentioned, but after being discarded by many growers there is now a demand for them. One advantage which the old sorts have is that they make longer shoots, so that the flowers can be cut with more wood attached to them. This is an important matter when the flowers are required for filling vases and other stands.

Stove.—Bouvardias.—Bouvardias that have been planted out during the summer in frames or pits should now be potted up, unless there is the means of giving them heat, as the time is coming when artificial warmth will be necessary. In heated pits, if these are constructed so as to give plenty of light and the plants are not too far from the glass, it is well not to disturb them, as they will be likely to give more flowers. But where the requisite temperature cannot be kept up it is better to pot at once, as if the plants get chilled it will interfere with their blooming. It is advisable not to give larger pots than necessary, but the roots must not be too much cramped. If this occurs it will limit the quantity of flowers they will yield after the first crop is over. Give them good turfy loam, to which add some leaf-mould and a little rotten manure with enough sand to keep the whole open and porous. Pot fairly firm and give a moderate watering to prevent the leaves flagging, and the plants must be kept close for a fortnight or so, giving a thin shade when the sun is on the glass. Syringe them overhead in the afternoon. If a temperature of about 65° in the night is kept up the roots will at once begin to make progress. See that the stock is free from insects, especially mealy bug, which if present and allowed to remain will soon make the flowers unfit for use. T. B.

Griffinia hyacinthina.—This is not a novelty, having been introduced early in the present century, but it still remains an uncommon plant. It is the oldest member of a genus, consisting of four or five different species, and is, with its variety maxima, the finest of them all. In cultivating this Griffinia it must be borne in mind that it is evergreen in character, and consequently must not be dried off as most bulbs are. When the flowers are over the plant makes its growth, during which time as much light as possible should be given it. The temperature of an intermediate house suits it perfectly, and when in good condition the oblong-shaped leaves become of a dark green tint, while the flower-scape rises well above the foliage. The colour of the blossoms is a beautiful bluish-violet, with a conspicuous white stripe down the centre of each petal.—T.

Double-flowered Agapanthus. — I was rather surprised to see by "W. H. G.'s" note in The Garden, September 8 (p. 217), that the double form of the old African Lily was flowering so grandly near Paris, for although I have had it for some years and flowered it many times, the blossoms with me do not open in a satisfactory manner. This is also the experience of my friends who have grown it. I was thinking of discarding it, but after the above mentioned note, I shall give it a further trial. The blooms are thoroughly double, but as they only open for such a little distance, this character is not shown unless they are closely examined. With me it is wanting in the grandeur of the single form. A good companion to the old-fashioned single blue is the white-flowered variety, and when a good form of this is obtained it is a really beautiful flowering plant for this season of the year. All the light-coloured forms are, however, not equally beautiful, for some specimens may be met with in which instead of the blossoms being of the purest white they are tinged with blue. This is probably the result of raising the stock from seed.—H. P.

Poinsettia pulcherrima planted out. — Generally speaking, this useful winter-flowering plant is considered somewhat difficult to grow. When grown in the usual way it is no uncommon occurrence to see a whole batch of plants lose their leaves through injudicious watering, either too much or too little, or through any other neglect in their treatment. Such has been my experience—and I have at one time and another had some thousands of plants under my charge. Doubtless many more have experienced the same. Once I planted several out in a small border at the back of an intermediate house. These grew fairly well for three years, but then, owing to some mismanagement on the part of the man in charge at that time, a change for the worse took place, which eventually ended in the death of the plants. Since then I have come across many planted out, though I never remember seeing such a fine plant as one I recently saw at Belton Park. This was growing in nothing but a mixture of soil, ashes, and other rubbish, such as is generally found on beds in a house. Judging from the main stem, which was nearly as thick as a man's wrist—something unusual for a Poinsettia stem—and about 4 feet in height, it was at least fifteen or twenty years old. Evidently it had never been planted in its present place intentionally, as it was in the centre of a bed, the surface of which was covered with other plants. The main stem, as just mentioned, was about 4 feet in height, and from this seven strong shoots, as thick as an ordinary walking-stick and some 3 feet in length, were growing at the time of my visit. Most of these had already reached the roof of the house, but as the bracts form, each shoot is tied down to a stake, thus forming a kind of huge pyramid. Each of the shoots annually produces bracts of a large size. No special care is paid to the plant; it is allowed to grow pretty much as it likes during summer, which treatment it obviously enjoys. When the flowering period is over, and the proper season for pruning comes round, every shoot of the previous year's growth is cut back to within two eyes or so of the main stem. No special attention is paid to watering, the main support the plant gets being the drainings from the other pots. In exceptionally dry weather, however, it is given a good soaking once a week. After seeing it growing thus, the thought naturally arises, Which is the best system of culture, in pots or planted out?—C. Collins.

Kitchen Garden.

TOMATOES AT CHISWICK.

By the kindness of Mr. Barron I was the other day enabled to inspect the fine collection of Tomatoes now being grown in the Royal Horticultural Society's gardens at Chiswick, and I can assure all interested in this popular fruit that the above alone is well worth a visit to the gardens. It will be remembered that last year most of the varieties in common were grown side by side at Chiswick, with the result that a lot of worthless varieties were weeded out, and, what is of equal importance, a large number of synonyms discovered, which can be seen by referring to the published lists. This season the largest house has been devoted to the culture in the best possible method of some six or eight of the finest of those tried last year, the plants being grown from seed saved on the place from the finest types of the varieties selected. The plants occupy a wide and lofty structure, about 80 feet long by 25 feet in width. There are three pathways in this house, thus forming two central beds and two narrower borders on either side. The plants, in beds of ordinary garden soil to which has been added a mulching of horse-droppings, are all grown on the single stem system, being trained to strong upright stakes and afterwards on wires. They have grown splendidly, and the flowers, with the exception of a few which opened when the weather was unfavourable, have set a heavy crop of fruit. The two central beds are entirely filled with plants of the Perfection type. Though not quite so prolific a variety as a good selection of the old Large Red would be, this variety is far superior to it in quality, and, at the same time, is a really heavy cropper. The fruits are large, many of them scaling from half a pound to over a pound in weight, almost perfectly round, and quite free from the unsightly corrugations so conspicuous in the coarser varieties. They are produced in clusters of about five to eight fruits each, these usually being solid, of a deep crimson-red colour, and of a rich, sweet and luscious flavour. The lowest trusses are almost resting on the ground, while others in various stages of development are produced at moderate intervals from the bottom of the plants to the top. Although I had previously entertained some amount of prejudice against this variety, as being somewhat too coarse and long in growth, I must admit that as seen here it would be hard to beat, even when grown for profit, as the quality alone would ensure its realising 2d. or 3d. a pound more than any of the coarser kinds.

The next variety to be noted is a comparatively new one called Ham Green Favourite. It was raised by Mr. Cocker, of Bristol,

and the authorities at Chiswick seem to think very highly of it. It is certainly an enormous cropper, bearing large trusses of well-shaped fruit of a deep scarlet-red hue when ripe. It is shorter in growth than the Perfection, and, judging from its general appearance, I should say it was a lucky cross between a good type of the Large Red and one of the Perfection class. It occupies the left-hand border for more than half its length. On the other side there are first a few plants of Golden Queen, which is by far the finest yellow-fruited Tomato extant, having received a first-class certificate 3 years ago. It is a good cropper, bearing fruit of a lovely transparent golden hue, and the flavour is also very fine. Then comes a batch of Hathaway's Excelsior, a good old variety, but which is now superseded, and will not be grown here again. A number of plants of a new American variety called Horsford's Prelude come next. This, though a somewhat small-fruited kind, is one of the finest introductions of modern times, and will assuredly be much more largely grown in the future. The plant is a moderate and compact grower, being much dwarfer than Excelsior, but it is one of the most prolific and best setting varieties I have ever seen, the small, round, deep scarlet fruit being produced in large clusters that seem to touch one another all up the stem. A batch of another fine dwarf variety, the Early Scarlet Tennis Ball, occupies one of the end borders; the fruit of this is even smaller than that of Prelude, but quite round, of a crimson colour, and very freely produced. A batch of Laxton's Open Air completes the list here; it is dwarf and very free, but the fruit is coarse and inferior. All are in perfect health with not a trace of disease.

In a smaller lean-to structure are a number of plants in pots, consisting of varieties that are either being tried a second time or that have not previously been tested. Of these Advancer and The Hovey alone seem to be capable of taking a place in the front rank of really useful and profitable Tomatoes. B. C. R.

KITCHEN GARDEN NOTES.

Cabbage.

A good supply of tender young hearts, as early in the spring as they can be had, is always appreciated. In many instances none but the earliest Cabbages are admitted to the dining-room, and not even these if at all coarse or strongly flavoured. Those who market their produce will also find the earliest crops by far the most profitable, and in some seasons they prove exceptionally remunerative. All should aim, therefore, to grow them as early as possible and in large quantities. Cabbages delight in a rich root-run, but this should be in a fairly sweet condition, and not poisoned with manure. A great depth of loosely-dug, heavily-manured land is not calculated to produce the earliest and the most mildly-flavoured Cabbages, but, on the contrary, it favours rank growth, and overgrown plants are the slowest to form hearts. What is wanted is neat plants, with few outside leaves, and a small, nicely-blanched, though not very close heart. Firm rich ground is the most suitable, and no better position can be found than a plot just cleared of both autumn and spring-sown Onions. Extra pains are always taken with the preparation of the Onion quarter, and the good effects of this ought to be shared in by the winter Cabbage. As soon as the Onions are cleared from the ground—and they ought to be off now—the surface should be cleaned, given a good dressing of lime to destroy the slugs, and well stirred with flat hoes. Shallow drills may then be drawn, and the Cabbages planted with a dibber direct from the seed-bed into these; but if they have been pricked out, they must be transplanted with a trowel. The earliest sown, or those raised in June or early in July—notably the London Rosette Colewort—ought already to be established in succession to the early maturing Tripoli Onions. As these Coleworts heart in during the autumn and winter and do not grow large, they may be planted about 12 inches apart each way. It is a mistake to give much room to the later-raised plants of such good varieties as Ellam's Dwarf Early, Wheeler's Imperial, and Reading All Heart, or Matchless, a distance of 15 inches apart each way being ample. We prefer to plant thus thickly rather than alternate the large and smaller-growing varieties, with the idea of treating the latter as Coleworts and eventually allowing the stronger growers the whole of the room. Heartwell Marrow, Enfield Market, and other rather large varieties that find favour in the markets ought to be planted in rows 18 inches apart and the same distance apart in the lines. If ground is specially prepared for Cabbages it should be well trampled prior to planting, and in every case the planting ought to be done firmly. In dry weather the plants should be watered in, and slugs in all instances must be looked after, being either kept in check by the aid of soot and lime or trapped with Cauliflower leaves. We are never troubled with club, but if the maggots were troublesome, all the plants as they were drawn from the seed bed would have their roots well coated with a puddle formed with a mixture of clayey loam, lime and soot. Plants with roots thus treated are the first to recover from the check incidental to transplanting, and are rarely touched by the maggot. A free use of newly slaked lime is also a good preventive.

Old Cabbage Beds.

A showery season has just suited these, and those who have not destroyed the beds formed last season will have abundance of well-blanched hearts during the autumn, and it may be throughout the coming winter. Standing so long on the ground, the Cabbage naturally exhausts its fertility, and in many instances surface manuring ought now to be resorted to, or otherwise the growth of the hearts and greens will be slow, and the quality prove indifferent. Supposing the rows of plants were heavily moulded up some time since, strong liquid or sewage water may safely and advantageously be freely poured in the furrows formed between the rows. Failing this a fairly liberal dressing of guano, nitrate of soda, sulphate of ammonia, or some other manure ought to be spread over the ground and stirred in as much as possible with the aid of flat hoes. This eventually washed down to the roots will soon have a most beneficial effect on the growth of the plants, and a serviceable and prolonged supply of tender hearts and greens will be the result.

Spinach.

The moist state of the ground has caused the seed to germinate quickly and evenly, and a good "plant" may be seen in many gardens. In the warmest localities seed sown now may prove fairly useful, good pickings often being had from these late raised plants a few weeks in advance of the earliest sowings made during next February. Crowded rows ought to be lightly thinned out now, and again later on, or when the plants are strong and less liable to be destroyed by slugs or grubs, eventually leaving the plants about 6 inches apart. Thinning out ought not to be deferred till the thinnings are of sufficient size to form a dish, or the plants left in the ground are greatly weakened. Occasional dustings over of lime and soot and a frequent use of the Dutch hoe are good preventives of slugs and grubs, and also encourage the Spinach to grow strongly. Where there are any large gaps in the rows such may be filled up with plants obtained by thinning out crowded patches, these being watered in and protected from slugs till they have well recovered from the check given. Winter Spinach being of so much value, it is advisable, where the breadths of plants are small, to form several fresh rows with the thinnings, and if this is done in showery weather, the experiment may prove successful. The supply of New Zealand Spinach may be prolonged by covering several strong plants with frames, a further protection of mats being also given when required. The broad leaves of the Spinach Beet are very tender and succulent at the present time, and by many are much preferred to the tops of the New Zealand Spinach.

Turnips.

Slugs are very troublesome among the late-sown Turnips, and in showery weather are not easily checked. The usual remedies, such as frequent coatings of soot and lime, a free use of the hoe, and gradual thinning out, should be resorted to, and where there are blanks they may be filled up with the strongest of the thinnings. Transplanted Turnips sometimes form good bulbs, and in any case they are preferable to great gaps in the rows. All ought to be finally thinned to about 9 inches apart in the row. The Chirk Castle Black Stone is the hardiest and most delicately flavoured Turnip in cultivation, and especial care should be taken of it, reserving this kind for late use.

Parsley for the Winter.

Seeing that Parsley is always in demand, a fresh bunch being required daily in very many establishments, it is hardly possible to have too much of it during the winter. In some seasons it is simply invaluable to the private gardener, while market growers not unfrequently find it a most remunerative crop. Unfortunately, the very finest strains are the least hardy, and in any case it is necessary to protect a number of plants in frames or houses. Instead of covering or transplanting a comparatively small number of extra large plants, which soon lose the best portion of their leaves, it is a better plan to fork up a much greater number of plants, and after cutting off many of the larger leaves, replant them thickly in good well-manured soil where at any time they can be covered with handy span-roofed or ordinary garden frames. Being furnished with strong tap roots, the Parsley soon re-commences active growth, and with very little protection will yield numerous pickings of moderately large leaves. The very slight shelter, coupled with comparative dryness of soil, afforded by a row of bush and standard fruit trees, will frequently preserve Parsley when all in the open is killed by severe frosts. It is advisable, therefore, to transplant a good number of strong roots to such positions. It should also be remembered that the strong old leaves are the first to fail, and for this reason, many of these ought to be gathered now in order to encourage the formation of smaller and more serviceable foliage.

W. I. M.

GARDEN FLORA.

PLATE 667.

MAGNOLIA CONSPICUA (YULAN).

(CHINESE LILY TREE.*)

The subject of our coloured plate is, without doubt, one of the finest early-flowering spring trees that our gardens possess. That it is worthy of the definition tree rather than shrub, as giving a more general description of its character when seen in a vigorous, thriving state, can scarcely be doubted when it is stated that the specimen from which flowers were taken for the accompanying plate is about 35 feet in height and nearly the same in diameter. This variety has proved to be quite hardy here, although classed by some writers as half-hardy. It thrives well in a position screened from the east winds, which no doubt is a great advantage at the flowering period. A huge Horse Chestnut tree stands to the eastward of it, and the young foliage of the same is generally half developed ere the Magnolia opens its first flowers. It very rarely fails to perfect its flowers in great profusion every spring, from the early part of April to the middle of May. The greatest amount of harm to the flower-buds is occasioned by late spring frosts at the period of development rather than by wind or rain. I have observed, however, that this rarely occurs to any material extent, possibly one season in five or

* Drawn for The Garden at Gunnersbury House Gardens by H. G. Moon, May 10, 1888. Lithographed and printed by Guillaume Severeyns.



THE WHITE LILY TREE YU-LAN MAGNOLIA CONSPICUA

six. Its pure white flowers last in perfection several days, and as only a portion are open at one time, the tree itself is a source of beauty for at least a fortnight or more. The young foliage pushes forth before the flowers are past their best, and lends more attractiveness to its appearance, although only partially developed.

I find a top-dressing of rich soil to have a beneficial effect. This we apply annually in the early spring. The tree itself stands in a tolerably moist piece of ground with an undergrowth of Rhododendrons of moderate size. I have never observed on this tree any disposition to produce flowers with the slightest amount of colour. The variety known in gardens as Magnolia conspicua Soulangeana is, I surmise, a natural hybrid between the type and another deciduous species, from the latter of which it derives the purple tint in its flowers that are somewhat larger than in the case of M. conspicua. There is a good example of M. c. Soulangeana to be seen on a wall with an east aspect at the Deepdene Gardens, near Dorking, where it produces its flowers freely. It is very surprising that these fine deciduous spring-flowering Magnolias are not more frequently met with than is the case; no garden of any pretentions should be without one or more examples. The very fact of their flowering early should be the strongest argument in their favour, and no difficulty should be experienced in selecting a suitable spot in which to plant them for growing in a bush state at least in the southern counties of England. Further north it might be advisable to secure the protection of a wall. The subject under notice is also finely represented among the choice selection of trees to be found in the grounds at Sion House, Isleworth, likewise at Kew Gardens. I should imagine that the tree under my charge was planted in its present position early in the present century, if not before. Introduced as it was in 1789 from China, I should infer that there are not many older examples to be found, and the success here met with, I trust, will promote its more extended culture in our gardens.

Another deciduous species of more recent introduction is Magnolia Halleana from Japan; this I have seen growing and flowering freely among the choice selection of Japanese shrubs to be found in the Coombe Wood Nurseries of the Messrs. Veitch at Kingston. Its flowers are also white, from 4 inches to 5 inches in diameter, and the petals narrow, giving the flower, as seen on the plant, quite a star-like appearance, as may be gathered from its synonym, M. stellata. James Hudson.

Wanted, a name.—In reply to "Z. Y. N." (p. 239), I beg to say that the leaves of several species of the genus Philadelphus—the so-called "Syringas" of gardens—taste and smell like Cucumber when bruised. I have known the leaves of Philadelphus Gordonianus, and one or two others, to be infused in claret-cup when Cucumbers were not obtainable. The Philadelphus was erroneously called Syringa, or Pipe Tree, by Gerard and Parkinson, but must not be confounded with the true Syringas, or Lilacs of to-day.—F. W. B.

—— Under this heading (p. 239), "Z. Y. N." asks for the name of a shrub with Cucumber-scented leaves. No doubt it is the Mock Orange (Philadelphus coronarius), commonly called Syringa. Probably at this season, when the leaves are hard and old, it would be less noticeable, but in the early summer, a leaf nibbled gives precisely the taste of Cucumber.—G. J.

—— "Z. Y. N." probably refers to the Philadelphus, commonly, though foolishly, called Syringa. The leaves, and especially the young shoots, of this if bruised, smell like Cucumbers, and the taste of them is almost identical.—Walter Butt.

Ugly flower names.—We hope new flower raisers will cease giving needlessly long and ugly names to pretty flowers. One pretty name is best; two words are the extreme that should be given. William Allen Richardson is of the sort of name florists should avoid. There is a host of pretty names in every language. The awkwardness of botanical language may be unavoidable, but there is no need for ugly names of varieties. Even when a flower is named after a person, it is generally easy to take a short part of the name, or a pet name.

Fruit Garden.

W. COLEMAN.

PLANTING.

It is early yet to commence planting, but not to push forward preparations for the removal of young trees, especially those of home growth, when the wood and buds become a little firmer. Planters who transfer trees direct from the trade nursery to their permanent quarters labour under many disadvantages unknown to others who keep a small establishment of their own, hence the importance of setting off a piece of ground, be it never so small, and keeping it well stocked with select varieties most in demand, from the home-struck Gooseberry up to the pyramidal Pear. Walls are not needed for these, but where they exist, and a few feet of space can be spared, Peaches and Apricots bought in as maidens not only can be trained to one's own liking, but, being upon the spot, they are in no way damaged or checked by removal so soon as the buds are well formed. Such trees may be removed at any time, the sooner the better, after those they are intended to replace have been cleared of their crop and the fresh compost is in good working condition. In making preparations for choice wall trees, concreting and a thick layer of rubble drainage may, or may not, be an absolute necessity, but one thing is quite certain: the free passage of water from the surface downward must be secured. On light gravel or chalk, concrete and drainage may represent unnecessary expense. Upon stiff, cold clays, or lighter soils subject to flooding from below at certain periods, concrete is necessary. But whether the subsoil be light or heavy a thick layer of rubble over the concrete must never be omitted. Another important point is the selection of suitable soils or compost, of which it is better to use too little than too much, as each tree requires root-lifting by the end of the second year, not only to check luxuriant growth, but also to spread and train the roots in a horizontal position a few inches below the surface. Trees planted in this way will grow and fruit for years, and yet they will send hardly a single root down into the drainage or subsoil, that is provided they are well mulched and attended with water, and a semi-circular band of new compost is given to the extending feeders as they require it. Deep borders upon light, hot, or dry subsoils are just admissible, but on heavy clays or in cold wet situations they are death-traps of an expensive type, and as such should be avoided. Two feet 6 inches in the hottest and driest garden is ample depth for any wall fruit tree, and every inch over 2 feet in low-lying localities represents time, money, and compost thrown away. When preparing for choice pyramids, bushes, or standards in old gardens full of humus, shallow stations answer best, and the better to prevent surface roots from striking downwards, a few barrowloads of broken stone, clinkers, or gravel faced with fine and firmly rammed lime rubble, may be placed beneath each tree. After management will then consist in throwing out circular trenches a spade wide, putting in fresh, healthy loam, not too rich, and training the points of the slightly shortened roots in the way they should go. When breaking up new ground for ordinary fruit trees, the first condition is thorough drainage—if natural, so much the better—then deep tilth by trenching, care being taken that the top spit, which may be very good, is kept on the surface. If the subsoil is really good the two may be thoroughly mixed and blended together, but otherwise it is best kept down where it can be corrected with burnt earth, chalk, lime-rubble, or the like as trenching is proceeded with. Manure upon hungry, poverty-stricken soils may be an absolute necessity, but when it is borne in mind that the majority of our failures are due to a gross growth of unripened wood, the question the tyro in these matters should ask is this: Am I right in burying rich manure, when its application as a mulch will feed and draw the roots to the influence of solar heat near the surface? Sun heat, of which we have had none too much of late, is the main factor in the production of large, bright, richly flavoured Apples and Pears; this we cannot command, but we can place the roots as easily as we can train the shoots, and until this is made a fundamental principle, the growth of first-class fruit, even in good seasons, will be handicapped by difficulties of our own making.

Planting, as I have just remarked, should be performed early, that is, provided the ground is dry rather than wet, and can be worked and made very firm about the roots without becoming adhesive. If wet and unkind, why then it is best to wait for a favourable opportunity, and here the great advantage of having a home nursery comes in, as trees within reach can be transferred to their permanent quarters when the elements are propitious. Newly-purchased trees, it is true, can be laid in by the heels, but how often does it happen that late orders are overtaken by snow and frost, when unpacking is impossible and planting is altogether out of the question. Under these adverse conditions the patient planter must defer opening his bundles until the weather breaks, as nothing can be more fatal than exposing the roots in frosty weather. By this time the golden opportunity may have been lost, the ground may be saturated with snow water, and laying in for spring planting is the only alternative. In this case leaf-mould and all decaying vegetable matter must be kept away from the roots, as the use of these tempting materials is apt to bring a world of trouble in the form of fungus. When caught by frost, we have unpacked the trees and laid them in a dry, open shed, keeping the tops loosely covered with straw; but dry, sound loam being at hand, they are quite as well, if not better, in the open air. The mode of planting hardy fruit trees is a matter which requires some consideration, more perhaps than is often given to this important matter. Digging a hole and bundling in the roots is disposing of the tree with a vengeance, but it is not planting; and deep planting, the rock upon which so many fail, is little better. Shallow planting, on the contrary, on all soils is best, as solar heat then reaches the roots, and under its influence the fruit, the wood, and the feeders themselves get properly ripened in ordinary seasons. On cold, heavy soils, after setting out the stations and driving neat stakes, the planting should be performed on the hillock principle—that is to say, the roots should be spread out carefully upon the surface, which cannot be made too firm by treading, and covered to the depth of 4 inches with new compost. In September and October a moderate watering to wash home the fibres may be necessary, but after the end of the latter month, the tree being so nearly dormant, water may be dispensed with. On light, warm soils shallow planting on the level saves watering in dry weather; but here even it is best to

keep the roots up and mulch freely for protection from frost in winter and drought throughout the summer.

TAKING STOCK OF FRUIT TREES.

There are few gardens, from those of the amateur who purchases his half dozen trees to the large grower who requires hundreds, in which some alterations and additions are not annually made to the stock of fruit trees. The present is a most convenient and suitable time to make a general survey of the various kinds of fruit trees, both inside and out, with a view to decide upon what shall be done when the time arrives to improve the stock. If any trees are in an unhealthy state, their condition can better be determined upon now that the colour of the foliage and texture of the growth can be examined than it is possible to do later in the season when the branches are bare of leaves, in which state they do not often exhibit such an unhealthy appearance; consequently another year's grace is given to them, which generally proves to be a season lost. It may be the tree is growing upon an unsuitable stock, in which case there is little hope of any improvement, and it is far better to grub it out and replace it with another. Root-pruning only may be required, and a note should be taken of such trees requiring this operation, and the work carried out as soon as it is safe to do so, October and the beginning of November being the time when such operations can be most successfully performed. The system which has so long been practised of planting a great variety of one kind of fruit instead of a limited number of good sorts, and those which are known to succeed in the locality, has resulted in our orchards and gardens being encumbered with a multitude of trees of inferior or worthless kinds, also many—although excellent varieties—through not being adapted to the district are not profitable to grow. Fruit growers are beginning to realise that it is much more to their advantage to have an orchard consisting of two or three kinds which can be depended upon for quantity and quality rather than a collection of trees, every one of which is different, and the half of them simply encumbrances to the ground.

Thanks to the efforts of The Garden, we are in a fair way of obtaining some very select lists of Apples and Pears, which many are looking forward to seeing continued in due course. These selections may not perhaps please everybody or suit all localities, but they cannot fail to prove very valuable to a great number of people who make fruit growing a hobby as well as to those who follow it as a means of livelihood; not to mention the host of gardeners who are called upon to place the choicest fruits upon their employer's table at all seasons of the year. The cultivator must, however, to a great extent be guided by his own experience in selecting the varieties which he plants in quantity, and it stands to reason that if he has a carefully compiled list of good varieties to start with, the difficulties of his task will be considerably lessened.

It often happens that some very superior variety we would particularly desire to have, either from the nature of the soil, position, or locality, refuses to grow kindly and bear fruit freely. Under these circumstances it is better to substitute another variety than to persist in fruitless efforts after a fair trial. The task of replacing trained trees is not now attended with the loss of time which had to be endured when the knife was used more freely than it is at the present day, and when great pains were taken to have every shoot in its proper place, or what was supposed to be its proper place. If healthy trees on suitable stocks are obtained and carefully planted, leaving the leading shoots unshortened, we have not long to wait for fruit. Where space is at command for growing and training a few trees in reserve this practice should always be adopted. Maiden trees which have been transplanted frequently can, when large enough, be transferred to their permanent positions with every prospect of bearing fruit the following year. The pleasure and satisfaction, too, of moving a tree with a good ball of earth and a mass of roots amply repay for the space it has occupied and the time spent in its preparation. Grafting is an excellent and ready means of replacing inferior with better varieties, and notes should be made of any sorts of which scions are desired, also of the trees from which they can be obtained; if this is done now mistakes in the nomenclature are not so liable to occur. It is necessary, too, if depending upon a friend for scions, to bespeak them early, otherwise when the pruning season commences, the sorts wanted may be cut off and destroyed.

These notes, if taken now, will enable the gardener to form an estimate of his wants, and give his orders for the trees in good time, or, better still, if it is possible to do so, pay an early visit to the nursery and select them himself.

Hindlip. A. Barker.

GRAPE GOLDEN QUEEN.

The opinions as to this Grape and the conditions under which it is frequently seen are very varied. These no doubt arise from various circumstances. Many Grapes as well as other fruits are influenced by soil, situation, treatment, the stocks they are worked on, &c. I have grown this handsome looking Grape for four years, and every season it improves.

Some five years ago I had here in our early vinery a Golden Hamburgh Vine twenty years old. It was not satisfactory, and as I wanted a kind that would come in later, I decided to graft it with some other white kind. I happened to go to Heckfield in September, and as I was going through the early vinery with Mr. Wildsmith I remarked what a fine coloured white Grape he had still hanging. He told me it was Golden Queen, and very kindly offered me some shoots, which at the end of the following January were grafted full length, placing the ends in bottles, working them on some shoots at the bottom of the Vines, as we did not want to cut the cane away and lose a year's crop. The graft grew away well the first season and made a good cane, which the next season was allowed to carry three bunches. The following autumn the old Vine was entirely destroyed, as the Golden Queen had reached the top of the house. I find Golden Queen sets well, bears freely, and produces bunches of a large size. The first season the berries did not colour well and did not bear out the name of golden, but ever since they have become of a rich golden colour. From failing to colour it the first year and knowing it to attain such a grand colour at Heckfield I was not satisfied, and I determined to give the bunches more light just as they commenced colouring. This I did by tying the leaves back from over the bunches. The effect was most marked, as the berries soon attained a rich golden colour. I observe that the berries of this Grape, if exposed to the sun after they have attained the full colour, change to a dirty brown shade. This is easily obviated by putting a piece of paper over the bunch. Two bunches that have been treated in this way have been hanging for four or five weeks, and are now as fresh as ever. It does well here in a house with Black Hamburghs. As to flavour, opinions differ. I think it has a nice fresh flavour, not equal to that of a Muscat, but quite equal to that of many of the large-berried kinds. It is of fine appearance, and looks grand on the dish or on the exhibition table. The large, long berries when well coloured are most handsome. Several gardeners recently mistook it for a Muscat when hanging on the Vine. Those who want a large, handsome-looking white Grape that will succeed with Hamburghs should try Golden Queen. It is growing with Madresfield Court on one side of it, the Vine on the other side being Mrs. Pince, both of which succeed well here with Hamburgh treatment. From the experience of various gardeners who have seen it, I presume the good results I have here with it are due in a large degree to its being worked on a good hardy stock, namely, Golden Hamburgh. Golden Queen commands a good price in the market, and will hang several weeks in good condition. To people who grow for market, these handsome Grapes are the kinds to grow, as they will realise a high price. Recently I sold two sorts of black Grapes; the one realised 4s. per lb., and the other 1s. per lb. For my own eating, I would rather have given 4s. for the small one than the large one. The small one was purple Constantine, a Grape seldom met with now. J. C. F.

GRAPE MADRESFIELD COURT.

This fine Grape is not understood nearly so well as its merits deserve. It is the finest Grape we have, beating even the old favourite Black Hamburgh. The size and shape of its bunches and the large berries, which sometimes carry a dense bloom, will often beat the Black Hamburgh in competition. Again, what variety can compare with it in flavour (if I except Muscat Hamburgh) when ripened thoroughly? Many people have discarded this variety owing to its tendency to crack. I have seen persons attempt to grow it in a mixed house and fail, and also fail in attempting to grow it by itself. I think the reason lies in not treating the summer growths in the manner best adapted to the requirements of this variety. If, as Mr. Barker says, the method of allowing a free lateral growth savours of fifty years ago, I fail to see why that mode should not be now practised if it has the desired effect, the prevention of splitting, which it undoubtedly has.

During the last ten years I have grown this variety upon the method I advocate—a free extension of laterals, without special watering and extra special ventilation—and I have not since then been troubled with splitting of the berries. I do not say that none have cracked, but I can say that at no time has a single bunch been seriously damaged by cracking. My operations have not been confined to one locality, but soils diverse in character have of necessity been employed. It has always been planted in a mixed house. Some Vines of this variety ripened the fruit in September, while others have ripened it in July. The bunches have frequently been placed first in a good competition with those of other varieties. At the present time this variety is finishing its bunches off well, and the colour promises to be good also. There is not a sign of a cracked berry on the Vine. In the same house are growing Black Hamburgh, Gros Colman, Barbarossa, Mrs. Pince, Trebbiano, and Lady Downe's. The only special attention the Madresfield Court gets is an extra run of lateral growth just before the berries show signs of colouring. I do not say that this is the only way in which the cracking of the berries is prevented, but I do say that my experience leads me to draw the conclusion that this will prevent cracking. Mr. Barker's theory is that cracking is caused by a check resulting from insufficiency of water at the roots or too low a temperature and cold draughts, which prevent an expansion of the skin of the berry, consequently it bursts. Now, does Mr. Barker say this is the cause of large berries cracking, for it is well known that large berries do crack as well as small ones? If he says yes, his theory is hardly upheld, because Grapes subjected to such treatment as insufficiency of water, low temperature, and cold draughts cannot possibly become large. I have known Vines kept short of water at the roots in the hope of preventing cracking, which it did with a good run of laterals, but it was at the cost of colour in the berries.

X.

HARDY FRUITS.

The soft summer fruits having passed away, our most anxious attention must now be turned to Apples, Pears, late Plums, and Peaches. That Apples will ripen there exists not a shadow of doubt, but they will be small, wanting in colour, and deficient in flavour, three points which will tell sadly against the grower when our produce, by no means plentiful, is brought into competition with the fine showy examples from the colonies. For a long time we hoped against hope, but the summer has gone, and the thermometer on this 1st September tells us what we may expect shortly by marking 35° at 6 o'clock in the morning. We cannot command warmth and sun, but we may do more than we have done in ordinary seasons, at least in gardens where every shoot is within reach. We may anticipate

winter pruning by pinching and thinning out the shoots made in summer, and in many instances we may tie and regulate the branches to let in daylight. Keeping varieties still have some weeks to hang, and a bright month, now the kernels are complete, will do wonders. But come what may, fruit must be small, its only redeeming point being a bright clear skin, free from spot or fungus. This late summer or early autumn pinching, I may venture to say, will tell in two ways, for not only will it aid the advancing crop, but it will hasten the plumping of the buds for another year; whilst the slight check which follows the loss of foliage will produce a wholesome check upon roots working down to a subsoil some degrees warmer than the surface.

Pears

of the better class, viz., those which should keep fresh and plump and come out in full flavour through December and January, may not be quite so accommodating as Apples, but these also will well repay careful attention to the removal of every bit of soft, sappy growth, to the turning aside of thick masses of leaves, and the removal of a portion of the heavy mulching where an attempt has been made to make up for last year's short supply of this important material. "A stitch in time" is a good old adage, and never, perhaps, was it more needed than at the present moment. Early sorts, as a matter of course, will ripen in some form about their usual time; but these, if I may judge by Jargonelles, will part freely without putting on their coat of gold, a sure sign that flavour is deficient.

Peaches

on open walls at present are quite hard, and with us the earliest only as yet show signs of changing colour. In another place I drew attention to the importance of laying in thinly all necessary shoots, of pinching the points out of others which will be taken away when the crop is gathered, of feeding with warm liquid in preference to the retention of heavy coatings of manure, which keeps the roots cold; and last, but not least, of timely root-lifting where the crops are failing. In cold, wet seasons I have placed a number of spare glass lights in front of late Peaches, but with varying success, as draughts on cold days and shade when the sun shines greatly reduce the mean temperature. The fruit, moreover, under these rough and ready coverings lacks colour and flavour as compared with fully exposed wall Peaches. When, however, the crop is gathered and the roots persist in forcing leaf and wood growth, a most wholesome check may be produced by throwing out a semi-circular trench from 4 feet to 8 feet away from the boles of the trees, more or less according to their size, and leaving it open until the leaves fall. With these remarks upon the ripening of roots, shoots, and fruits, I will leave the amateur to shape his course according to his means, and proceed to operations which must be performed in good as well as in adverse seasons. Taking my notes seriatim, the first fruit upon my list is the

Strawberry,

whose vagaries more frequently than its produce has been in everyone's mouth throughout the past season. The great work in this department has been the chopping and breaking up of old beds, as few, I think, will trust them again after the second or third year from planting. It is an ill wind that blows nobody any good, and one thing the wet summer has placed within our reach is a plentiful supply of strong runners. If advantage has been taken of this weather, broad plantations made in August will now be growing freely with every prospect of the plants producing good crops next season. A very good grower has said strong plants may be put out at any time provided the soil works well, and so they may, but August is the month, as they get thoroughly established and are safe from frost-lifting through the winter. Plants in 4-inch pots may still be put out, but weak ones will be just as forward twelve months hence if placed in nursery beds and transferred to their permanent quarters next April. Where ground is plentiful and in perfect tilth, good work may be made and time saved by planting in September, but otherwise I should prefer giving it a winter fallow, manuring and trenching in dry, frosty weather. If old beds which have done well or cannot be spared have not been cleared of runners and top-dressed, the owner can hardly claim credit for having done his best, as this work should have been brought to a close by the end of August. When cleared of the runners and weeds by hoeing in preference to shallow forking, the beds should be well surfaced with fresh compost, than which there is nothing better than a mixture of strong loam, charred earth, and lime rubble, or, lacking this, old compost from Vine and Peach borders, and discarded Melon soil may be used with excellent effect. Many growers use rich rotten manure, but I give preference to rich soil certainly for packing round the old stools from which young roots are now pushing freely. When the roots have taken possession of this, the best of all materials for keeping them fresh and healthy through the winter, the mulch of strong manure will do good service early in the spring.

Raspberries,

like the preceding, cannot be neglected with impunity, especially where the young canes are gross and numerous and the district is unfavourable to perfect maturity. Having cut out all the old canes and thinned the weak ones of the current year, those left full length should be loosely, but securely girdled to the stakes or trellises, not only to maintain a neat and tidy appearance, but also to prevent the twisting and battering of the canes and foliage by wind and rain in the autumn. If new plantations are contemplated, superfluous growths, as a matter of course, must not be cut out, as they may be wanted. Autumn is the best time to plant, the preparation of the ground by trenching and manuring and the addition of fresh, light soil, burnt earth, and the like being precisely the same as for Strawberries. The staple, however, should be much lighter, and the better to secure this we frequently work in a large bulk of old Mushroom manure and very rotten leaf-mould. Planting too often is allowed to stand over until after the established plantations are dressed in the winter, but the best plan is to prepare the ground in September and transfer the young canes before the leaves fall. They then make new roots at once, and not unfrequently bear a little fruit the following year; whereas spring planting means cutting down to the ground line for a growth which is neither so regular nor so strong the first season. Like the Strawberry, the Raspberry anchors rather deeply into well-prepared soil, and these perennial roots support the stools in the driest seasons, but the most valuable supporters of the crop of fruit are always found upon the surface; hence the importance of light, rich top-dressings, not only for feeding, but also for their protection from frost in winter and drought in summer.

Gathering Fruit

of various kinds will now demand daily attention. The harvesting of early Apples in many gardens will not be heavy, but the lighter the crop the more important the work, as each fruit must be taken at the right moment, *i.e.*, when it parts freely at the stalk on being turned gently upward with the hand. Pears in like manner must be well looked after, as some varieties I find are still quite green, yet they part freely when turned as I have suggested. Early Apples and Pears are not improved by hanging until they are dead ripe, neither will they keep for many hours after being stored; hence the wisdom of commencing early and taking the most forward from day to day as they are likely to be required for use.

Apricots

are later than I have known them for a great number of years; they are also flat and deficient in flavour. In good seasons when they are really delicious, the gluttonous wasp is down upon the fruit, but this year he is absent, and the only enemy, the earwig, driven, I suppose, by hunger, is trying to force its way into the ripest parts of the most promising Moorparks. Apricots, I believe, in Scotland are sometimes quite as late as mid-season Peaches, and this condition, thanks to a sunless summer, just now is our case in the west midlands. Fine fruit of Moorpark and the Peach Apricot, two of the best for dessert, should hang until fairly ripe, but ordinary samples may be detached when rather hard near the stalk and placed on shelves in dry, airy vineries to soften for preserving.

Morello Cherries,

a most abundant crop this season, are fine and well coloured, but now require hard, dry weather to check the tendency to decay. In years gone by I always pegged or nailed in the summer shoots, but now leave them alone, and find the fruit keeps fresh and plump longest where the canopy of foliage is most abundant. Morellos from this time forward will be found invaluable for ringing changes with Plums and Apples for pastry purposes, especially where the latter are not over plentiful. Birds and squirrels, however, have a great liking for them, and the latter soon make a considerable clearance, but they do not care to place themselves behind really good nets with meshes too small for egress in time of danger. To circumvent these graceful enemies and at the same time to ward off heavy rain, we place broad coping boards over a few of the best trees, set others edgewise upon the ground a foot or more from the wall and strain sound pilchard netting in front of them. In order to secure a lasting supply the nets should be raised occasionally on fine days, not only to let in a free current of fresh dry air, but also to favour the removal of all damaged and mouldy drupes, as one faulty fruit soon infects others by which it is surrounded.

Figs,

so promising early in the spring, have had a bad time, especially on cold, heavy soils and in low, damp situations. Cold, drenching rains upon our soil has forced a strong, sappy growth of wood, and the fruit seems more inclined to rot than to ripen. That a severe winter will tell adversely upon such soft immature wood, there exists not a shadow of a doubt, but here, as with Peaches, something surely may be done to arrest growth before autumn frosts nip the foliage. A good crop of promising fruit may justify inaction, but lacking anything short of half a crop the preservation of the trees should have the most careful consideration. The timely removal of heavy mulching should form the first step, then a trench may be thrown out round each tree quite down to the drainage, and the better to preserve the tips of the roots the ball thus formed may be lightly covered with dry Fern or long stable litter. The shoots, as a matter of course, must be kept thinly and closely nailed in to the walls, and glass copings, now lying idle, will do quite as good service over extra fine trees as they did early in the spring over flowering Peaches. If these precautions do not save trees in unfavourable situations, the sooner Fig culture in the open air is given up the better, especially by those who have forcing houses, cold houses, or glass sheds to depend upon, and battling with the elements is little better than a fruitless hobby.

Soil and Composts.

Preparations for another season should now be made by getting in a good supply of loam and turf whenever the weather is favourable. Turf, owing to the incessant rain, is not in good condition for stacking in large solid masses, but it may be cut, and when the sods have lain exposed for a time they may be carted and piled up in narrow ridges. September and October are the best months for cutting turf, as the roots of the different Grasses at this time are ripe and last longer than when cut in the spring. All gardeners know full well the value of good fibry turf, and the favoured few are allowed to forward their employers' interests by taking a sufficient quantity of the best of each kind for their use; but, alas, in too many places a hint at a dig into an out-of-the-way corner of a good old sheep pasture, although for their master's benefit, is looked upon as sacrilege. The upper crust, that is, the sward, is best, but good, sound pastures contain a substratum which is not bad, and the most fastidious stander-in-his-own-light would hardly refuse a thin layer of this if the gardener approached the

subject in a shrewd and proper spirit. Given a good field rich in rolling mounds and hillocks, I would suggest an improvement in contour by lifting the turf, very thin, be it understood, casting away the inner crust, and relaying the turf in a way that a head steward should be none the wiser. Going a step further, an out-of-the-way piece might be stripped of the top spit, Grass included, made good with rich garden soil, load for load, and thickly seeded. Men cannot make bricks without straw; gardeners cannot grow good fruits and plants without good soil, and this they should be allowed to have. Turf, however, is not the only commodity which the gardener covets and must have, but this forms the staple of all his composts. Loams alone may be classed as light, soft, heavy, sandy, clayey, and calcareous. Each of these may be one plant's food and another plant's poison, but all of them can be made to do their work by blending and correcting with sand, charcoal, bones, burnt earth, lime rubble, leaf-mould, manure, peat, and a host of other materials too numerous to mention. These in large or small quantities should always be at hand, soils in the open air and thatched or otherwise protected from snow and rain. Correctives under cover, and in some cases protected from the exhausting influence of the atmosphere.

W. C.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Sambucus (Elder).—The common Elder (S. nigra) is not generally looked upon as an ornamental tree, though the cut-leaved and golden and variegated varieties of it are. That the Elder is really a beautiful tree when old and well developed is admitted by all. We do not recommend planting young common Elders for ornament, but it sometimes happens that in forming new gardens fine old Elders are among the natural growth of the place, and when such is the case a few should be carefully preserved, and cultivated by pruning and other means into handsome specimens, always remembering that the Elder likes rich, moist soil and an open, airy situation, these conditions being generally found where the Elder grows wild. A large Elder tree with branches sweeping the turf is no mean object on a lawn at midsummer when covered with its flower clusters, or again in autumn when in berry. The golden variety (foliis aureis) is becoming very common—far too common, in fact—for, like all very conspicuous objects in garden landscape, it requires to be employed with caution, otherwise a spotty effect will be produced. The same remark applies, but in a lesser degree, to the variegated golden and silver-leaved Elders. The Parsley-leaved or Cut-leaved Elder (laciniata) is a most elegant shrub, and should be preferred to the common, as it is ornamental in a small state. As it grows, it should be allowed to form itself into a round symmetrical bush or small tree. A highly ornamental shrub is the Scarlet-berried Elder (S. racemosa), which is like the common kind in growth and foliage, but instead of black berries it has dense clusters of brilliant scarlet fruits. Unfortunately, this beautiful shrub is capricious in English shrubberies, as it is seldom seen in perfection of berry. Its natural home is in alpine valleys, where in August and September it rivals the Mountain Ash in splendour of fruit colour. In hill districts it may be grown and fruited successfully, but it must always have a cool and moist spot selected for it. The cut-leaved variety of it, named serratifolia, is an extremely elegant shrub, the pinnate leaves being cut deeply.

The Californian Elder (S. californica) was brought into notice a few years ago by M. Carrière. It is said to be very ornamental, elegant in growth, and produces its flower crop from early summer till autumn.

Schizandra.—Of this genus of climbing shrubs two are hardy enough for open-air culture, and may be employed in clothing walls, arbours, and the like. These are S. chinensis, a native of Northern China, and S. coccinea, an old introduction from North America. Both have tall, slender, twining stems, large leaves, and inconspicuous flowers, succeeded, in the case of S. chinensis, by small scarlet berries. Neither kind is important, and both are difficult to obtain.

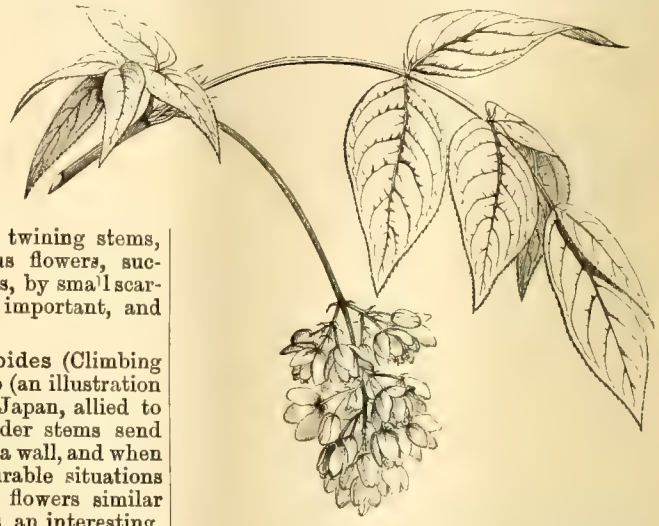
Schizophragma hydrangeoides (Climbing Hydrangea).—A climbing shrub (an illustration of which is here given) from Japan, allied to the Hydrangea. Its tall, slender stems send out roots which fix the plant to a wall, and when fully grown it produces in favourable situations flat clusters of white or pinkish flowers similar to those of Hydrangea. It is an interesting, but not important shrub, and has not yet come into general cultivation.



Coral Berry or Indian Currant (Symphoricarpus vulgaris).

Solanum crispum (Potato Tree).—This, the only ornamental species in the genus hardy enough for the open air, is a beautiful small tree, that in the southern and coast districts may be grown entirely without protection, but in other parts needs the shelter of a wall. Fully grown, it reaches from 12 feet to 16 feet in height, forms a dense spreading head of foliage, and in late summer produces, in large clusters, an abundance of flowers of a rich purple-blue colour. In the most favoured spots its flowers are succeeded by small whitish berries. When grown against a wall it is advisable to prune it vigorously every autumn, otherwise it is injured by frosts, but when it thrives as a standard, pruning is unnecessary. It is a native of Chili, having been introduced many years ago, and is easily procurable in nurseries.

Sophora japonica (Pagoda Tree).—One of the finest of ornamental flowering trees, being elegant in foliage, and in September when covered with clusters of white bloom it is highly attractive. It is one of the largest sized trees, having when old a wide spreading head with huge limbs. The long pinnate leaves are of a deep green colour, which they retain until they fall in autumn. It has such a different style of



Flowers of St. Anthony's Nut Tree (Staphylea pinnata)

growth from that of most other trees that it is indispensable in large and small gardens, and where space is limited it may be kept within bounds by hard pruning. There are several varieties of it, one with a drooping growth, one of the best of all pendulous trees, and there is also a variegated-leaved kind, which, however,



Stuartia virginica.

is not satisfactory, as its variegation is seldom very conspicuous.

Spartium junceum (Rush, or Spanish Broom).—A valuable flowering shrub, as it always blooms in July, August, and September, when shrubberies are for the most part flowerless. It is a thin-growing shrub, reaching

8 feet or 10 feet high, with Rush-like shoots that bear so few leaves as to appear leafless. The flowers (see illustration, p. 284) are large, Pea-blossom shaped, and produced in erect clusters. They are of a brilliant clear yellow and very fragrant. It is a useful shrub for planting in dry, poor soils, where, like the common Broom, it does well. As it grows rapidly, small plants, which can be obtained at a cheap rate in nurseries, may be used. A native of South Europe and perfectly hardy.

Staphylea (Bladder Nut).—There are three species in cultivation, viz., S. trifolia, S. colchica and S. pinnata (illustrations of two of which are here given), but only the Colchic species is important as a fine-flowering shrub. S. pinnata is a common native shrub of straggling growth and has pinnate, Elder-like leaves,



Colchic Bladder Nut (Staphylea colchica).

and in autumn is conspicuous by its bladder-like capsules, but it is not good enough for a select shrubbery, neither is S. trifolia from North America, which may be distinguished from the last by its trifoliate leaves. S. colchica with pinnate leaves is a beautiful shrub, and attains a height of 6 feet, producing abundantly in early summer large terminal clusters of snow-white flowers. Coming from the Caucasus, it is perfectly hardy, and grows well in any good soil and seems to prefer partial shade. It is now commonly forced into flower in early spring for the greenhouse. It is worthy of a select spot in a shrubbery where it should never suffer from overcrowding.

Stauntonia hexaphylla. — A handsome evergreen twining shrub from China, hardy enough for open-air wall culture in the south and warmer parts of these islands. It has long trailing shoots and handsome deep green, pinnate foliage. Its flowers are small, whitish, and fragrant, and produced in early summer. It must have a sheltered sunny wall, and during severe frosts be protected in some simple way.

Stuartia.—A small genus of exceedingly beautiful deciduous shrubs allied to the Camellia, and among the rarest and choicest of all hardy flowering shrubs. Three species are now in English gardens, these being S. virginica (see cut) and S. pentagyna, both natives of North America, and introduced during the last century, while the Japanese species, S. pseudo Camellia, is of recent introduction. The commonest and best known species is S. virginica, of which there may be found fine specimens in several old English gardens. When fully grown it is a handsomely shaped bush of rounded and spreading growth, and reaching from 6 feet to 10 feet high. In early summer, usually about May, it produces its lovely blossoms, which are about 3 inches across, and in shape like those of a single Rose. The petals are of a soft creamy white and surround a tuft of deep crimson-red stamens—a charming contrast to the pale green foliage. S. pentagyna, also labelled in some gardens Malachodendron ovatum, is a rather larger and taller growing shrub, but its flowers are very similar, being white, with the tuft of stamens longer and with five distinct styles; hence the specific name. Its native habitat is said to be farther northwards than that of virginica, which is found wild in the moist, shady woods of Virginia and adjoining States. S. pentagyna is therefore considered the hardiest, but in the neighbourhood of London and in gardens in Sussex and other coast counties both are perfectly hardy. The finest specimens we have seen are growing in a rather moist, light soil in situations well exposed to the sun, but sheltered from the north and east by tree and shrub growth. Both these Stuartias are of slow growth. The new species, S. pseudo-Camellia, has been exhibited in flower this year for the first time. It resembles in growth, foliage, and habit the other two, but its flowers are different, being larger, whiter, and have the stamens yellow instead of red. So far as can be judged at present, it is as hardy as the others, as it has withstood full exposure for the past few years in the Coombe Wood Nursery in Surrey. These Stuartias are so beautiful when in bloom that they deserve the attention of all who love hardy flowering shrubs, and though they are said to be capricious in their requirements, there must be numerous gardens where the exact conditions suited to them could be found.



The climbing Hydrangea (Schizophragma hydrangeoides).

Styrax (Storax).—The Japanese species of this small genus of deciduous shrubs are pretty when in flower, and though as yet rare in gardens, are likely to become generally cultivated. S. serrulata (also called S. japonica) is the best, and is a very beautiful shrub. It has not been long enough in cultivation to show to what size it will grow in this country, but in Japan it is said to be a tall tree. Here it is known only as a dense-growing shrub of neat habit. Its flowers, about three-quarters of an inch across, in shape like a shallow bell and pure white, with a tuft of yellow stamens, are profusely borne singly on thin stalks on the under

sides of the flattish branches, and, in combination with the foliage, have a pretty appearance about midsummer. S. virgata, a variety of S. serrulata, is also in cultivation. Both grow freely in the open border in good soil and a light position, and seem to be thoroughly suitable for the southern parts of England and warm districts. The North American species, S. americana and S. pulverulenta, are not so desirable, as they do not flower so freely, and are also more rare. They have white flowers, of a similar size and shape to those of the Japanese species, and make small-sized shrubs, but are fitted only for botanical collections. The Japanese S. serrulata is now becoming common in some of the best tree nurseries, and is readily obtainable. S. officinalis, which yields the Storax of commerce, is grown in botanical gardens, but is not so ornamental as the Japanese species.

Symphoricarpus (Snowberry, or St. Peter's Wort).—The common Snowberry, S. racemosus, is a familiar shrub in most gardens, and when covered with a profuse crop of snow-white berries, about the size of large peas, has a pretty appearance in a shrubbery. It is not a select shrub, and we would exclude it from a choice collection. The other species, S. vulgaris, the Coral Berry, or Indian Currant, with small purplish berries in clusters, and the Wolf Berry (S. occidentalis) are of similar merit. Their flowers are not showy, their growth is not neat, and they are apt to smother choicer things. Their chief value is for undergrowth in woods, or ornamental covert (as birds eat the berries) in pleasure grounds, and all are well able to take care of themselves under almost any circumstances Of S. vulgaris, there is a pretty variety, with the foliage variegated with green and yellow. It is now common, and being so hardy and vigorous, is one of the best of variegated shrubs.

Symplocos (Sweet Leaf).—As the species of this genus (allied to Styrax) are of doubtful hardiness and all very uncommon, they can only be recommended for botanical collections. The species in cultivation include S. japonica, from Japan, S. cratægoides, and S. tinctoria, from the Southern United States. S. tinctoria has small, fragrant, yellow flowers in clusters, and grows a few feet high, but, like the others, requires protection to succeed well.

Ivy on buildings.—There is no greater fallacy existing in respect to the Ivy than that it is destructive to buildings, of whatever material these may be composed. It is popularly considered just as injurious to the ruined tower or abbey as to the wooden cottage or villa, though it is as harmless, and more so than the Virginian Creeper which is allowed to ramble unmolested into every nook and corner. The greatest use of the Ivy is for the purpose of adornment. What beauty is there in a tower or ruin without its mantling of Ivy, that keeps the stonework from crumbling, and gives a delightful picturesqueness, such as every other creeper fails to do? These few remarks are prompted by what I saw recently at Rievaulx Abbey, a famous monastic pile in Yorkshire, and one, perhaps, of the most beautiful of the ruined abbeys in that county. In the course of repairs it was thought fit to remove the Ivy that mantled over the crumbling walls at the east end of the magnificent ruins, and it was therefore shorn of much of its beauty. It was done no doubt by a person who was not sufficiently versed in the Ivy to recognise its preserving qualities. It should certainly be kept from hiding delicate tracery, windows, or doors of architectural interest, but to tear it from a bare wall is needless interference with a climber that shields from rain, snow and storm. But there are certain things on ruins that should be removed, and those are the mural trees that we occasionally find flourishing at the summit of some ancient pile. Trees serve no useful purpose; they neither protect nor preserve; but send their roots into the mortar, in this way loosening the bricks or stones. These may and should certainly be cut out root and branch, but leave the Ivy untouched, as molesting it often means spoiling a picture of exceeding beauty and interest.—E. C.

HEDGES OF FLOWERING PLANTS.

Hedges formed with Evergreens are commonly met with, but evergreen and deciduous flowering shrubs are not much used for the purpose. I do not say that they are always admissible where non-flowering plants are used, but I think that flowering shrubs should have the preference when divisional lines are required in the pleasure grounds or to divide the vegetable ground from the rest of the garden. We might make good use of many of the quick-growing, deciduous-flowering shrubs and Roses in such positions. The suitability of the common and hardy kinds of Roses to form a hedge is well illustrated in a garden near here, where there is a hedge nearly 200 yards long formed with many sorts of Roses, including several varieties of the Scotch Brier, York and Lancaster, Maiden's Blush, the old pink Moss, the Cabbage, and various other kinds. If left undisturbed for a few years these Roses will send up a lot of suckers, by which it is easy to increase their numbers. This hedge in the season produces more Roses than can be found in any other garden for many miles around.

With regard to deciduous flowering shrubs, one has only to see the crimson-flowering Currant (Ribes atrosanguineum) and Forsythia Fortunei growing and flowering side by side in the spring to be convinced how effective these plants would be, grown as a hedge either together or separately. In sheltered situations Leycesteria formosa would make a beautiful hedge, and Hydrangea paniculata grown in this way and lightly pruned would have a pretty effect. The pink and white Weigelas and the Mock Orange (Philadelphus), if not pruned too hard, will make grand lines in many places where only ordinary Evergreens are now to be seen. Amongst evergreen flowering shrubs, none is more beautiful for this purpose than Kalmia latifolia if allowed to grow its own way. Berberis Darwini is another beautiful plant for a hedge where there is space. Such hedges are not desirable in all directions about the garden, but there are plenty of places where one or more of them might be used with advantage.

J. C. C.

Judas Tree fruiting.—At page 240 of The Garden, Sept 8, "W. O., Fota, Cork," notes in answer to some correspondent, asking whether Cercis siliquastrum ripens seeds in this country, that it does so in Cork, but as the Irish climate is not exactly a guide for our English one, it may interest the querist to know that I have occasionally seen it ripen seeds at Tew Park, Oxon, which is by no means a mild place, but situated on high table land. It grows on a lawn, not against a wall, nor in a particularly sheltered spot. One year I specially remember being struck with this Judas Tree in autumn, as it presented almost the appearance of a tree in flower. The seed-pods were numerous, and when the sun shone through them, they had a beautiful reddish purple appearance.—H. R.

Rhododendron brachycarpum.—This handsome and exceedingly hardy species of Rhododendron, a native of Japan, is a tall, wide-branching shrub, which, in its native country, sometimes attains the height of 10 feet. It has the habit and general appearance of the North American R. catawbiense. The flowers are pale yellow or cream colour, the upper lobes of the corolla handsomely spotted with green on their inner surface. It is widely distributed in the mountain regions of Northern and Central Japan, covering vast tracts on Mount Fusiyama above the limits of tree-growth, just as R. catawbiense covers the upper treeless slopes of Roan Mountain in North Carolina. Its foliage is not burned or injured during the most severe winters, and its flower buds never suffer. These facts suggest the possibility of creating a new race of garden Rhododendrons with light-coloured flowers and hardier foliage than any we now possess, by mingling the blood of this Japanese species with that of some of the catawbiense varieties.—*Garden and Forest.*

Hydrangea paniculata.—This is just now an object of great beauty in the gardens of the Royal Horticultural Society at Chiswick employed as an edging to beds of Evergreens. Mr. Barron is quite right when he says that in order to flower this plant finely—such, for instance, as at Chiswick—it should be planted in rich soil, and ought to be cut down close to the ground every year. A starved Hydrangea paniculata is a pitiable sight, and plants that are not cut down produce poor trusses of bloom. It does best in a fairly light soil and in a sunny situation. It is all the more necessary to have an open porous soil if it be planted on a north aspect. I have found it impatient of a wet and soddened one. It seems to be a plant loving sunshine, and that is why I would recommend planting it in a sunny position. It also makes an excellent plant for cultivation in pots for conservatory decoration. —R. D.

Chrysanthemums.

E. Molyneux.

DEFORMED BUDS.

In some seasons deformed buds of Chrysanthemums are very numerous, and the cause of their formation is very perplexing to many growers. What is meant by deformed buds is, after having swollen to a large size instead of unfolding their florets in an even manner, they split in unequal parts and become forked and irregular in form. Another kind of deformity to which the varieties Golden Queen of England and Bronze Queen of England are most liable is as follows: As time goes on and the florets begin to unfold, it is seen that the flower has a confused centre, or more properly speaking, it has many centres. The florets, instead of all incurving in a central direction, unfold in different ways. Flowers which develop thus are quite useless, and no amount of dressing or arranging of the florets can make them presentable for any purpose as incurved blooms. The centre, about an inch in diameter, is quite hard and green and covered with scales over the florets. When this is removed the florets unfold some in a forked manner, some flat, and others pointing outwards instead of all incurving towards the centre. Next to this is a circle, perhaps a quarter of an inch broad; in this the florets point outwards. The remainder of the flower is divided into parts not at all uniform, either in size or growth. Such monstrosities as these are perplexing to the grower who has not previously had any experience with them. No doubt these deformed flowers are caused by a check to the growth at some stage in the development of the bud. The most frequent cause is the taking of the buds at too early a stage. Sometimes the flower-buds will be formed quite a month earlier than is required, and if these are allowed to remain they will produce blooms of the kind I have described.

The result of mismanaged operations in the final potting of the plants, such as not pressing the soil sufficiently hard into the pots, is that the growth becomes soft and sappy. Premature ripening of the wood is owing to the plants in a very hot and dry season not always receiving the necessary quantity of water at the roots, more particularly after the flower-buds are formed. Plants lacking these natural requirements must receive a check in some way. One more reason which causes the plants to develop such deformities is that of potting them in a too rich soil and during their growth feeding them too highly with strong stimulants, thus

causing the growths to be soft, and in consequence they cannot become thoroughly ripened. Some growers think the plants cannot be grown too strongly, but that is a mistake. Strong growth is required to perfect good blooms, but it must be built up gradually and firmly. These are the principal causes of deformed buds which are so disappointing to young cultivators.

TOP-DRESSING THE PLANTS.

Much benefit is derived by plants for whatever purpose they are cultivated by top-dressing them with any kind of material calculated to encourage the formation and increase of the roots on the surface of the soil. With Chrysanthemums, as with other subjects, surface roots form an important part in the success or failure of the plants. The aim should be to encourage as many surface roots as possible. Plants which have plenty of surface roots are in much better condition to receive stimulants than are plants which have few. Much of the success in procuring broad petals in both the incurved and Japanese sections depends upon the amount of surface roots the plants possess after the flower-buds are formed, as more stimulants can be given to assist the development of the florets. The colours of each variety are brought out more clearly by the course of treatment advised. This is a decided gain, as nothing deteriorates more from the appearance of any variety in any section than pale-coloured blooms. The best time to apply a top-dressing to the plants is directly after the buds are formed, which will be from the commencement of August and on through the month until the middle of September, varying according to the time each variety forms its flower-buds. To encourage root action, various kinds of materials, such as bone meal, dissolved bones, &c., find favour with growers. The many artificial manures advertised are all, no doubt, good if used according to the directions given with each. Turfy loam, which has previously been well soaked in liquid manure, leaf soil, decomposed and fresh cow manure, also horse manure, answer well.

A mixture to suit all classes of soil and localities may be prepared as follows: partly decayed fibry loam which has previously had the fine soil taken out, retaining only the rough fibry parts, thus rendering the whole more porous. The roots show a tendency to run among a mixture of this sort more readily than when the soil lies closely through being so fine. To the loam add the same quantity of partly decayed horse manure, passing this through a coarse sieve, which prepares it better for mixing with the loam. Soak the two named materials in liquid manure; when partly dry add one quarter of a part of bone meal, crushed bones, dissolved bones, or any artificial manure, mixing all thoroughly together. If sufficient room has not been left in the pot at potting time to allow of this top-dressing without interfering with the water space, a narrow wall, say 1 inch above the rim, must be built up around the side of the pot with the roughest parts of the compost. This will form sufficient space inside for the plant to have as much water as is required at any time without having to apply it a second time, as is sometimes the case, to ensure every part of the soil in the pot being thoroughly soaked. On the surface of the old soil lay a covering three-quarters of an inch, pressing it down firmly, by which means the roots will lay hold of the new material more quickly than when laid on loose. For a time it will be found that the soil in the pots does not dry so quickly after top-dressing as it does when no top-dressing is applied. To prevent the soil being washed off the roots when watering is being done a piece of tile or slate about 2 inches square should be laid on the surface.

In many places blackbirds and thrushes are very troublesome, as they scratch off the new soil directly it is applied. A good preventive is pieces of Thorn branches laid over the soil in the pots. E. M.

Perpetuation of sports.—The time is fast approaching when the appearance of sports of Chrysanthemums which promise to be an advancement upon older varieties will be hailed by delight by the lucky possessors of such. At the present time there is a general craving for novelties, Chrysanthemums not excepted; therefore any new kind is watched with eagerness. The question which suggests itself to those who have not had experience in the fixing of sports is, how is the freak in growth to be secured that the sported flower may go out as an independent new kind if it be worthy of notice. I will endeavour to make this part as clear to the uninitiated as possible. The present general system of growing Chrysanthemums for the production of large blooms is not favourable to increasing the number of new kinds by sports, as the side shoots are taken off the plants as they grow, and it is from these side shoots when they are allowed to grow and develop flowers that a number of sports appear. The best method of fixing the sport and obtaining a stock of plants of the sported variety is as follows: If one branch only produces the new bloom cut away all other branches. Turn the plant out of the pot and lay it on its side in a propagating house or frame which has bottom-heat, and cover the roots and branches with Cocoa-nut fibre, also burying the buds, but not the leaves. Secure the branch firmly so that it cannot move about, as this might injure root formation. Keep the whole moist by syringing the plant when necessary. This induces shoots to break at each joint, and when these are long enough take them off as cuttings with a sharp knife, but do not cut too low, as that might prevent other young growths springing from the base. Insert the cuttings singly in small pots, using sandy soil. Plunge in a propagating case with a gentle bottom-heat, shade from hot sun, and when rooted treat in the ordinary way. Such plants ought to produce flowers of the new variety. This is better than cutting the stem into lengths to strike. E. M.

The Fruit Crops.

SUPPLEMENTARY ENGLISH REPORTS.

Watermouth Castle, Ilfracombe, Devon.—The Apple and Pear crops are very light in this neighbourhood. Apple trees suffered very much from the maggot; many had scarcely a sound leaf on them. The sorts that did best here last year and are the best crop this year are Irish Peach, Devonshire Quarrenden, Cox's Orange Pippin, Ribston Pippin, Blenheim Orange, Wyken Pippin, Sturmer Pippin, Court Pendu Plat, Lord Suffield, Cellini, Hawthornden, Tom Putt and Dumelow's Seedling. Of Pears our best crops are Jargonelle, Williams' Bon Chrétien, Glou Morceau, Bergamot, Louise Bonne of Jersey, Marie Louise, Beurré d'Aremberg, Bergamotte d'Esperen, Catillac, Uvedale's St. Germain, and Beurré Superfin. Plums scarce. Cherries scarce, except Morellos, which are a fair crop. Apricots are a good crop and fine. Peaches and Nectarines very fair crop. The trees when in bloom were covered with tiffany, which was drawn up by day. Strawberries are a good crop and very fine. Raspberries good crop, also Currants, both Red and Black. Gooseberries are a light crop.

Potatoes are very good both in quality and quantity. Disease is bad in the neighbourhood, but we have not found any tubers affected as yet. —J. Sanders.

Lathom House, Ormskirk.—The fruit crops in this district are scarcely up to the average. The Strawberry crop is very poor, many plants, notably Sir Joseph Paxton, showing scarcely any flower and the continued rains quite ruined the crops. Currants are an excellent crop, both as to quantity and quality. Gooseberries also are a good crop. Morello Cherries are a heavy crop; other varieties fair. Damsons appear to be a good crop in this locality. Plums only moderate. Peaches on the open wall are plentiful, but rather small; they may improve with good weather. Pears are a fair average, some kinds being heavily laden, notably, Jargonelle, Williams' Bon Chrétien, Beurré d'Aremberg, Beurré d'Amanlis, Marie Louise, and Louise Bonne of Jersey. These kinds usually do well here. Apples are only a moderate crop, some kinds being heavily laden, while others have missed altogether. The best dessert Apples for this district are Early Margaret, Lady Derby, Almshouse Pippin, raised at Lathom; King of the Pippins, one of the best all-round Apples for this district, and a certain cropper; Irish Peach, Cox's Orange Pippin and Blenheim Orange. — James Hathaway.

Redleaf, Penshurst, Kent.—The Apple crop this year is a very small one, and a serious loss to the country. Those having many varieties will be best off this season. The sorts that generally are our mainstay are an entire failure, notably, Blenheim, Golden Noble, Waltham Abbey, and Wellington. The sorts that have a fair crop may be summed up shortly, viz, Cellini, Bramley's, White Calville, Kerry Pippin, Margil, Quoining, Sweet Lading, Worcester Pearmain, Lord Derby, Lane's Prince Albert, and The Queen, the last three on espaliers. The Queen appears to be a pretty good cropper, and is a handsome fruit, but not a good keeper. A single tree of Grenadier has a good crop, but the tree is small at present. With respect to flavour, it is easy to select a dozen good varieties, but some of the best flavoured kinds are small and unattractive in appearance. The first undoubtedly is Cox's Orange Pippin, but this sort does not do well here. On a lighter soil than we have it does better. Devonshire Red Quarrenden is first with us, and Kerry Pippin comes in next, and is a delicious little Apple. Gravenstein I think highly of; an old tree we have here generally gives us a good crop of finely flavoured fruit, but it has missed this year. Pitmaston Pine-apple, Ribston Pippin, Cox's Orange, Margil, and Barcelona Pearmain are also good. Sam Young and Golden Harvey are both small; the last will keep till March, and is most excellent for stewing. With Sturmer Pippin and Redleaf Russet I close the list. The last is a very fine flavoured Apple, but not a good bearer. Pears on walls are an average crop; the best are Jargonelle, Marie Louise, Williams' Bon Chrétien, Pitmaston Duchess, Doyenné du Comice, Brown Beurré, Beurré d'Amanlis, and Glou Morceau. On bush trees and standards there are very few indeed with the exception of Williams', Emile d'Heyst, Catillac, and Doyenné d'Eté, which is of little value. Peaches and Nectarines are below the average; Waterloo Peach I gathered out of doors on Aug. 4 and Alexander on Aug. 7, a week later than last year. These two are very promising early varieties. Of Plums on walls we have a few trees with pretty fair crops; the best are Jaune Hâtive, Rivers' Early Prolific, Jefferson's, Green Gage, and Blue Impératrice. Bush trees and standards are poor, Orleans the only one having a crop. Apricots are thin, but promise to be fine. Strawberries were a very fair crop with a few barren plants, but the fruit was very inferior in flavour, owing to the absence of sun while the heavy rains damaged them very much. Small fruits of all kinds are very plentiful, but greatly damaged by the wet. Wilson Junior Blackberry is now ready to gather. This fruit is steadily improving here. Nuts and Filberts are plentiful, while Walnuts are rather thin.—W. Holah.

Preston Hall, Aylesford.—The fruit crop for this year will not be a profitable one, although the early spring months promised abundantly by retarding the blossoms which escaped the spring frosts. The cold nights and the weak state of the trees consequent upon the small amount of rain in 1887 are the principal causes of failure. Should we continue to have bright sunny weather during the rest of the season, the trees will be in an excellent condition for carrying a good crop next season, as there is still time left for the wood and buds to be properly ripened. Around here there has been very little trouble with the caterpillar. The Apples that I find to be fruiting best this year are Lane's Prince Albert, Lord Suffield, Cox's Orange, Kerry Pippin, Sturmer Pippin, Pott's Seedling, Stirling Castle, Stone's, Tower of Glamis, Warner's King, Wellington, Duchess of Oldenburg, Blenheim Orange, Manks Codlin, Echlinville, Keswick Codlin, Old Hawthornden, and Peasgood's Nonsuch; King of the Pippins is not fruiting with me this season. Some of the best Pears this year are Baronne de

Mello, Beurré d'Amanlis, Beurré Giffard, Williams' Bon Chrétien, Comte de Lamy, Duchesse d'Angoulême, Napoleon, Josephine de Malines, Madame Treyve, Pitmaston Duchess, Vicar of Winkfield, Gratioli de Jersey, and Marie Louise. Plums are a light crop; the best are Victoria, Pond's Seedling, Czar, Rivers' Early, Gisborne, Kirke's Blue, Autumn Cômpote. The Farleigh Damson is fruiting well, especially on young vigorous trees. Strawberries were fairly plentiful, but the actual amount gathered was small, as the rain spoilt so many before they were ripe, and the flavour was poor through the absence of sun. Raspberries were plentiful and good in size, but they lacked flavour. Peaches and Nectarines are quite a full crop, and with plenty of sun will no doubt be good, as the trees are clean and vigorous. Some of the very late sorts, I am afraid, will hardly ripen, as the season is so late. Cherries set a good crop, but were spoilt by the wet. Morellos are looking well, although hardly so large on the north walls as usual. Apricots are a failure with me, but the trees are unusually healthy. Filberts and Cob Nuts are about half a crop; the wet and cold that we had in the early season destroyed the pollen. Gooseberries and Currants are very plentiful and good.

The Potato blight has made its appearance here, the haulm in some cases being quite black, and the tubers are badly diseased. Beauty of Hebron, White Elephant, and American Rose seem to be the worst affected.—A. Waterman.

Brickhill Manor, Bletchley, Bucks.—The year 1888 will long be remembered by all fruit growers as one of the coldest and most sunless seasons ever recorded. The persistent rain, day after day, and the absence of sunshine have retarded crops so much that they are unusually late and wanting in flavour. The Apple crop is certainly below the average round here. Early varieties, such as Keswick Codlin, Hawthornden, and Queen Caroline, are all carrying good crops. The latter is a good kitchen and dessert Apple, and I am surprised it is not more generally grown. Dessert trees are very thin of fruit this year, the best flavoured kinds being Ribston, Cox's Orange, Wyken, Golden and Kerry Pippins. Scarlet Pearmain is also a good flavoured Apple, and keeps well into March and April. It is likewise a very late-flowering variety, and frequently escapes late spring frosts when others have been much damaged. We have not been troubled with the caterpillar in this neighbourhood, and our trees are all healthy, full of foliage, and making good growth. All that is now wanting is sunshine to swell up the fruit and ripen the bearing wood for another year. Pears are about half a crop, and very backward for the time of year. Plums are a failure. The bloom in each case was abundant, but owing to the cold, sunless spring and the feeble condition of the trees from the long-continued drought of last summer, they could not bear it; consequently the trees cast nearly all their fruit. Peaches and Apricots are more healthy, and the fruit is swelling better than usual on our sandy soil. Strawberries have been an uneven and disappointing crop. Some varieties, such as Vicomtesse H. de Thury and James Veitch, have yielded good crops. The old British Queen carried a full crop of bold, handsome fruit; whilst such varieties as Keen's Seedling, President, and Lucas have been partial failures; Oxonian was quite barren, owing to the inability of the plants to properly mature their crowns last year. Raspberries are abundant and good. Gooseberries and Currants are also plentiful in this neighbourhood. Cherries are a full crop and very clean. Cob Nuts, Filberts, and Walnuts are an average crop. Figs on walls are promising, but, like all other fruits, require sunshine.—G. Bloxham.

Holly Lodge, Highgate. — The fruit crop here and in this neighbourhood is very irregular; some trees have an average, others not any, although they are the same varieties, and growing within a short distance of each other. Taken on the whole, we have a fair average crop, but much of it is spoilt by wet and cold, especially Strawberries. Elton Pine has been our best kind this season. Wall fruit is fairly good, Morello Cherries especially so. Bush fruit a good crop, also Plums and Damsons. Pears have been almost at a standstill for the last fortnight. Of early Apples, such as Keswick Codlin, there are very few; rather more of Old Hawthornden, which for quality I consider one of our best early kitchen Apples. Beauty of Kent for the last twenty years has never failed to yield some, generally cropping heavily. Dessert Apples, as a rule, are not so good here as kitchen varieties. Jackson's Seedling, Irish Peach, Worcester Pearmain, King of Pippins, Mannington's Pearmain are sorts on which we mostly rely. We



The Rush or Spanish Broom (Spartium junceum). See p. 280.

sometimes use Dutch Mignonne, that being a sort that does fairly well and keeps a long time. We also grow a few trees of Sturmer Pippin for late use.—J. Willard.

The Gardens, Fulmer.—This season Gooseberries and Currants are good and full crops. Black and Red Currants are fine and clean. Strawberries were a very poor crop, and the quality poor. Raspberries are an excellent crop, but flavour deficient. Cherries below the average, quality very poor, the fruit cracking before it was ripe. Apples about here are poor; a few gardens have average crops; the fruit is very much deformed. The best here for dessert are Red Juneating, Irish Peach, Early Strawberry, Devonshire Quarrenden, Cox's Orange Pippin, King of the Pippins; Ribston Pippin is short-lived, being soon killed by canker. Scarlet Nonpareil and White Nonpareil do well. Peasgood's Nonsuch, I believe, will be a favourite if the tree is of good constitution, the quality is good and the fruit fine. Blenheim Orange is fairly good. The kitchen sorts that do best are Lord Suffield, Emperor Alexander, Lord Derby, Warner's King, Cox's Pomona, Yorkshire Greening, Northern Greening, Dumelow's Seedling. The Pear crop is below the average, and the quality is not first-class. The best flavoured sorts are Doyenné d'Eté, the best early, Williams' Bon Chrétien, Marie Louise, Glou Morceau, Louise Bonne of Jersey, Beurré Diel, and Winter Nelis, which is a good bearer. Plums are not half a crop this year. The sorts that do best here are Early Orleans, Victoria, Pond's Seedling, Jefferson's, Kirke's, Old Green Gage, Coe's Golden Drop, and Black Diamond, which is a good kitchen Plum. Peaches and Nectarines are thin outside. In the Peach houses the crops are very good. The best are: Waterloo, Early York, Gros Mignonne, Royal George. The best for houses are Hale's Early, Noblesse, Alexandra, Barrington, Walburton Admirable, Lord Palmerston, and Sea Eagle. The best Nectarines are Violette Hâtive, Elruge, Pitmaston Orange, Pine-apple, Lord Napier, and Victoria.—W. Mowbray.

Arundel Castle, Sussex.—Pears average. Apples under; the following are bearing best here: Irish Peach, Kerry Pippin, New and Old Hawthornden, Ribston Pippin, Keswick Codlin, and Lord Suffield. Peaches, Nectarines, Apricots, Plums, and Cherries under average, excepting Morellos, which are good. Strawberries good, but could not ripen for want of sun. Bush fruits of all kinds plentiful, particularly Black Currants. Filberts average. Walnuts over. Figs promised a heavy crop early in the season, but have dropped very much.

Potatoes yielding well, but disease spreading fast and the tubers are decaying rapidly. Carrots, Parsnips, and Onions are run to top very much, and unless there is dry weather with plenty of sun to mature them I am afraid they will not keep.—E. Burbury.

Wycombe Abbey, Bucks.—Apricots, Plums, Cherries, and all kinds of bush fruits in this neighbourhood are good crops, but Peaches, Nectarines, Apples, Pears, Strawberries and Nuts are below average crops. The Apple crop in the district varies considerably in different parts; in some orchards there is a fairly good crop, while in others there is but little fruit. The quality of early dessert Apples very much deteriorates after they are gathered. They should not (for private consumption) be gathered before they are wanted for use. I find the Old Red or Streaked Juneating, Devonshire Quarrenden, and Irish Peach excellent kinds for early use. Kerry Pippin is also a good succession to these, but this kind should likewise remain on the trees as long as possible to develop its nice brisk flavour; Margil is likewise a first-rate kind. Out of the rest of the dessert kinds of Apples, in my opinion, Cox's Orange Pippin, Ribston Pippin and Blenheim Orange are unsurpassed for quality and general usefulness, because under proper conditions they will keep as long as dessert Apples are really required or cared for.—Geo. Thos. Miles.

Cole Orton Hall, Leicester.—Peaches and Nectarines set a good crop and the trees are very healthy, but have not grown very much, and the fruit will be late. Apricots are good, but also late. Pears are only a thin crop. Strawberries nearly a failure, especially Sir Joseph Paxton. Bush fruit and Raspberries very good indeed. Plums very fair crops. Morello Cherries a very good crop; other Cherries fair crops, but the wet spoilt them. Apples are a variable crop. Dessert Apples very thin. An old tree of King of the Pippins has a good crop, but this sort is of inferior quality. It is on a Crab stock. Other good kinds on young espalier trees on Paradise stock are Old Nonpareil, Cox's Orange Pippin, and Cockle Pippin. Of kitchen

sorts, the best are Echlinville, Small's Admirable, Lord Suffield, Early Harvest, and Cellini. On old standard trees the most prolific are Manks Codlin, Echlinville Seedling, Anne Elizabeth, Northing Greening, and Keswick. The following are good on bushes on Paradise stock: Cox's Orange Pippin, Irish Peach, Braddick's Nonpareil, Kerry Pippin, and Red Astrachan.—G. C. MAYNARD.

Cholmondeley Castle, Malpas.—The fruit crop here, although a late one, is fairly satisfactory. Strawberries were a good average, but the flavour, for want of sun, was not so good as usual. Currants and Gooseberries very fine and good crops. Raspberries very abundant and the fruit large. Apricots about an average. Peaches not so good and very late. Plums on walls plentiful, but on standard trees scarcely any. Morello Cherries have been good. Pears under the average. Apples abundant on the pyramid trees in garden, but the standard trees in orchard are a complete failure. There are some sheltered orchards near here with good crops. —C. FLACK.

Norton Hall, Chipping Campden, Gloucester.—The fruit crop in this district is very irregular. In some orchards there is not a fruit to be seen, owing to the myriads of caterpillars which infested the trees. In other orchards the crops are very fair, but rather under the average. Here we escaped the scourge. Pears are very fair, an average crop. Apples rather under the average. Plums very good, especially Rivers' Prolific, Victoria, Magnum Bonum, and Orleans. Young Damson trees are loaded, but old ones are a failure. Gooseberries, Red and White Currants are heavy crops, but the wet weather we experienced in July has spoiled the greater part of the Currants. Cherries were very good. Apricots are thin. Raspberries have been abundant and very fine. Strawberries were wanting in flavour. Walnuts are very plentiful.

POTATOES are already showing signs of disease and complaints are very numerous, the second early varieties showing it worst. It is a bad look out for the crop in this district.—J. P. BARTER.

ORCHIDS.

W. H. GOWER.

CATTLEYA DOWIANA AND ITS ALLIES.

THIS species is another example of the great industry of that famous collector, M. Warscewicz, who is credited with having first found C. Dowiana in Costa Rica nearly forty years ago. But the consignment of plants sent by him to England never survived the journey, and the dried flowers also sent were lost; thus every trace of this superb Cattleya was destroyed. Ten years afterwards, M. Warscewicz, in describing this plant to me, said he had wished it to be named in honour of Mrs. Lawrence, of Ealing Park, one of the most famous lady amateurs of this century, and her son, the present Sir Trevor Lawrence, worthily maintains his mother's reputation. Fifteen years after Warscewicz first discovered this plant it was again found, and it arrived in England through Captain Dow, of the American Packet Service, to whom it was dedicated by Mr. Bateman. It was at once secured by the Messrs. Veitch, and with them it flowered for the first time in Europe in the autumn of 1865. For some time this plant remained rare, and has always been considered a shy-blooming species. In its native place it appears to be confined to a somewhat limited area on the Pacific side of the mountains in Costa Rica, and few of the numerous South American collectors found it. The variety aurea is said to inhabit a district some hundreds of miles apart from the place in which Dowiana was originally found, and it has a difference about it which one could imagine to be brought about through climatic influence. Recently both C. Dowiana and its variety aurea have been introduced in some quantity through Mr. Sander, of St. Albans, and the growers at home have learned better how to manage it, the consequence being that the gorgeous blooms of the two plants have been more frequently seen. In addition to this, to Mr. Sander is due the credit of having introduced a natural hybrid between C. aurea and C. gigas, which are said to grow in close proximity; this hybrid has received the name of C. Hardyana. A magnificent form of this plant was recently in flower in Mr. Measures' collection at Cambridge Lodge, Camberwell, and was obtained from an importation of C. aurea sold by Mr. Sander. Quite recently another new form of this plant has been distributed by the same firm under the name of C. chrysotoxa, although a plant which I recently saw flowering under the name of chrysotoxa appeared to me to be the original type of Dowiana as figured by Walter Fitch in the second series of Warner's "Select Orchidaceous Plants."

C. Dowiana and its near allies undoubtedly require more warmth, sunshine, and light than the majority of Cattleyas, and since this fact has been recognised and acted upon there has been less reason to complain of the plant being a bad grower and a shy bloomer, which reputation it obtained for some years after being established in English gardens. This character was only, however, the result of bad treatment. C. aurea has of late somewhat robbed the typical plant of its glory, but the latter when true is remarkably beautiful, although during the past two years I have seen varieties which, although beautiful, were much inferior to the type, being quite destitute of the golden thread-like veinings in the lip, thus leaving the crimson-purple colour unrelieved by any markings.

CATTLEYA DOWIANA.—In the typical plant the pseudo-bulbs are stout and club-shaped, becoming furrowed with age, and each bears a single, broad, oblong-obtuse leaf, which is thick and fleshy in texture and from 6 inches to a foot long. The scape bears from three to six flowers, which attain to upwards of 7 inches across, the sepals and petals being broad, of a clear nankeen-yellow, the latter suffused at the tips more or less with crimson; lip large, the terminal lobe being much developed and beautifully frilled all round the edge, whilst the side lobes are erect and cover the column. The colour is an intense deep velvety crimson-purple, which is plain round the edge, but the whole of the remaining surface is reticulated with thread-like lines of gold. As before remarked, there have lately appeared varieties in which these lines of gold are absent, and these serve to show how beautiful the original type is. Many plants are now flowering in collections round London; the very finest form and the nearest approach to the figure previously quoted is now bearing six flowers in Mr. Measures' garden at Streatham, whilst various beautiful varieties are to be seen at the present time in other collections.

C. AUREA is a native of Antioquia, which is hundreds of miles from the home of C. Dowiana, of which in all probability it is only a variety. Its differences are attributable to climatic influence, and it has been considered a freer blooming plant than Dowiana, but if the latter obtains plenty of heat and moisture with good exposure to the sun, I think its character of being a shy bloomer will vanish. The chief points of distinction appear to be in C. aurea being somewhat less robust in growth, although the flowers are equally large as those of Dowiana, the sepals and petals being clear pale primrose-yellow, without a spot of any other colour; lip obscurely three-lobed, the basal part covering the column, the front open, spreading, and beautifully crisp round the edge. The ground colour is a beautiful velvety magenta-purple, a large portion of the apical portion being plain, whilst the remaining portion is profusely netted with golden lines which extend to the edge.

C. HARDYANA.—This is a supposed natural hybrid between C. aurea and C. gigas, and most likely such is the case. It has appeared amongst some of Mr. Sander's importations of C. aurea, and it really appears to me to be the most superb of all the Cattleyas. In habit of growth it resembles C. Dowiana; the sepals and petals are the colour of those of a good form of C. gigas, that is, rosy purple; whilst the lip retains the two orange-yellow, eye-like spots and the ground colour of gigas; the apical portion is plain, but the remainder is profusely netted with golden lines, and, in addition, the flower is strongly, but agreeably scented.

C. CHRYSOTOXA is the latest addition to this beautiful section of Cattleyas. It has been introduced by Mr. Sander, but he does not give the name of the district from whence it was imported; but as he refers to it as being a much superior form of C. aurea than anything which we have yet seen, I should suppose it comes from about the same district. It has not yet flowered in Europe, but its introducer describes the sepals and petals of a brilliant buff-yellow, the lip being very large and richly coloured with crimson and gold; the flowers also are individually larger than those of any others in this section.

The whole of the above are autumn-flowering Cattleyas which should receive every attention, as the flowers are produced at the very dullest season we have for Orchid blooms, and these kinds rank amongst the most gorgeous of a large, showy, and highly popular family.

Odontoglossum cirrhosum.—This beautiful plant, discovered many years ago in the Andes of Ecuador, was first introduced, I believe, by Mr. Bull, of Chelsea, ten years or so ago. It rapidly became exceedingly plentiful and cheap in price, but I cannot conceive what became of all the plants, as there are very few large specimens in cultivation. In the collection of the Comte de Germiny at the Chateau de Gouville I lately saw a well grown, but not large, plant which this season had borne as many as eighty flowers. It is a delightful species, and one that is easily grown, and instead of being neglected should be prized by all lovers of beautiful flowers.—W. H. G.

Luddemannia Pescatorei.—What has become of this plant? I have not seen a specimen of it for many years. It was formerly included in the genus Cycnoches, but it is now nearly allied to Lacæna, which is another genus that has almost disappeared from cultivation. L. Pescatorei, however, is a plant with somewhat the habit of Cœlogyne Massangeana, and like it produces pendent spikes of gay flowers, the spike and pedicels being clothed with warts (verrucose); the raceme bears twenty to thirty flowers, the sepals of which are buff-coloured on the outside, brown within, the petals and lip being yellow and the column green. This variety is a native of Venezuela, and I should like to see it again in cultivation, for if once known by the present race of Orchid growers it would be eagerly sought after. I am not aware of any other species being known; it was formerly called Cycnoches Pescatorei, and it thrives well in the Cattleya or intermediate house.

Cattleya Eldorado.—A superb form of this beautiful Cattleya I saw recently flowering with M. Nilsson in the Rue Auber, Paris, and it occurred to me that I had not seen this variety in England. It is well deserving the attention of English growers; the flowers are large, the sepals and petals broad, and of the purest white; lip also pure white, the throat rich orange, the front lobe well expanded, deep magenta-crimson. Cattleya Eldorado has been far too much neglected, as it deserves growing in quantity as much as many other kinds. To grow it well it requires to have more warmth than the majority of the species; in fact, it thrives admirably with Cattleya superba.—W. H. G.

Cypripedium Parishi and C. Sanderianum.—These are two of the long-tailed Eastern species which are now flowering at Kew. Both may be considered rare; for although the first-named plant is not new, and has once been imported in quantity by the Messrs. Low, of Clapton, it is only in the best collec-

tions where it can be found. The last-named kind was one of the very rarest until Messrs. Low received such a fine lot of it this season. The plants appear to be getting established, when we may expect to see them in all their grandeur.

Cirrhopetalum pulchellum. — This is the name of a very pretty species of this singular genus of Eastern Orchids. It was recently flowering in Mr. Bull's establishment. In habit of growth these plants somewhat resemble Bolbophyllums, but their inflorescence is usually umbellate, and the chief beauty of their flowers is in the lateral sepals, which are much prolonged and are parallel. In the species here noted the flowers are pale yellow, spotted and blotched with rose and purple. The lip is thoroughly characteristic, and has a very whimsical appearance. These plants should be grown on blocks or in small baskets; they enjoy strong heat and moisture.

Cattleya Lindleyana. — This is a species which I have not seen much in this country for some years. I was therefore very pleased to find a good example of an excellent variety flowering in the Jardin des Plantes at Rouen a short time since. This plant requires the warm end of the Cattleya house, as it is a native of the country somewhere in the neighbourhood of Bahia. It flowered with me in the autumn of 1863, which I believe was the first time in the country.—W. H. G.

MARKET GARDEN NOTES.

Fine autumn weather has of late enabled market growers to bring up arrears of work, notably that of getting the land clear of weeds which during the excessive downpour of July had made unusual progress. But by hand-weeding, hoeing, and raking, the crops now present their usual appearance, and for the time of year are very luxuriant and abundant. Prices as a rule are low, but with the present abundant crops of all kinds of vegetables this is to be expected. With market cultivators the rule is to clear the ground as soon as the crop is ready and crop again directly, as the loss of time by keeping crops standing entails more loss than that of clearing the ground when low prices are being obtained.

Potatoes are being lifted as they become ready, but there is no great anxiety to get them into market, as the dread disease has not made so much progress amongst the later sorts as it did when it first set in amongst the earlier varieties. If the present favourable weather continues there is every prospect of a plentiful winter store of Potatoes being housed, as the crop is very heavy. The American Rose type of Potato has suffered the most from disease this season, and the Magnum Bonum variety, that was such a failure last year, has given good results this season. It is, without doubt, one of the finest Potatoes for market ever introduced. As a rule the tubers are left in the soil until quite late in the season, for in the light, well-drained soil of the south coast they turn out clean and bright, and can be dug and stored after the more pressing work is completed.

Onions are being pulled and harvested, for they are showing a tendency to start into growth again which is detrimental to their keeping qualities, and unless they will keep for some time they do not prove a profitable crop in these parts. The south coast towns are now swarming with foreign hawkers of Onions, who come over from France and the Channel Islands and dispose of shiploads by hawking from door to door. The home growers do not send theirs to market until they know these hawkers have departed, when the price is sure to rise again. A good sort that will keep until the spring always pays well, and for this reason James's Long Keeping is very largely grown. Autumn-sown Onions of the Tripoli and Rocca type have been largely sown, and the White Spanish, which is sown for drawing young, is now growing freely. The plants are hoed frequently to get them quite clean before bad weather comes on, for if the weeds are neglected it is afterwards very difficult to destroy them without injuring the crop.

Winter Spinach is looking well and more is being grown, for with this crop the varying seasons cause very late-sown crops to sometimes come in more serviceable than early ones. If they are not required, they are ploughed into the land and not much loss is sustained. Thinning out the plants and hoeing between the rows is the work in hand now.

Cabbage planting for the earliest spring crops is being pushed on rapidly. Of late years this has been one of the best crops grown; consequently the best soil in a sheltered position is selected and well manured. The young plants from July sowings are now in good condition for transplanting, and if carefully put out they soon make a start into growth. With plenty of rich manure under the roots, they do not cease growth unless very severe weather prevails. The Early Rainham and Wheeler's Imperial are popular early market Cabbages.

Fruit garden department. — The gathering and marketing of fruit is the principal work at present. Apples are decidedly below the average in quantity, but the quality is good. Lord Suffield, the most popular early kitchen Apple in use now, is very fine indeed, and realises good prices; 8s. to 10s. per bushel has been the price for fine samples Later sorts are swelling up very fast, the fruit on young trees being the best. Good dessert sorts are very scarce; the best crops are of Cox's Orange Pipp'n

Pears are in this part a good crop, but the protracted cold, wet weather caused the fruit of several varieties to crack. On others the fruit is swelling very well. The best crops we have are of Pitmaston Duchess, which promises to be unusually fine, and Williams' Bon Chrétien, which is now being gathered. The late sorts are swelling out rapidly. There is a very marked superiority in the fruit on the trees that have been summer-pruned compared with those where the annual shoots have been left at full length. The growth has been unusually strong this year, and unless checked by early pinching, it has been at the expense of the crop.

Tomatoes, although set down as a failure, have made good progress since finer weather has prevailed, and there is still some hopes of a fair crop being gathered where the plants have been well cared for. On sunny walls or very favourable positions, many growers have utilised their movable glass lights for hastening on the growth of this valuable crop. J. Groom.

Gosport.

SOCIETIES.

ROYAL HORTICULTURAL.

The floral committee.—A meeting of this committee was held at Chiswick on September 6. Present: Mr. H. Herbst in the chair; Messrs. Nicholson, Baines, Pollett, Holmes, Dean, Dominy, and Wildsmith. The collections of Asters on trial in the gardens were examined, when the following awards were made: Received from Messrs. Vilmorin-Andrieux and Co., half-dwarf multiflora, eight vars., strain commended; imbricated, twelve vars., strain commended, indigo-blue, receiving three marks; Globe Pæony-flowered, rose, three marks; imbricated pompon, thirteen vars., strain commended; dwarf Chrysanthemum-flowered, eleven varieties, strain commended, flesh coloured, scarlet-copper, and lilac-white edge, three marks each; Crown Asters, lilac, three marks. Received from Herr Ernst Benary: Dwarf Victoria, seven vars., strain commended, lilac-rose, indigo-blue, and light carmine, three marks each; dwarf Cocardeau or Crown, four vars., strain commended, rose, crimson, and violet, three marks each; dwarf Pæony Perfection, rose, glowing dark scarlet, light blue and white, three marks each; Lilliput, eight vars., strain commended as being valuable for late flowering purposes; Pæony-flowered Globe, twelve vars., strain commended, white, brilliant lilac, peach blossom, rose tipped with white, carmine and white, purple and white, and crimson, three marks each; Victoria Needle, eight vars., strain commended, fiery scarlet, three marks; large-flowered rose, twelve vars., strain commended, dark scarlet, three marks; Victoria, eighteen vars., strain commended, white, white turning to azure-blue, peach blossom, carmine-rose, reddish lilac, light blue and white, and white turning to rose, three marks each; imbricated pompon, nineteen vars., strain commended; Truffaut's Pæony-flowered Perfection, strain commended, rose and white, carmine, light blue, black-blue and dark scarlet and white, three marks each; tall Chrysanthemum-flowered, eleven vars., strain commended, slate blue, three marks; Hedgehog or Porcupine, twelve vars., strain commended. Dwarf Victoria from the Speciality and Novelty Seed Company, three marks.

NOTES OF THE WEEK.

Anthurium Laingi.—This pure white variety should prove an acquisition to the Anthuriums. It is now a feature in the Messrs. Laing's Catford Nursery. It is quite distinct, the spathe being large and of the purest white.

A house of Melons.—Mr. J. H. Goodacre, of Elvaston Castle, Derby, sends us a fine photograph of a wonderful example of Melon culture. We hope to engrave a portion of this house.

Congress of Watercress growers.—It is said that there is to be a congress of Watercress growers in which various questions of importance will be discussed. The very word has been degraded. It seems a new form of amusement and excitement.

Jargonelle Pear.—Enclosed are two Jargonelle Pears for your opinion. The tree is grown on a wall with a west aspect.—G. H. Mounsdon, *Lifton Park.*

*** Excellent and well-flavoured fruits of this fine Pear.—Ed.

Passiflora princeps.—I enclose a spray of Passiflora princeps which is in bloom all the year in a fernery at Baycliffe.—M. M. C.

*** A beautiful spray of this handsome Passion Flower, which is not so common as one might suppose from its striking colour.—Ed.

Single-flowered Dahlias.—Mr. Caldwell, The Ivies, Wantage, sends us a box of single Dahlias. There are good flowers in the various shades of scarlet, yellow, rose, white, and buff, and some striped blooms with confused mixtures of colour. We are sorry to see these kinds becoming popular.

Flowers from Ireland.—I send you a few flowers of Doronicum Harpur Crewe, Pyrethrum Mont Blanc, Helianthus rigidus, and Gypsophila paniculata, to show that although we have had a few sharp indications of frost with the last few nights some old favourites are still at their best.—W. H. Blair, *Cork.*

Clerodendron fallax. — This is one of the showiest of the shrubby Clerodendrons, and a plant that should be more often grown. At the present time it is blooming in the Messrs. Laing's nursery at Catford. The leaves are large, broad, and handsome, and the flowers, which are of a brilliant scarlet colour, are borne in large terminal panicles. The plant also flowers well in a young state, for those examples at Catford were only in 6-inch pots, while each plant was carrying a large panicle of flowers.

Maarcgravia paradoxa (Hort. Bull).—This so-called Maarcgravia has at last flowered in the gardens at Packwood Grange, Knowle, near Birmingham, and turns out to be an Aroidaceous species nearly allied to Monstera deliciosa, a plant which grows and fruits with the utmost luxuriance in the same gardens. The young climbing stage of the plant is well known, as it clings to a moist wall or Tree Fern stem, but the adult stage of growth is robust, and resembles that of a great pinnate-leaved Philodendron, while the large whitish spathe resembles that of Monstera. Pothos celatocaulis is also now growing at Knowle, and as its adult stage is unknown, it is to be hoped that it may be induced to flower under the treatment which has proved so successful with the Maarcgravia paradoxa of gardens, a plant which will now receive a new name.—F. W. Burbidge.

Variegated Snake's-beard (Ophiopogon Jaburan aureo-variegatus).—This plant is flowering freely in one of the stove houses at Gunnersbury Park, Ealing, where can be seen several large specimens with handsomely variegated foliage and many spikes of purple flowers. It is in one sense a hardy plant, for Mr. Roberts states that it will stand 16° of frost without harm, but 20° kills it outright. I have it in a cold house, and have brought it through the past two winters with safety, but it does not bloom nor assume the handsome variegation seen when it is grown in warmth. Heat is

necessary to make it vigorous and to cause it to develop its spikes of blossom; therefore, notwithstanding what may be said as to its hardihood, it is really a greenhouse plant, and should be treated as such.—R. D.

Odontoglossum grande.—An Orchid was never more appropriately named than this Odontoglot, for without doubt it is the grandest of the genus. We recently noted a finely-flowered plant at Catford. The plant was small, but two bulbs had each produced two spikes of flower, each spike carrying from five to seven blooms, which were from 5 inches to 6 inches across. The colour is a clear yellow, marked with chestnut bands.

The Guelder Rose (Viburnum Opulus).—As seen at present in our Kentish copses and hedges, this pretty native plant is quite as conspicuous as it is ornamental. The bright red berries are produced in such abundance, that at a hundred yards away the plants look all aglow. No Holly in its richest wealth of fruit can be compared with this Viburnum, for the reason that its berries are produced in broad heads nearly 6 inches wide, while those of the Holly are rendered less conspicuous by being arranged in spikes.—A. D. Webster.

Japanese Anemone in Ireland.—I send for your inspection a box of blooms, also foliage and head of seed of Anemone japonica alba. They are from a batch of seedlings, the seed of which was sown in the autumn of 1886. They flowered in 1887. This autumn they are very fine, being quite 4 feet high and covered with bloom. The plants are strong and require no stakes, and by the side of the parent plant they are much finer in every way. —Andrew Campbell, *Ashford Gardens, Cong, Co. Galway.*

*** We regret very much that during the long journey the flowers were almost smashed, but we have never seen such well-grown specimens of this beautiful Anemone as the flowers sent.—Ed.

Open-air Begonias at Zurich.—When in Zurich, the other day, I was much struck with the beauty and brilliancy of some masses of tuberous Begonias I saw in a public park there. But I noticed that the varieties were, for the most part, tall and small flowered, not far removed, in fact, from B. boliviensis and other original types. Though smaller in bloom, they have the advantage of a more elegant growth and a greater profusion of flowers, which give brilliancy such as is required in massing in the open air. I think that the best bedding-out race of Begonias will be found to be the small, many-flowered kinds, as they are less liable to injury by bad weather. I shall not soon forget the effect of those Begonias at Zurich. —W. G.

The yellow Clematis (C. graveolens) is now in flower, and the idea struck me the other day, when I saw it at Kew, that something might be done to infuse its very distinct colour into some of the larger flowered kinds. The yellow, it is true, is not remarkably bright, but still it is a yellow, and, perhaps, capable of being made brighter by seeding and selecting. By the plant's name it ought to be bad smelling, but I could not detect anything objectionable in its odour. It is a strong-growing plant, and produces flowers freely, and is perfectly hardy. It was brought from Chinese Tartary many years ago, but it is seldom seen outside botanical collections. Hybridists may like to know of it.

Tuberous Begonias planted out.—A few bright days in September have done wonders to the acre of Begonias which the Messrs. Laing have planted out in their nursery at Catford. Some of the beds are quite a blaze of colour. We specially noted one long bed well filled with sturdy plants, which bore a profusion of large, erect crimson-scarlet flowers. The different shades of colour are displayed in different beds. There were long beds of scarlet, crimson, pink, white, rose, and yellow-flowered Begonias. Whilst Pelargoniums are this year nothing but foliage, it is satisfactory to see the Begonias doing so well under such adverse circumstances. The 115,000 plants at Catford were raised from seed sown in January, and consequently the season has affected them more than it would have done older plants that were put out with large tubers.

Bromelia antiacantha.—Bromeliad fanciers might like to know that this noble and very beautiful species is in flower at Kew in the tropical Water Lily house. In growth it is like an enormous Pine-apple plant, but the spines on the leaf edges are coarser and widely separated. From the middle it sends up a tall flower-spike covered with a white mealy or woolly substance, and bearing an irregular cluster of long, bright purple blossoms, and the whole is glorified by the rich scarlet of the innermost leaves or bracts that surround the spike. It is a magnificent plant, just such a one as we associate with our ideas of tropical plant and bird life.

The Lilies at Kew are again this year the grand attraction of the place. The Rhododendron masses skirting the main walk are lit up by hundreds of Lilium auratum flowers, many of the spikes being enormous. As these same Lilies have been equally fine for two or three years in succession, it is a plain proof that this Lily can be successfully grown in Rhododendron beds, which consist for the most part of peat. In other parts of the gardens there are glorious masses of Tiger Lilies and Lilium longiflorum rising from masses of shrubs, and later there will be a fine display of L. speciosum and its varieties. So much beauty has been added to Kew since this plan of growing Lilies has been adopted, that we hope other noble Lilies, such as L. colchicum, Martagon, and pardalinum, will be dealt with in a similar way.

DEATH OF MR. JOHN B. MACKAY.

One of the most interesting men in the horticultural world of London has lately passed away at a very remarkable age. We have to thank one of his old friends, Mr. Robert Marnock, for the following words about his life:—

The death of my old and much esteemed friend, John Bain Mackay, of Totteridge, has broken all but the last human link connecting the present with the botanical and horticultural incidents of a past generation. In bygone days he counted amongst his intimate friends such men, for example, as were then familiarly known amongst botanists, as Professors Brown, Don, and others of the Linnean Society, and Hooker, of Glasgow. Amongst his brethren, famous as suburban nurserymen, were Messrs. Lee and Kennedy, Hammersmith; Messrs. Malcom, Kensington; Gray, Brompton; Chandler, Vauxhall; Brown, Marylebone Road; Jenkins, Yorkshire Stingo; and Mr. Knight, King's Road, Chelsea. All these, with one or two exceptions, possessed extensive nursery grounds, but such has been the unwholesome growth and extension of the vast metropolis, that all the broad acres of what was then open country and pleasant nursery gardens are now covered with big mansions, public squares, and long dreary streets.

My deceased friend retired from business early in life, settled at Totteridge, where he indulged the botanical passion to the full in the collection and cultivation of choice trees and shrubs. Being thoroughly familiar with the rarer forms of British plants, a goodly number of these had gradually come together in the different borders. I subjoin below the names of a few of the less common kinds which I saw growing in his garden when I paid my last visit there in the early part of July:—

Thalictrum alpinum
Trollius europæus
Subularia aquatica
Sagina nodosa (?)
Astragalus alpinus
Dryas octopetala
Rubus Chamæmorus
Sedum Rhodiola
villosum
Saxifraga aizoides
oppositifolia
cæspitosa
stellaris
Chrysosplenium oppositifolium
alternifolium
Parnassia palustris
Drosera anglica
longifolia (?)
rotundifolia
Meum athamanticum
Myrrhis odoratum
Cornus suecica
Linnæa borealis
Vaccinium Myrtillus
Vaccinium Vitis-idæa
Uva-ursi
Loiseleuria procumbens
Erica cinerea
tetralix
Calluna vulgaris
Pyrola rotunda
media
secunda
Trientalis europæa
Pinguicula vulgaris
Littorella lacustris
Betula nana
Salix lanata
herbacea
Stratiotes aloides
Orchis, various
Tofieldia palustris
Lycopodium alpinum
Selago
Botrychium Lunaria
Aspidium Lonchitis
Asplenium fontanum
Trichomanes
viride

He was borne at Echt, in Aberdeenshire, on 5th of February, 1795, and died at Totteridge on 9th of August, 1888, in his 94th year. I think he gained his first love of plants in the Botanic Gardens, Edinburgh, about 1815, in the days of the first Macnab, of whom he used always to speak with the greatest respect and affection. Ever since that time he pursued the study and practical culture of plants with a love and enthusiasm which only ended with his life, and which could only be measured by those who knew him. A true man, he was never above his craft. A gardener to him was always a welcome visitor, whether seeking assistance or advice. Many there are now living who would willingly testify to his sympathetic nature.

Death of Mr. William Court.—Through the death of Mr. William Court, which took place unexpectedly on Monday last at Chelsea, horticulture in general has sustained a very heavy loss. He had, for over twenty-five years, been one of Messrs. J. Veitch and Sons' most devoted servants, and his successes in the hybridising of Nepenthes and Sarracenias are fittingly recorded by the numerous varieties due to his perseverance and skill. Such plants as Nepenthes Mastersiana, N. intermedia Courti, &c., and Sarracenia melanorhoda, Chelsoni, Courti, &c., will long remind one of their raiser. Although he had been ailing for some time past, there was nothing to indicate that the end was so near, as he was at his post on the very morning of the day on which he died. It is most unfortunate for his four children, who some four or five years ago lost their mother. Mr. William Court, who was barely forty-five years of age, belonged to a comparatively young school of gardeners; yet older theories were very familiar to him, and he also had a sound knowledge of practical propagating. It is, indeed, a great loss to the gardening world at large that a man so well versed and always ready to impart information should thus have been snatched from amongst us at such a comparatively early age.

Fungus in plantation.—Will you kindly inform me of the name of the accompanying fungus? I found several of them in an Oak plantation close by here. We cannot find anything like it in our books, and as we are very much interested in fungi, we should be much obliged if you will tell us the name.—G. W. Smith.

*** The white puff-ball-like objects belong to the young condition of the polecat fungus (Phallus impudicus).—W. G. S.

A correction.—In our report of the Royal Horticultural Society it was stated that Mr. W. Soper, Clapham Road, showed a seedling Adiantum, but this is incorrect.

Names of plants.—*T. G.*—Lychnis coronaria; very fine variety.——*H. R. C.*—The plant you call a Fern is Asparagus plumosus nanus. We cannot name florists' varieties.——*N. O. S.*—Your Rose is Mrs. Bosanquet.

Names of fruits.—*Geo. Rees.*—Flemish Beauty.——*G. W. E.*—Plum Oullin's Golden.

WOODS & FORESTS.

DISEASES OF FOREST TREES.

I have read with interest "J. F.'s" courteous remarks on this head in The Garden, Sept. 8 (p. 240), and although he thinks the conclusion which I arrive at regarding the blotch or ulceration in the Scotch Fir is not very clear, yet it would have afforded me much pleasure and satisfaction had he gone a little further in elucidation of his theory and given us something that was really convincing upon this important subject. We are all well aware that the blotch is not caused by the attacks of insects, neither is it solely caused by too wet nor too dry ground, as we find trees affected in the same way in both positions. I have likewise found this particular disease to be common in the natural forest where the trees are quite at home as regards soil and climate, and where they had never been manipulated in any way, but grown on the spot from the seed of old healthy trees. Now if these facts are admitted, the point at issue is narrowed within a small compass, and in order to arrive at the truth we must investigate in another direction. "J. F." says:—

> I am reluctantly forced to differ from Mr. Webster's opinion as to wind and frost being the principal agents, because if it is the fact that wind and frost are the main agents in causing ulceration in the Scotch Fir, why is it that whole communities or even large forests of trees are not destroyed in the same manner, and not isolated individual trees here and there at great distances from one another, and these very frequently in the most sheltered and warm situations, where neither frost nor wind has hardly any potency? Much less of this disease is observed in belts and small plantations than in extensive areas of trees, so that one would infer that if frost and wind have aught to do with the disease, belts and other small areas would be likely to suffer from the influence of these elements.

Now, no better testimony than this could be given in support of my theory. Everyone knows that isolated trees, trees in belts, and small plantations are inured to the blast and extremes of the weather from infancy; consequently we find them clad as it were with a coat of mail for their protection; the bark is strong, thick, corky, and furrowed, but when we penetrate to the interior of the forest, we find the bark to be thin, smooth, and silky. Although such trees have the advantage of shelter, yet practical experience and observation tell us that such trees often suffer immense damage during a storm; some of the stems are occasionally broken right over, others have their branches and tops ruptured, and any trees that have not thoroughly matured their growth are liable to be frost-bitten, which in a great measure lays the foundation for the disease called blotch or ulceration.

When trees are subjected to such a pressure by wind that some of them snap over, it can easily be understood that others in the vicinity that have narrowly escaped the same fate are apt to have some of their vessels ruptured, more especially when such vessels are rendered brittle by the presence of frost. During a gale I have repeatedly heard a sharp crack or report issue from the stem of a tree, and I have no doubt that some of the vessels of the stem were ruptured at such a crisis. On cutting up the trunks of such trees for use, I have often found the interior to contain a series of fissures, or what is called shakes in the timber, which conclusively proves that trees often suffer immense damage in more ways than one by the adverse influence of the elements. With regard to whole communities of trees not being affected in the same way, but only trees here and there in the forest and sometimes in sheltered places, this can be effectually accounted for from the fact that trees of the same species, and growing under the same conditions as regards climate, do not all start to grow at once; neither do they all mature their growth at one and the same time; and this rule holds good among deciduous trees as well as Conifers. Consequently such trees as have prolonged their growth till late in autumn are always the first to suffer by frost and the inclemency of the weather. In the course of marking trees that were to be felled, I have occasionally laid bare between the wood and inner bark an oval-shaped depression about a quarter of an inch in length. This depression was full of liquid resin, that ran down the stem, and I have no doubt that frost-rupture brought about the commencement of the disease. Although wet ground is not the direct cause of the disease, yet it promotes and accelerates ulceration, and in proof of this I shall give an example: On a patch of Heather ground in the centre of a quagmire in the natural forest stood an isolated bushy Scotch Fir tree which gradually contracted ulceration, and as I was anxious to find if insects had anything to do with the disease, I paid particular attention to this tree for a series of years in order to satisfy myself as to the cause and origin of the disease, and as I never found any insects attack the tree, I came to the conclusion that frost was the cause. Owing to the cold, wet ground this tree never started early into growth, but then it generally prolonged its growth till late in autumn, and as the wood was neither hard nor firm, it suffered immense damage during winter by frost, and in course of time became quite rotten. At first resin distilled from the wounds, but in course of time it underwent a chemical change and dried up. J. B. Webster.

Forestry at the Irish Exhibition.—I am much obliged to Mr. A. D. Webster for his remarks concerning my little stand at Olympia, and I hasten to reply to his inquiries of the hardiness here and the regular seeding of the Judas Tree (Cercis siliquastrum) that has been confirmed by Mr. Osborne in your last issue. The cones of Pinus Lambertiana, Coulteri, and Hartwegi were collected abroad, but we have in this country several of each making fine trees, and as P. religiosa, both the Deodars, and Araucaria imbricata are freely coning, those from North California, Santa Lucia, and at an elevation of 9000 feet in Mexico, are fairly certain to seed. Gordon ("The Pinetum," p. 304) states that Hartweg's Pine is found above where P. religiosa ceases to grow. The card in front of the cones states that they were chiefly gathered in Ireland; that in front of the seeds that they were all of trees suitable for growing in Ireland; and that in front of wood sections, that they were all cut from trees grown in this country. There is one exception: a few tree seeds which my son, Dr. Hartland, gathered at Calabar. They were so curious—some you would mistake for eggs, others for cones—that I desired to have them grouped in one corner and labelled "from West Coast of Africa"—not much danger that so experienced a forester as Mr. A. D. Webster could mistake the object. Another son of mine in Victoria and a friend in Tasmania are collecting some wood sections for me, and photos. of the most remarkable trees in Ireland are being obtained, so that at a future time I hope that the small beginning will form a group interesting to foresters. This is a matter in which I take great pleasure, and my business brings me yearly in contact with woods and wood fallings, when I never lose an opportunity of adding something to my little store of sections. In proof of the mildness of the southern climate, I may add that a plant of Dracæna australis, seven years out of doors and now 15 feet high, flowered here this season; the head of bloom, which was 3½ feet high and 3 feet across, was most beautiful for two months. That great tree lover, the Countess of Kenmare, has planted a large collection of Australian trees at her splendid castle grounds, and in that most favoured and lovely spot there can be little doubt that in a few years hence Killarney will be famous for its sylvan beauty, as it is now for its glorious lakes and mountains. Not wishing to trespass on your space, I shall not refer to my golden variegated Wellingtonia, beyond sending you a shoot and saying, that as proof that the artist's picture is not over-coloured, I am forwarding weekly a branch from this, which can be seen at Olympia, Stand No. 174 D. About ten years ago, convinced of the value of this variegated Coniferæ, I set apart a plot and planted fifty; they are thinned out to thirty, growing at 15 feet apart, are something over 20 feet high, and in splendid health. They have been seen by many hundreds, and are to-day a group of rich golden variegated trees.—Richard Hartland, *Cork.*

Moving a tree.—"F. E. S.," in The Garden, September 8 (p. 240), says, "I am anxious to move, if possible, a handsome tree (a species of Fir) that is too near the house. It is about 30 feet high. Would it cost very much to move it, and is it likely to live if moved?" Much will depend on the species of Fir, and the texture of the soil in which it is growing. Any of the Spruce, or Abies tribe of trees growing upon soft pliable soil, if well furnished with small fibrous roots, might, with care, be moved with safety. On the other hand, should the Fir belong to the Pine tribe, and be growing upon clay, or hard inorganic matter, it is not likely to be well furnished with small roots; consequently the risk of moving it with safety would be intensified to a large extent. You should examine the roots of the tree, and if they are long and bare, lift a considerable portion of them around the stem, lay them in soft mossy soil, replace the surface, and leave your tree for another year to allow the roots time to attach themselves to the fresh mould. In this way the tree can then be moved with a better prospect of success. With regard to the cost of moving, it will much depend on the distance it is to be moved, as well as other local circumstances, an exact estimate for which cannot be given, except one sees the tree and all its surroundings. At all events, if the tree is really a fine specimen, and worthy of being removed at all, it is better to have the work done well, so that the cost in such a case is but a matter of secondary importance.—J. B. Webster.

Poplar for timber.—I have for some years been aware of the profit of planting the larger kinds of Poplars, for the wood of which there is now so much demand for railway breaks, &c., and find the Abele Poplars grow rapidly in sheltered situations, but the Black Italian does better where the situation is more exposed. A damp clay or near the side of a runnel does well for them; and in all cases their light fibrous roots require the soil to be well loosened when they are planted.—R. T.

Notching and pitting.—Now that the planting season is near at hand, I think it would be of service to other young foresters besides myself if some of your experienced writers on practical forestry would give us their opinion as to the comparative advantages of notching and pitting plants, and under what circumstances can each system be best adopted, also an idea of the average cost. We have a great deal of planting on rough land to do this season, and before we start I should like to know the opinion of others respecting this subject.—R.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

W. COLEMAN.

CAPRICIOUS GRAPES.

JUDGING from the experience of the past few months, it is now the practice to ask for information, and in due course flatly contradict the replies which good-natured correspondents who may have been successful in the culture of the particular fruit in question voluntarily forward for publication. Some time ago, in reply to a query, I stated that Muscat Hamburgh is a capricious Grape. A correspondent the following week ridiculed the idea, and went on to say he had been marvellously successful in the management of this delicious variety in a vinery containing a mixed selection of sorts. Had I been disposed to enter into controversy, I might have ventured to ask for the writer's standard of excellence; whether he has ever entered into competition and carried off prizes at the great shows where not a few competitors, judging from their exhibits, learn when too late that big ideas at home are ridiculously small when skilled judges pass them by for examples worthy of notice. The old Black Muscat, now better known as Snow's Muscat Hamburgh, I maintain, is a capricious Grape, failing to do well in 90 per cent. of the gardens managed by skilled men in which it is grown. By the minority it may be well done, but the fact that so fine a Grape is not met with at every show of moderate pretentions and is rarely seen in the market proves incontestibly that it is extremely capricious.

Madresfield Court Muscat, although not quite so unmanageable as the preceding, has two bad qualities, which the majority of growers have not yet been able to overcome, for, in the first place, it is subject to cracking; in the second, it is more frequently tawny than jet black. Some growers say we give it too much heat; others think we should allow all the laterals to grow as safety-valves; and a few condemn copious watering; but how rarely do we meet with a man who admits that keeping the roots in a cold border and over-cropping are two of the causes of a large percentage of our failures.

Confining myself to Muscat-flavoured black varieties, I may name Mrs. Pince as being a bad setter, more frequently foxy than black, and yet all three of the Vines I have mentioned are good growers, and ripen their wood well in an ordinary vinery.

Yet one more Black Grape; the male parent of Madresfield Court Muscat, the most difficult and capricious variety in cultivation, is Black Morocco, erroneously called Kempsey Alicante. A very small minority succeed in setting this Grape, but a few do reduce it to subjection, and right well it is worthy of their patience and skill.

Some years ago I walked through a very large span-roofed vinery, at the present time noted for producing the large bunches of Muscats often met with at the shows. There I saw a Vine of Black Morocco covering probably 500 feet of trellis; its roots at that time were out of control; the wood it was making was very strong, but not a bunch upon it. Upon inquiry, I was told it had borne a heavy crop the year before, and rest was considered necessary. Having had some experience with this capricious, but splendid winter Grape, I did not press for further information, as I knew but too well why the Vine was resting, when really and truly it would have been the better for carrying 200 lbs. of Grapes.

I might go on with several varieties of white Grapes, but we have four capricious black kinds, viz., Muscat Hamburgh, Madresfield Court, Mrs. Pince, and Black Morocco, all of them front row sorts worthy of a king's garden. Why do they fail to set? or, having set, why do they crack or refuse to colour? As setting must precede colouring and ripening, I will take this point first. Grapes of all kinds, Hamburghs included, do not set perfectly when their roots are in cold, wet borders, but why? simply because they grow late in the autumn, the unripe rootlets perish, and the Vines in a half-paralysed state are unable to respond when the time again comes round for setting. Conjointly with this root weakness some of them, notably Black Morocco, carry a viscous drop upon the stigma which must be removed before the pollen can perform its office. The pollen again, as often happens with hybrids, is neither plentiful nor good; consequently, no matter how perseveringly the Vines are brushed with camel's hair, rabbit tail, or dewed over with the syringe, these defects result in a bad set of fruit. The remedy lies in a nutshell: give the roots warm, well-drained inside borders, keep them fresh, vigorous, and active, give the house plenty of genial warmth and air when the Vines are in flower, and fertilise from day to day with Hamburgh pollen.

Next, as to swelling, colouring, and cracking. Attend well to the first by watering profusely until the berries have attained their fullest size and are colouring freely, then mulch well to prevent evaporation and maintain a continuous circulation of air to prevent condensation or the gathering of stagnant moisture. As to allowing the laterals to grow wild or keeping them closely pinched, it matters little so long as the roots are warm and active and the house is maintained at the proper temperature, but as an extensionist, if only for the sake of securing size of bunch and berry and laying on bloom and colour, I should say let them grow so long as space can be found for the full development of the premier foliage. If I were called upon to grow these four Grapes to the best of my ability, I should prepare the house by making the heating and ventilation perfect, especially the latter, as these varieties must have a free circulation of warm air, both when in flower and after they commence colouring. I should then make narrow elevated borders resting upon ample, nay abundant, drainage. These I should keep in a moist growing condition through the resting period and most liberally watered from the time the Vines break until the berries are fairly coloured. There must be no fear or trembling in the use of water upon these borders, for the man who hesitates to-day and soaks the next day is sure to be rewarded with a check, which brings about the cracking he so much wishes to avoid. As I do not preach what I do not practise, on an early day I will send you, Mr. Editor, a small bunch of Madresfield Court, also one of Black Morocco, from Vines growing side by side in elevated inside borders, which, dull as the season has been, have been deluged with warm water and diluted liquid manure. The first carries about eighteen bunches black as jet, but without a cracked berry; the second is equally well cropped, and does not show a seedless berry.

Two good Apples that have recently come to the front are Lane's Prince Albert and Frogmore Beauty. Both are fine Apples and very prolific. I have young trees of them, which only the second year from planting are carrying a fine crop of fruit, all above average size. It is a pity that people waste valuable time in trying to renovate old, worn-out trees, for the produce of young ones is altogether superior, and now that they can be obtained at a reasonable price, which places them within the reach of all, young trees should be more largely planted. Now is the time to make preparations, by selecting the position for the trees to occupy, trenching the soil, and selecting the trees at the nurseries; then when the time for planting comes there is no delay. I like to get the planting done in November if possible before the soil is chilled by severe frosts, and when, if a good mulching is put over the roots, they will continue to make some root growth, so as to be partly established and ready for a good start in spring. Some people cling to old varieties as if they had some very special merit. In these two varieties we have some of the best qualities, and I feel sure that before long they will replace many of the older sorts.—J. G., *Hants.*

THE FOLIAGE OF FRUIT TREES.

THIS has been a remarkable season for the growth of leaves, and many casual observers say, "What is the use of leaves without one gets fruit?" but although it is true that we do get fruit trees that produce too much leaf growth, it is equally certain that we cannot get good fruit without good foliage. I would like to put in a word of caution against the wholesale defoliation of trees one often sees going on under the name of pruning. Vines are probably the greatest sufferers from the removal of too much foliage, the idea being cherished that the berries need sunshine to colour them highly. I should like to ask those interested in this matter to examine any vineries they may be able to inspect at present, and they will find that after an almost sunless summer the Grapes are not only finer, but of a far deeper black than they were after the hot, dry summer of last year, and the blackest berries will be found where the foliage is densest. We know that the sap does not go direct from the roots to the berries, but that it is first prepared by the leaves, yet many treat the leaves as if they were only of secondary importance. I was recently asked by a lady to look at her Vines, as they were not quite satisfactory, and on looking I saw a crowd of laterals which represented all the foliage on the Vines. Hardly a leaf of the first growth had escaped the pruner's knife; the shoots that had not got bunches on had been cut back to one, or two eyes, and those with bunches had a great portion of the leaves stripped off, it was said, "to let the light in." No amount of light can compensate for the loss of the first leaves, as the thin weakly leaves of laterals cannot replace the large leathery leaves which should be preserved in good health until the day they fall naturally from the Vine.

But in addition to defoliating by over-pruning, we sometimes suffer by red spider and other pests. Some kinds, of which Gros Colman is a familiar example, suffer in very hot seasons by reason of the foliage curling up and turning rusty even when there are no insect pests. When this occurs one looks in vain for a deep black colour to the Grapes; but this season the foliage of Gros Colman has kept perfectly healthy; consequently we have a better colour in the berries, even with the low temperature, than we had last season with all the tropical heat that prevailed.

Doubtless many will have noticed the difference in the two seasons on other things besides Vines; for out of doors many of our fruit trees that are now in luxuriant leafage were at this time last year quite bare of leaves, and the prophets were saying what a grand fruit season we should get in 1888, as the fruit trees were so thoroughly ripened. My hopes were counterbalanced by fears, from the fact that I have long since proved to my own satisfaction that drying off, or in any way unnaturally hastening the fall of the leaf has a different result

than the natural ripening that takes place sooner or later according to the season. We all know the result of last year's early leaf-fall; let us, therefore, now that the trees are in good health, allow them to mature the leaves and drop them of their own free will, for it must not be forgotten that the spring was very late in coming this year, and the trees must have time to perfect their growth, so that in all probability the leaf-fall will be correspondingly late. On no account would I hasten the removal of a leaf before it at least parted freely from the foot-stalk. Peach and Nectarine trees are often stripped of their leaves before growth is thoroughly finished, for as soon as some begin to turn yellow the broom is brought into play, and if inexperienced hands are set to do the work, even those that cling tightly at the points of the shoots are stripped off, so that one clearing up may finish for the season. There are not many good crops of outdoor Tomatoes this year, and I would strongly advise those who have any in fairly prolific condition not to cut away so many of the main leaves as is frequently done. The side shoots should be removed directly they appear, but hardly any crop we cultivate is so ruthlessly treated by hacking away its foliage as the Tomato. That they will ripen best with a good spread of their own foliage I am confident. Those who go in for the very early forcing of Vines, Peaches, &c., are compelled to use artificial means to get their trees to rest. This, however, is no justification of the same means being employed by those who wish for a full crop in the natural season of growth. With the early forcer the tree is not expected to last for any great length of time; but to those who want long-lived trees and crops of the finest fruit without much forcing, I would say preserve the foliage of your trees or plants in health as long as possible, as its forcible removal will be felt in diminished crops the following year. JAMES GROOM.

Gosport.

GRAPE CULTURE.

I am obliged to Mr. Coleman for his courteous criticism of my remarks on thickly planted Vines in THE GARDEN for Aug. 18 (p. 155), and also for pointing out what may perhaps be regarded as contradictory therein. I was, however, careful not to express a decided opinion on the utility of allowing as free an extension of the laterals as possible; I merely recorded my impressions, my principal object being to elicit the views of some Grape growers on this subject. After reading Mr. Coleman's article in THE GARDEN (p. 167), one is almost forced to the conclusion that extension in some shape is the one great factor in promoting longevity and fruitful vigour in the Vine. The famous Hampton Court Vine probably owes its long life to the fact that the house in which it grows was lengthened on two different occasions. In the instance mentioned by me, the Vines originally appeared to have been allowed a fair amount of room, but supplementary rods were taken up, with the result that even by restricting each shoot to two leaves there was not space enough for them to get the full light. The laterals were shaded by the principal leaves. In such a case I think the better plan would have been to have pinched out the laterals altogether, on the principle that one leaf exposed to the strengthening influence of sun-light and air is equal to or better than several that are deprived of it. Many Grape growers consider that the stopping of the shoots, in addition to being a necessary operation to keep them in bounds, increases the size of the berries by throwing a stronger flow of sap into the bunches. Mr. Coleman observes that the first stopping causes "an obstruction in the flow of the sap past the bunch," which amounts to the same thing. Assuming this to be correct, there would seem to be good reason for believing that the continued suppression of laterals would cause a more direct flow of sap into the bunch all through the ripening periods. Some Grape growers maintain this to be the case, and I am bound to say that I have seen very fine houses of Grapes produced under this system. The question is whether the Vines do not ultimately suffer, and whether, if even a heavier crop of fruit is secured, the vigour of the Vines suffers in the long run. Every inch of growth that a plant makes has its direct influence on root-formation. You cannot suppress foliage and encourage root action at the same time. No one, for instance, would think of repotting and pinching back at the same time, for the reason that there is a temporary check to root-activity. It is, therefore, only reasonable to suppose that the more growth a Vine is allowed to make the greater will be its root-development. A friend, on taking charge of a garden, found a house of Vines in a rather bad plight. They were so thickly planted that there was no room for lateral growth, which, however, had been allowed to form. As may be imagined, the berries were small and badly shanked. Not wishing to cut out any of the rods, it was resolved to try and suppress the laterals altogether and allow the growth to extend from the top after the berries began to swell. This was done for several years, and I never saw Vines improve so fast. The growth at the top was turned downwards, side growths only being suppressed. My friend's notion was that the foliage he had would be of the right sort, and that by allowing the top shoots to ramble, root-activity would be increased. Judging from results, he should have been right. If Vines are given room, laterals can be allowed to extend at the discretion of the cultivator; but I often come across instances where they are so thickly planted, that it is worse than useless to allow them to form.

J. C. B.

PEACHES AND NECTARINES AFTER FRUITING.

It not unfrequently happens that fruit trees under glass do not receive nearly such good attention after maturing a crop as they both merit and need. If they do not recoup much of the strength expended on the production of a heavy crop in the autumn, or while yet the foliage is fresh and green, when are they to do it? Instead, therefore, of allowing the red spider to overrun and completely cripple the foliage and the borders to become much too dry, the red spider ought to be held in check as long as possible and dryness prevented at all times. All the while the syringe, engine, and watering-pot are regularly used everything usually goes on satisfactorily; but a sudden change from a humid atmosphere to the other extreme and the withholding water from the border soon favours the spread of spider, and the drying of the borders to a considerable depth. The consequence is the premature loss of much of the foliage; while wholesale cracking of the border does incalculable mischief to the roots. Keep the foliage free from red spider and the borders uniformly moist, and the trees will perfect abundance of fruit as well as wood-buds, and the formation of abundance of root-fibres will be greatly assisted. Neglect these precautions, and the chances are the majority of the flower-buds will drop off prematurely, and in any case the trees will be so much weakened as to be incapable of perfecting a full crop next season. Those, then, who are ambitious to grow abundance of fruit of the best quality ought to take the trees in hand now, and not wait till the beginning of the year before they bestow every attention upon them.

There is no necessity to continue syringing the trees once or twice daily; in fact, if this is followed up too long it may hinder the thorough ripening of the wood. As far as the southern counties of England are concerned, very little difficulty is experienced in well-ripening Peach and Nectarine wood under glass; but the case is very different in less favoured localities, where a drier atmosphere, caused by the aid of fire-heat, is often necessary for the latest trees. Our plan, which answers very well, is to set all the lights wide open as the houses are cleared of fruit, and to discontinue the syringing of the trees. Instead of this, the foliage may be coated both on the upper and lower sides with sulphur, which effectually checks the spread of the spider without apparently injuring the trees. The simplest method of applying the sulphur is to squeeze a good handful through a muslin or coarse canvas bag into each 3-gallon can of water, which is then syringed over the trees. It is found necessary to repeat the dose two or three times before sufficient is lodged on the foliage. After this the foliage may safely be left to take care of itself, as the spider will make no progress where sulphur abounds. I should add that it is advisable before sulphuring the foliage to cut away much of the old fruiting wood or as much as is usually removed at the winter pruning. This admits more light and air to the young growths intended for fruiting next season and ensures more thorough ripening. After being frequently moistened and perhaps much trampled upon, the surfaces of borders are almost certain to shrink and crack badly directly such treatment ceases, and this should be prevented as much as possible. Abundance of roots ought to be near the top, and the border must therefore be very carefully loosened either with a fork or a flat hoe. Before doing so a good watering should be given, and repeat this as often as may be needed. Unless this is done, much of the water will be wasted and the border only half moistened. Any borders that are now badly cracked may well have a surfacing of good fine soil, or say a mixture of loam and old Mushroom bed manure, as much of this as possible being stirred into the cracks. Whenever the border approaches dryness it should be watered, this being a much better plan than waiting till more than double the quantity of water is required to thoroughly moisten it. Young or comparatively young trees in fairly rich borders need nothing but clear, soft water, but any that have borne a heavy crop and have long been established in a border ought to receive one or more liberal supplies of liquid manure of some kind. This will greatly benefit the trees, and if repeated later on will further enrich the borders in anticipation of a brisk root action in the spring.

After the wood is well ripened, and while the leaves are yet comparatively green, is the best time for transplanting the trees from one house to another, and also for bringing others inside that may have been prepared on the open walls. No time can be fixed for shifting trees in full leaf, so much depending upon the positions of and the state of the trees. After repeated experiments, I have arrived at the conclusion that it is better to be rather late in moving the trees, or, say, only a short time before the bulk of the leaves fall, than to transplant before the wood is quite firm and the buds plumped up. Both the leaves and the unripe wood on newly moved trees are apt to shrivel badly, and a great check or partial failure is the consequence. In any case, the longer the trees retain the foliage in a fresh state, the greater the certainty of a number of root fibres being formed before the tree goes to rest, and ultimate success is more certain. We have, however, shifted, from one house to another quite large trees which, in spite of the loss of nearly all the leaves soon after the operation, perfected comparatively heavy crops during the following season. As a rule, young trees ought to be prepared in successional houses for transplanting to the earliest compartment, as those brought in from the open air rarely do well. Last year the trees ripened their wood earlier and better on the open walls, and we tried the experiment of bringing in a good-sized specimen of Sea Eagle. This moved well, shed its foliage fairly early, and this season gave us a valuable crop of handsome fruit, which, though much later than that of the rest of the rest of the varieties in the house, ripened most opportunely.

Peach and Nectarine trees that have not been very long in one position are by no means difficult to transplant, especially when they have been encouraged to form abundance of root fibres near the surface. It is unwise to attempt moving a large ball of soil with the roots, as this is liable to break away in large lumps carrying much fibre with it. The aim should be rather to save as many roots as possible, and with this end in view a wide and deep trench should be opened well away from the stem of the tree, the soil being gradually forked out and thrown back. It ought to be an easy matter to gradually undermine the tree so as to leave a flat ball about 3 feet across resting on a pedestal of soil and ready for

sliding on to a short, stout board or a low hand-barrow, on which it can be lifted and carried to its fresh site. Prior to being moved all the longest roots ought to be carefully tied up to the stem, and not let down till the tree is set upon a fresh bed of soil, when all bruised pieces should be cut away and all broken points carefully trimmed, this being necessary to facilitate healing. We prefer to plant rather high on a firm bed of soil, as unless this is done the trees are liable to sink below the level and eventually become too deeply rooted to do well. The roots find their way downwards only too readily, and the planter should do his best to counteract this downward tendency, first, by disposing the roots thinly and evenly near the surface, and subsequently by liberal treatment in the way of mulchings, surface-dressings, and waterings. For a time newly-planted trees ought to be shaded from bright sunshine and syringed overhead as often as the leaves are found in a dry state; the house should also be kept rather close, this preserving the foliage, which in its turn benefits the roots.

Trees in a sickly state will be improved by having a trench cut round them, being then gradually undermined and the deep-running roots searched out, shortened and replaced in good fresh compost. If the collar of the tree is much below the surface it is advisable to carefully raise the ball and roots so as to bring them up considerably higher, this amounting to replanting. If done before the leaves cease to perform their functions, fresh root fibres will be formed, and a marked improvement in the health of the tree will be noticeable next season. Root-pruning is also beneficial to trees that are growing too strongly—this being necessary to induce fruitfulness—but any that are in excellent health and profitable may well be left alone, as annual lifting and root-pruning are to a certain extent risky operations, and in our case not at all satisfactory. W. Iggulden.

Apple Ribston Pippin.—I have been somewhat surprised to find the above variety included in your list of first-rate Apples. In former years its quality was said to be excellent, and many well-known writers have praised it. But my experience differs. It has either greatly degenerated as regards quality, or the soil and climate in various parts of the country have something to do with it. In many parts I have found it exceedingly dry, though of fair flavour. Dry Apples we have in plenty; therefore the aim now should be to produce such varieties only that are luscious and juicy.—C. C.

Melon Scarlet Gem.—One of the best Melons for frame cultivation is the old Scarlet Gem. It has a good constitution, grows freely, sets well, and each plant will carry six or eight fruits of excellent flavour. It is not one of those varieties which will fill a frame with foliage at the expense of the fruit, but it grows very stocky under ordinary treatment, and although an old variety, it holds a place as one of the very best frame Melons we have. About the middle of June of this year, after the bedding plants were cleared out of a large four-light pit, two hillocks were made, each consisting of one wheelbarrowful of loam. The light was placed on the surface which had been used to stand the bedding plants upon, consisting of straw and leaves from which the heat had escaped. Upon each hillock a stocky Melon plant was set. The pit was kept fairly close, and we made the most of what little sun heat we have had. The growths were kept thin and water was given carefully, always using it warm; the result has been a capital lot of well-flavoured Melons.—E. M.

The best form of fruit tree.—The planting season for fruit trees is now close at hand, and many intending planters will be considering what form of tree to adopt. It is impossible to state definitely the kind of tree that will best suit all cases, but for garden culture, as distinguished from field or market growing, I think there is no form of tree so useful as that of the bush. It is the most natural form of tree, for whether it be a seedling or raised in the ordinary way from a graft, it will branch out into the form of a bush, varying only in a more or less erect or spreading habit of growth according to the variety. It is the crowding together in the young state that causes trees to run up with straight stems for standards, but except for orchards that are laid down with Grass for grazing, there is no object in having the heads of fruit trees elevated into the air. They are more under control when kept down within reach, and they can be more readily attended to. Another reason in favour of the bush tree is that it is the cheapest of all forms, for training of any kind only adds to the expense, and while this is going on the bush tree is formed and bearing crops of fruit. If the shoot from the graft or maiden tree is stopped as soon as it reaches a foot high, it forms side shoots at once, and these being pinched again, a good head is formed in a short time without any cutting off of branches, which frequently results in wounds that lead to canker, and perhaps to the death of the tree. If I were confined to one form of fruit tree I should unhesitatingly adopt the bush in preference to all others.—J. G. H.

PROFITABLE APPLE CULTURE.

The recent fruit conferences held at St. Albans and the Crystal Palace have proved helpful in calling attention to the need that exists for a better and larger supply of English-grown fruits, and especially of Apples. The Apple is peculiarly an English fruit, and when it is remembered that the United States of America annually send to this country Apples to the value of £600,000, Canada to the value of nearly £100,000, and Continental countries, through Belgium, to the value of upwards of £100,000, it is time that English fruit growers roused themselves to a consideration of the question. Are the Apple-producing resources of the United Kingdom tested to anything like their ordinary, much less utmost, capacity? It is acknowledged that England possesses the finest climate in the world for the production of Apples, that there is a pleasing acidity and a briskness and piquancy of flavour characterising them not to be found in the best samples of American fruits. All competent authorities are agreed that, provided the productions are first class, the foreigner can be successfully competed with by our home growers.

We have in this country thousands of acres of Apple orchards that are practically worthless for the production of high class fruits. The sorts are inferior, the fruit is gathered in a haphazard fashion, there is little or no attempt at sorting, and good, bad, and indifferent fruits are sent to market in a condition that cannot command remunerative prices. The system of Apple growing in this country needs a radical change. Suitable land in the right districts, properly prepared and planted with the best and most profitable sorts—not with a great number of varieties, but with a large number of trees each of a few sorts that can be confidently recommended for the purpose—are some of the leading principles upon which profitable Apple culture in the future must be based. One lesson to be derived from the recent fruit conferences is in the shape of the publication of lists of varieties of our best English Apples, supplied by some of the most reliable fruit cultivators of the day.

The Royal Horticultural Society has this season at its Chiswick gardens, where practical fruit growing is constantly being illustrated based upon the best principles, afforded an admirable illustration not only of some of the best sorts of Apples to cultivate, but the best kinds of trees to plant. Two types of trees are necessary, one the bush form, that is a small tree grafted upon a dwarfing stock, such as the French Paradise, in order to yield immediate crops, and the ordinary standard tree, which requires time to grow into size, and from which an adequate crop cannot be looked for under ten or fifteen years. At the Chiswick gardens we have this season seen small bush trees of Apples on the French Paradise stock, from 5 feet to 7 feet in height and 5 feet through planted 6 feet or so apart, literally breaking down with the weight of fruit upon them, and such fruit, too—large, handsome, and of the best market value. And they bear annually in this way. They need but little pruning, for the act of fruiting keeps growth in check. It is not too late for anyone interested in high-class Apple culture to inspect these trees. The fruit of the earliest is gathered, but there are yet several later varieties in bearing. They comprise such sorts as Duchess of Oldenburg, Keswick Codlin, a well-known London market Apple; Cox's Orange Pippin, the finest dessert Apple that can be grown; Echlinville Seedling, Golden Spire, Winter Hawthornden, Lane's Prince Albert, Lord Suffield, Peasgood's Nonsuch, Yellow Ingestrie, Pott's Seedling, Small's Admirable, Stirling Castle, Stone's Apple or Loddington Seedling, Wellington or Dumelow's Seedling, one of the very best late keeping Apples, and Golden Noble. In this list we get early, midseason, and late varieties, dessert and culinary, and all are suitable for growing upon a dwarfing stock. It is a reproach to this country that her Apple produce is both limited in quantity and inferior in quality. R. D.

FRUITS UNDER GLASS.

Peaches.

The last Peach in all save the very latest houses having been gathered, it is not unreasonable for the slightly initiated to assume that they may now throw open the ventilators and allow the trees to take care of themselves. No greater mistake, I venture to say, was ever made, as daily and yearly experience prove beyond doubt that next season's crop may be made or marred by good or bad treatment before the trees are pruned and tied in ready for starting. Indeed, Peach culture under glass really and truly begins immediately after the crop of the current season is gathered, and those who have followed me will find that I have advised early pruning, thorough cleansing, liberal ventilation, and abundant watering when the trees are going to rest, and dry borders, old practitioners tell us, are favourable to the ripening of the wood. Quite true; but we must not overlook the fact that ninety per cent. of the borders they alluded to were outside; moreover, they were deep and fully exposed to autumn rains. Annual or biennial root-lifting, too, did not receive the attention we now consider imperative; consequently the roots got down out of harm's way, and nothing short of a hot dry autumn could carry warmth to the feeders. All this haphazard treatment has passed away. Outside borders certainly in early and late houses are rarely met with. A cubic yard of compost on ample drainage now does duty for double or treble the quantity, but then these homœopathic borders are inside. A sheet of glass shuts out dew and rain, the old foliage on a bright September day is exposed to powerful sunheat; therefore, water, the great saving element, must be abundantly supplied to the roots. The hose or syringe, too, must be kept going, not every day, but just often enough to keep the foliage fresh and clean, and to prevent it from falling before the wood and flower buds are filled up and perfect in all their parts. To be able to judge when this stage has been reached, and to prevent the buds from getting too forward by more abundant ventilation, or stripping for three or four weeks, a man must be ever on the watch, as thousands of buds may be pushed too far, when decay sets in and they are lost. This over-ripening is not likely to affect the earliest forced trees this year, that is provided they have had plenty of air and water; but bud-dropping and bad setting this spring in many places may be traced to premature ripening, brought about by a meagre supply of water when the great heat and dry atmosphere were taking every particle of moisture out of the foliage last autumn. I have said stripping for a short time may be indulged in, but I do not recommend it unless it be to favour painting and repairs, especially where young vigorous trees are well supplied with water and ventilation is on a liberal scale. Trees in the

Early house from which the fruit was gathered in June will now be fit for cleansing and tying in, but assuming that every bit of useless or superfluous wood was taken out as advised, a little delay in the performance of this work will do no harm, especially where the foliage is still hanging on the tips of the shoots. Years ago, brushing the trees with a switch

was considered the correct thing, but this practice is now honoured in the breach, and quite right too, as leaves cannot be said to have performed their functions so long as they hang upon the shoots. If any border work in this house is still in arrear, no time must be lost in checking the roots and giving them a taste of fresh calcareous compost, dry rather than wet, as it must be very firmly rammed to prevent water from finding a channel to the detriment of the undisturbed balls which may be moist to the eye, but dust-dry near the drainage. If the trees are satisfactory, and only require top-dressing, picking off inert soil down to the surface roots will at once reveal the condition of the border, which may, or may not, be improved by a good watering both before and after the compost is placed over them. When tying in is finished and the borders are known to be thoroughly moist, the house should be kept clear of plants unless they be quite hardy, and not subject to fly or spider, as the trees must have complete rest until the time arrives for starting. In

Succession houses the same rules as to pruning, cleansing, washing, and watering apply. Root-lifting, top-dressing, and transplanting, too, may be proceeded with, care being taken that newly planted trees, as yet full of foliage, do not suffer in a dry atmosphere. To prevent this, it may be necessary to shade slightly for a few days, and to keep the house rather close and moist until the laterals, by their crisp appearance, show that the roots are taking to the new compost. When trees in full leaf, but with fairly matured wood and buds, are transferred from a late to an earlier house, the compost should be moderately dry—if slightly warm so much the better—and it should be well washed in with warm water to give the roots a start. A layer of dry compost to raise the border to the proper level will then be necessary, and a light mulch of fresh stable litter, which must be kept constantly moist, will finish the work so far as the roots are concerned.

Late houses.—When the trees in the latest houses and wall cases have been cleared of fruit, cut out all laterals and shoots that will not be required next season, as they will only interfere with a free circulation of fresh air at all times, but this sunless year especially, so essential to the proper ripening of the wood. It is, perhaps, hardly necessary for me to repeat former instructions as to the supply of water to inside borders, and yet, knowing how completely the filling of the buds depends upon copious waterings, I feel that plagiarism is of less consequence than future failure. If properly drained and carefully made, Peach borders cannot easily be overwatered, even in late houses, but unless the trees are decidedly weak, nothing in the way of stimulants must be used. Where throwing out a trench, shortening back the roots, and filling in with fresh compost is performed annually, late trees can be kept within bounds, and they will produce full crops of the finest fruit for a great number of years, but once allowed to get too strong, a bad spring, especially where fire-heat is considered too great a luxury, may prove fatal to the crop. If young trees have to be bought in for filling up vacancies on reserved walls, no Peach grower should be without a reserve wall. Now is the time to make a selection for future lifting. Good gardeners choose clean, healthy stocks carrying evenly balanced heads of moderate growth in preference to others too strong to ripen their wood properly. Very large trees may catch the eye of the tyro in these matters, but when I explain that two years' growth is crowded into one by neglected lifting combined with fat soil and mulching, it will at once be seen that the conscientious nurseryman who transplants annually and thus avoids a gross growth gives the greatest value in the smallest compass.

The editor invites lists of bad varieties of Peaches, but this, I think, is hardly a fair way of putting the question, and for this reason: A particular variety may be fairly good, but when it is succeeded or more likely preceded by another of its season which is better, why then the latter may be preferred, as we have too many to choose from. Taking a good catalogue and running the finger over it alphabetically, I should say A Bec is preferable to Acton Scott, which is too small. Alexandra Noblesse is better than Alexander and Amsden's June, two clingstones, having colour and earliness only to recommend them; Bellegarde is better than Chancellor; Condor, (Rivers), is better than Early Alfred, Early Beatrice, Early Louise, or Early Rivers by the same raiser. Late Admirable and Walburton Admirable are better than Lady Palmerston or Lord Palmerston, two of the handsomest Peaches grown. Prince of Wales is better than Princess of Wales; Raymacker's is preferable to Red Magdalen, and Salway is not worth wall space.

Cherries.

If any alterations in the early house are contemplated, the Cherry being early to start and early to rest, now is the time to set about lifting and transplanting. Cherries in well-made inside borders will last for a great number of years, and produce immense crops of fruit long after they have ceased making vigorous shoots, but gumming is the great enemy, hence the importance of a good reserve wall for drawing from for filling up vacancies. If root-pruned annually, fruiting trees may be lifted and taken in at any time after the end of August. To grow and force them well, the borders should always be inside, well drained, not too wide, and composed of good friable loam of a calcareous nature. This should be used moderately dry, otherwise sharp ramming to ensure success may mar future progress by making it adhesive. When planting is finished, this dry condition must not be allowed to continue, as the Cherry, like the Peach and all other stone fruits, requires an abundance of water. Where early varieties are forced in pots, the trees will now be shedding their leaves and sinking to rest, as a matter of course, in the open air, where they must be kept as quiet as possible. If well plunged or covered up with Fern or litter, the roots will not require much water, but being very impatient of drought there must be no trusting to the elements, as the heaviest rains rarely penetrate more than a few inches into the root-bound balls. Fruit growers who have not hitherto cultivated Cherries in pots may now make a start, and, provided they secure furnished pyramids that have been regularly root-pruned, they will bear fair crops of fruit next season. Nearly all the varieties do well on the Mahaleb stock and soon become one mass of spurs, which require thinning when in a dormant state, precisely as we spur-prune Plums to let in light and air and to ensure fine fruit. Although the varieties are very numerous, forcing gardeners, who must have quantity as well as quality, generally run upon a few sorts, which should include the old May Duke, Early Rivers', Circassian, Belle d'Orleans, Elton, and Governor Wood. If one house only is devoted to Cherries, Bigarreau Napoleon and one or two late black kinds should be grown for succession. Late varieties are not so much grown as they might be, especially when an efficiently ventilated house of the simplest character, often without fire-heat, will bring the finest sorts to maturity. Anyone who has seen the magnificent examples grown and shown by the Messrs. Rivers will bear out this statement, but I must be allowed to say a taste of fire-heat when the trees are in flower and again when the fruit is ripe should be at command for driving out stagnant moisture.

Plums.

Late houses in which Golden Drop, Late Rivers', and the like are now ripe, or approaching that stage, must now be kept moderately dry, well ventilated, and secure from birds. If planted out in inside borders, the latter should be made thoroughly moist, but not too wet, to ensure the fruit keeping fresh and plump, and the better to keep the roots in this condition they should be covered with some short, light mulching, which will prevent evaporation. Late varieties, especially Golden Drop, in the open air will not be of much account this autumn; consequently the owners of large, well-furnished houses will have a valuable supply of choice fruit to fall back upon when Peaches have passed away, when Melons are not worth eating, and Apples and Pears form the chief feature in the dessert.

Early Plums, suitable for forcing, will now be out of doors, most likely with the Cherries, and as these two require identical treatment my preceding remarks will apply for the present.

Strawberries.

At last, September 13, we can say we have had three bright sunny days without rain, and better late than never; the change upon out-of-door crops of all kinds is marvellous. Strawberries, as all growers know, enjoy fat food and a continuous supply of liquid, also they luxuriate in bright sunshine, not only when ripening their fruit, but likewise when maturing their crowns. This latter important part of their work is, I am afraid, in many places far from complete, but here amongst the pots, as in all other departments, it is quite as easy to steal a march as to lose one—not by withholding water and causing the wet balls to bake and shrink away from the sides of the pots, but by moving each pot frequently to prevent the escape of crock roots, by giving the plants an abundance of room where sun and air can play freely amongst them, by weeding and stirring the surface of the balls, by disbudding and pinching back the runners—simple matters of detail which everyone should put into practice in the most brilliant seasons, this year especially, as the crowns are later and softer than usual. Vicomtesse Héricart de Thury in some places this last season proved disappointing, but Pluvius this year has stepped in, and, provided we now have a month's hard dry weather, I shall be surprised and disappointed if this excellent variety does not prove that past failures were brought about by a very peculiar season.

Late varieties in larger pots, if well potted and properly tended, will continue growing until the balls are bound up with roots, and so long as this progress is perceptible the supply of water must be liberal. Like the preceding batch, they will pay for coaxing, but not for coddling, by removal to a bright sunny station with a hard, dry surface, free from worms, and into which the roots cannot penetrate. In low-lying, cold grounds, in which the crowns barely ripen even in sunny years, it is a good plan to elevate the pots upon planks or dwarf walls, or, lacking this convenience, upon banks of cinder ashes. Here they may remain so long as the weather continues open, possibly until the end of October, but once sharp frosts set in plunging to the rims in old tan leaves or ashes, quite out in the open air, will be the safest course to follow. Where cold shallow pits are not wanted for any other purpose, there can be no objection to filling them with Strawberry plants; but on no account should the lights be kept over them unless the weather be very wet or thoroughly wintry. Some growers house their plants; others stack them in cones by laying each pot upon its side, crown outwards, and filling in the centre with coal ashes. But neither plan can be recommended, and for these reasons: Plants in cold houses, often a long way from the light, are apt to get dry or drawn, or both, and keep vegetating when they ought to be braving the elements and resting; in stacks or cones severe frost gets into the balls, often congealing the whole mass, when the pots fly to pieces; or, favoured by a dry winter, the balls shrink from the sides of the pots, air gets in, as plants on their sides cannot be watered, when many of the best roots perish. W. C.

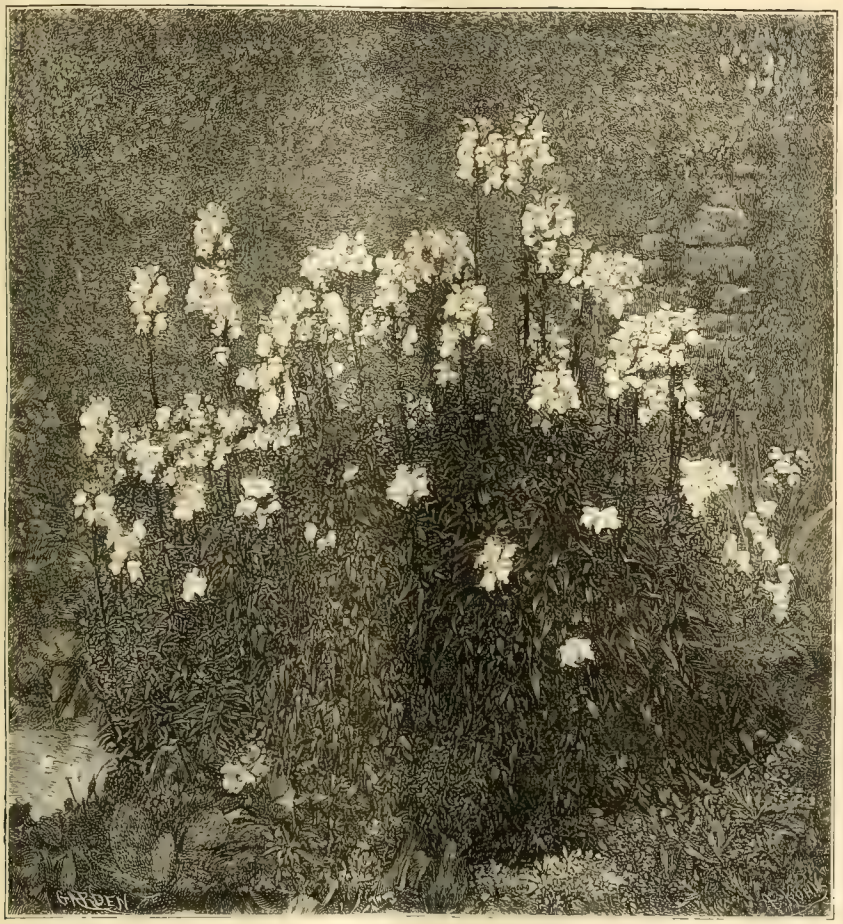
Prune Damson.—This is decidedly the best variety, and I strongly advise it to be planted in either a large way as a profitable orchard fruit or in small gardens for supplying the kitchen, as for both it is equally good. Having a free and easy growth, it is most suitable, and does wonderfully well on hill-sides, especially if sloped to the south or south-west. It also does capitally in hedgerows, and at the side of dykes, and in any out-of-the-way corners where, as a rule, nothing but Thistles and Nettles grow. It is also wonderfully hardy and adapts itself to any condition or circumstance. It is a very profitable fruit to plant, and intending planters cannot possibly make a mistake by putting it in by the thousand, for in bearing condition the average profit is from 10s. to 20s. per tree. I have frequently seen Damsons do well in disused brick-yards, where, as a rule, scarcely anything will grow.—H. Merryweather, *Southwell.*

Flower Garden.

A FINE WHITE SNAPDRAGON.

One of the many delights of a garden of hardy flowers is the occasional appearance of a treasure of unusual beauty. Such a one is the grand white Snapdragon shown in the engraving, whose flowers of large size and purity, with dark, glossy leaves, make the variety White Swan the best of its class. It was raised and named by Mr. J. T. Poë, through whose kindness it is in the gardens of many appreciative amateurs. The plant shown is in its third year and at its greatest height; in its second year it flowers densely at about a foot high. G. J.

A note on hardy flowers.—Numerous indeed are the combinations that might be produced with hardy flowers alone. A simple, but strikingly effective association of hardy plants was recently seen at Broxbourne occupying a large space in one of the borders. The background was of Bocconia cordata, a plant worth growing for beauty of foliage alone, but it is still more handsome when enriched with the plumy spikes of brownish white flowers. The double Sneezewort (Achillea Ptarmica fl.-pl.) came next, and this plant had not been formally tied up to sticks, but was growing thickly, the spikes in some cases supporting one another and in others forming folds of snowy whiteness. Rising from this mantle of white, which entirely hid the ground, were Day Lilies, crowned with numerous spikes of richly coloured flowers. Along the front was Crucianella stylosa, a plant which blooms for a long time and produces numerous heads of rosy purple flowers. Between this plant and the Achillea were dotted some fine strong tufts of Campanula carpatica, which were also in full summer glory. It will be obvious that such an arrangement will last for two or three years, when something entirely different might be done. The superiority of such a mode of displaying hardy flowers is great, and eclipses anything that is done or shown in the usual mixed border. It is by single groups of handsome and free-growing hardy flowers that our gardens should be beautified. Even a wretched season does not mar their effect, as they develop into beauty a little late, but even that does not matter, for if frosts should occur early in September, the hardy flowers at least will stand it.—A. H.



Snapdragon White Swan. Engraved for The Garden.

THE AURICULA.

The autumn growth of the Auricula begins in August, and continues until the frosts of early winter check it again. One may have an autumn bloom, too, if the buds are not picked off before the flowers open; but the growers of Auriculas, being anxious to preserve the full strength of their plants for the spring bloom, pinch the buds off from these unseasonable flower-stems. The stem itself should not be snapped through, as it may die down into the centre of the plant and cause it to decay. The growers at this season usually find time to visit each other's collections to compare notes, and to speculate on the prospects of the next season's bloom. The collections in the north are not much more backward than our own. That of the Rev. F. D. Horner, at Lowfields, shows a very small proportion of autumn bloom, and the plants are uniform in size, in capital condition, and free from any traces of insect pests. I can tell the names of nearly all the older named Auriculas by examining the foliage in the autumn; but one is greatly puzzled with Mr. Horner's collection, as it is composed mostly of varieties of his own raising. He grows George Lightbody and Lancashire Hero, but scarcely any more of the old sorts. Some varieties, such as Pizarro (Campbell), in the self-edged class, that used to stand at the head of the list ten years ago, are no use at all now. I noticed also that the seedlings raised by Mr. Horner, especially in the self class, are very vigorous in constitution, and all of them are more vigorous than the old sorts.

Mr. Simonite's collection at Sheffield contains a large proportion of seedlings on trial, but he has besides all the best older varieties in capital condition. The state of the Sheffield collection, well within the radius of this smoke-begrimed town, was quite a surprise to me. The entire collection was in better condition than our own, and some of the old varieties, such as Booth's Freedom, which I cannot grow at all, were doing well. All the northern growers were removing the pips from the autumn trusses as soon as they could be handled with the fingers.

Green-fly is very troublesome in September and October; it spreads very rapidly, and sadly cripples the plants if it is not destroyed. The late Mr. Meiklejohn, of Stirling, used to waste a quantity of snuff over this pest. He used to drop it into the centre of the plants, and fancied that as the fly clustered there most thickly the snuff would be sufficient to keep it off altogether. I have tried tobacco powder in that way, but it spoils the appearance of the plants. Fumigating with tobacco smoke is not only the most effectual, but is also the cleanest method of destroying green-fly.

The larger leaves, which were produced in the spring and have done duty through the summer, will gradually decay. When they become quite yellow they must be removed, or they may cause the stem to decay. Some varieties are more liable to be injured in the main stem than others, and when a black spot forms thereon it speedily increases in size, and soon destroys the plant. This decay is caused in various ways and cannot always be accounted for. The only remedy is to cut the plant over, and re-pot the top in a $2\frac{1}{2}$-inch pot, using fine sandy soil. The cankered part must be clean cut away. Taking the top off the plant will cause the old crown to break out with offsets, and these will usually be quite healthy. Canker is not common amongst recent seedlings, but is confined mostly to the old sorts. The smallest offsets are soon injured by damp, and they require careful attention in watering. When rooted they require ample ventilation. Seeds were late in ripening this year, and they were about two weeks later in being sown, but the young plants from this year's seeds are now pushing through the ground. They are in a position where the sun does not touch them after eleven o'clock in the morning, and they do not require any shade. Even from seed sown as soon as gathered vegetation is very irregular. A few plants will appear in two or three weeks after sowing; others at intervals up to the end of March the following year.

The show Auriculas are not very well adapted for planting out in the rock garden. Many of them have their foliage so densely covered with farina, that it is not possible to have a perfect plant where it is exposed to wet. Green-foliaged varieties do not suffer in this way, but the best varieties are too valuable to be planted where there is any chance of losing them. Of the edged flowers, such vigorous varieties as Robert Trail, Mrs. Moore, Colonel Champneys, and Marie may be planted out, and the self variety Lord of Lorne is also vigorous enough. The alpine forms of the Auricula are hardy enough for planting out in the rock garden or anywhere if the water is not stagnant. We have large clumps of them growing in the garden out of doors, and in a position where they are freely exposed to sun and wind. They were covered deep in water for two days in July and August, and seem to be none the worse for it. They do not mind exposure to the sun, either in pots or planted out. The parentage is quite different from that of the show varieties. A good alpine has no farina, either on the flower itself or on the

leaves of the plants. They produce seeds much more freely than do the show varieties. They will produce nearly ten times as much seed from an equal number of plants. The seeds are generally good and the plants flower sooner. We grow a frameful of the best alpine Auriculas, as we like to see them produce their trusses of flowers under glass. The colours are so rich and pure, unstained by rain or snow. We had a good bloom out of doors this year, but the flowers were covered with snow when fully open, and the paths were in such a wet state that it was impossible to admire them with any degree of comfort. Owing to the inclemency of the weather in the early spring months, the enjoyment of our choice flowers out of doors is very much interfered with. The shelter of even a cool greenhouse in the spring-time of the year benefits the blossoms of our hardy plants. The original parents of our garden plants are interesting subjects to cultivate in the rock garden.

The correct parentage of both the show and alpine Auriculas was pretty well defined at the Primula Conference held at South Kensington on April 20 and 21, 1886. The Primula Auricula, with trusses of yellow flowers and a centre powdered with white farina, was judged to be the true type of the edged flowers. It had mealed foliage. P. Balbisi is only another variety with brighter yellow flowers of the same character and leaves destitute of powder. P. venusta and Göbli, Mr. Baker also alluded to as probable parents of the garden Auricula. I also flowered the pretty little P. Obristi of Stein, and it is very like a form of P. Auricula. With the exception of P. venusta, all the above have yellow flowers. This last-named species has dark purple flowers, and here we have the probable parent of our Pizarro, Heroine, and other selfs.

P. pubescens varies in colour. I have raised from seed a yellow variety of vigorous constitution. Though introduced into cultivation about 1582 by Clusius, who sent it from Vienna to his friend, Van der Dilft, it is supposed to be a hybrid between P. Auricula and P. hirsuta, and, like most hybrids, would be liable to sport from seeds into various colours. Mr. J. G. Baker says of this Primula: "What cultivators call the alpine Auricula I believe to be substantially Primula pubescens, which is a plant that Kerner writes about." Kerner tells us that Clusius grew it in his garden under the name of Auricula Ursi II., and he (Kerner) further states that the cultivation of Auriculas spread so rapidly in the seventeenth century, that they appeared in most gardens in Belgium, Germany, England, and Holland, and in the year 1664 several cultivated forms of P. pubescens of different colours were known. Kerner seems to think that P. pubescens was the parent of all the Auriculas. If I interpret aright, the remark at p. 219 of Primula Conference reports: "P. Auricula, not yielding varieties, gradually disappeared from cultivation, while the other increased them continually until more than 1000 forms were in cultivation." He further adds that "the Auricula (through P. pubescens) is the only alpine plant that has become a generally cultivated florist's flower." There is of course considerable difference of opinion amongst experts as to the source of these cultivated Auriculas. The best cultivators of them are careful not to cross the alpine and show Auriculas with each other; in fact, it has been stated on excellent authority that they will not breed one with the other. I have not tried the experiment, nor do I know of any instance of the alpine Auriculas being crossed with the show section. JAS. DOUGLAS.

A pretty vase of flowers.—My wife has arranged a Japanese vase for the centre of the drawing-room table, I think most effectively. The vase stands about 15 inches high, and is of the usual Japanese shape. In it she has placed three spikes of Kniphofia, half-a-dozen blooms of Helianthus rigidus, a spray of Bocconia cordata, and three or four stems of Anemone Honorine Jobert. These are all cut long, and so there is no bunchiness about them. We have found it a good plan to cover the mouth of the vase with brass netting about three-quarter-inch mesh; this holds up the flowers and prevents them falling down too far into the vase. The combination strikes me as very pretty. —DELTA.

Helianthus multiflorus plenus and Helianthus multiflorus grandiplenus.—There is a disputed point as to whether we have two varieties of perennial double Sunflowers in our gardens; indeed, to settle the question I have purchased from a leading London hardy flower grower the one I would wish to designate anemonæflora, just as I would that form of Chrysanthemum. The outer guard petals and the tassel-like formation of the centre are very full and beautiful, while in the case of the one I call grandiplenus the petals are frilled towards the centre like those of a Dahlia, the colour brighter and the bloom much finer. I have not seen it mentioned in any journal or catalogue. The plants are growing with me side by side, and they are distinct both in foliage, habit, and bloom.—SOLEIL D'OR.

Aster Cornet.—"R. D." in THE GARDEN, Sept. 15 (p. 242), does good service in calling attention to this beautiful Aster. It cannot be too widely known, for it is certainly the finest Aster I have ever seen. Last year I grew a bed of it and several of the blooms were 9 inches in diameter. These were not on disbudded stems, but grown in the usual manner without any special attention, although the soil in which they were growing was moderately rich. Had they been disbudded the blooms would undoubtedly have been much finer. This year I have seen several samples, though apparently owing to the inclement weather generally experienced this season the blooms were of poor size and quality.—C. C.

Old garden Tulips.—These during recent years have not been so extensively grown in Holland as the early-flowering dwarf varieties, but some firms have recently taken up their culture, and now offer collections under the name of "late variegated amateur Tulips." These are divided into sections, thus: The "violets and roses" are those striped or marked with rose or purple on a white ground or bottom colour. The "bizarres" are marked with red, brown, or chocolate on a yellow ground colour. The "mother Tulips" are seedlings of various kinds which have not become rectified, that is to say, they have not as yet shown or developed their true colours under cultivation. One Dutch firm announces that they are preparing a special catalogue of late Tulips, comprising the old Dutch and new Flemish amateur Tulips, as well as another of mother Tulips or breeders, of which they boast "a new collection, surpassing by their brilliant colours all that up to this date has been admired in Tulips." Of these, which are not as yet in the trade, a number of sorts suited for out-door planting and for cut flowers are to be offered next autumn for the first time. It is pleasant to find a revival of interest in the Tulip as an open-air flower, and it is to be hoped that many sunny old gardens will soon be as richly stored with them as they were fifty or a hundred years ago. In the north of England the florists' or amateur Tulips have never been quite given up, and those who have kept these lovely flowers may now congratulate themselves that they are again valued at their true worth.—F. W. B.

Single Dahlias.—Perhaps the most striking of all the single Dahlias is W. T. Abery, in which most of the white petals are banded down each side with scarlet. A good companion variety is Lilian Abery, in which yellow takes the place of the scarlet, the character and habit of the two plants being otherwise very much alike. There is less novelty, however, among the single than the Cactus and other Dahlias. This probably arises from the popularity of seedlings, many of which may be trusted to produce varieties equal to the average quality of not a few named sorts. Among selfs, Avalanche, White Queen, Duchess of Westminster, and Bridal Wreath are the finest. Yellow: Aurator, Flavius, Sunbeam, Yellow Boy, and Yellow Gem. Scarlet: Defiance, T. S. Ware, Mr. P. Barlow, Fire-fly. Crimson: Eclipse, Faust, George Hardridge, Nellie Ware. Of other mixtures or shades of colour, the following are among the more striking: Mr. Rose, rose ground colour, striped with white; Chilwell Beauty, ground colour yellow, barred with scarlet; Faust, reddish crimson; Acquisition, crimson, barred with scarlet; bicolor, reddish crimson, with a ring of yellow; Comet, reddish scarlet, veined and suffused with gold; Cetewayo, still one of the best dark varieties; Eclipse, crimson-scarlet, deep orange base of petals; Gracilis superba (the elegant, finely-cut foliage of this variety entitles it to rank as a distinct species), rich crimson; Little Beauty, a rich mixture of yellow and buff; Mrs. Kennet, distinct crimson stripes on a golden ground; Improved Midget, rich orange-scarlet, shell-shaped flower; Magpie, cerise, tipped with white, dark maroon centre; New Life, pure white, edged with rosy lake; Paragon, still one of the best and most striking of all the dark shaded flowers, but unfortunately a tall grower and rather a shy bloomer; Painted Lady, deep pink; Rose Queen; Silver Queen, orange, flushed with silver; Striata, a rich mixture of pink, lilac, and maroon; Saturn, strawberry and rosy crimson.—D. T. F.

Layering Carnations.—Allow me to inform "Carnation" that in my former article on this subject I did not refer particularly to plants in pots. I was thinking of plants in the open ground, the blooming time of which is more affected by the weather than those that get shelter. If "Carnation" commences layering in July, he does exactly what I recommended, for it is certain that his plants were in this sunless year no more than in bloom at that time. Here in Surrey the "grass" of many kinds was not well made until the latter end of that month. My object was simply to point out that there is no need to wait until the plants are out of bloom before layering, an error that many growers fall into. I find that the layers made first have good roots and can now be taken off. Had I waited until the end of the blooming time they would only be beginning to make roots. Put into their permanent positions they will become well established by winter, or if they are wintered in frames they will have good balls of roots in spring.—J. C. B.

Hyacinthus candicans.—I have never seen the Cape Hyacinth bloom so strongly as this year. Flower-spikes produced by bulbs from seed sown three years ago have run up 4 feet high, and the individual blooms are larger than usual. I suppose that where it grows naturally fine weather prevails at the blooming time, but its charms are enhanced when dull weather accompanies the flowering season. In hot weather the first flowers fade quickly, but in a dull season they remain in perfection long enough for the spike to become fairly clothed with expanded blooms. If there is a hardy flower that requires massing it is this. One can scarcely err in planting too thickly, and a score of bulbs are necessary to create an effect. Fortunately, there is no difficulty in getting up a stock. The seed germinates readily if sown in spring, and in the third year the seedlings bloom well.—J. C. B.

Double-flowered Violets in boxes.—In some places there is a difficulty in obtaining double-flowered Violets to succeed throughout the winter in frames which cannot be heated to keep out the frost. By growing them in boxes or pots this difficulty may be overcome, and in some places this is a more convenient way of securing a supply of blooms. Amongst those who cannot spare a frame for Violets only, pots or boxes can be placed on the shelf in the greenhouse or vinery. Now is a good time to lift the roots with a portion of soil attached. Place them in either pots or boxes, using a fairly good soil in which there is plenty of good leaf-mould. Place the plants in frames, shading from bright sun for a few days until new roots are forming, when they may stand outside altogether until danger of frost is apprehended, when they should be placed in their winter quarters. If a frame cannot be had, behind a north wall will do.—M.

Saving seeds of African Marigolds.—It is not everyone who knows how to save the seeds of these Marigolds properly. I find the following plan answers best: When the flowers have faded should the weather be dry allow the head to remain upon the plant to swell up the seed for a week or so. If longer than this, there is a fear of the pods rotting

in the centre. Cut the seed-head with 4 inches or 5 inches of stem, place this in a narrow-necked bottle—a medicine bottle answers well—one bloom pod being in each bottle. Stand them in a dry fruit room, taking care that there is enough water in each bottle to immerse the stem. In a month or six weeks' time the seed may be taken out, cleaned, and stored away.—E.

GARDEN CARNATIONS.

The apparent difference between two such experienced cultivators as "R. D." and "A. H." (see p. 242) is easily explained. "R. D." looks at the Carnations through show spectacles; "A. H." sees them with his natural vision. The beauty desiderated by these two writers is different. The exhibitor appreciates no blooms that are not sufficiently perfect for prize stands. Those who grow for home enjoyment and the brightening up of flower beds and borders can find all they want in the open air. No doubt, too, in some localities and seasons good show blooms may be had from the open. But this is of little moment. What are called—and truly called—garden Carnations are seldom those most suitable for showing, and the pleasures and pains of showing are likewise something quite different. It may be more, but is often less, than the more simple and perhaps higher pleasure of growing. Pots, glass, shading, dressing are not all, nor always helpful to enjoyment. They may deepen or preserve colour, prevent tarnishing, maintain perfection of form, and so assist in winning prizes. But they are more mechanical and purely cultural, and fortunately a rich and satisfactory harvest of pleasure may be reaped in open beds and borders without them.

But there is more than ample room in most gardens both for garden and show Carnations. A considerable percentage of show varieties will also make fairly useful garden Carnations, though *vice versa* does not hold good.

The attempt, in fact, to place garden Carnations on show stands, or show Carnations that have had no special preparation or dressing side by side with those that have had much of both, has created a prejudice against them in the minds of mere exhibitors. But this is really a small matter, for to one cultivator who cares to show Carnations, there are at least a hundred who desire to grow them in open beds and borders in their gardens. Hence we may hope that no differences between your correspondents will check their wider cultivation. They look on the plants from diametrically opposite standpoints, that is all. There is hardly a garden anywhere but would be vastly enriched and improved by a tenfold increase of its stock of hardy Carnations. The cut flowers are hardly of secondary use to the Rose itself. "A. H." but expresses the simple truth in his sweeping statement, "that what the florists grow and how they grow them, has little bearing on the capabilities of the Carnation in gardens." Never have they been more useful, though seldom so late, as this season. Not a few of the more delicate varieties, such as most of the pale creams and yellows, had a hard struggle for life and health during the winter and long cold spring and summer, that have been more like a continuance of winter than real summer. Still, most of the red varieties have bloomed freely, also some of the white and yellow kinds, though more hardy varieties are still wanted. Selfs are not only most telling in the garden, but most useful for bouquets and decorations. By careful selection of the hardiest strains of the older and newer varieties, there seems no reason to doubt that races of garden Carnations may be raised or selected that will be able to battle against our climate as successfully as our Tea or Hybrid Perpetual Roses. True, we lose more or less of our garden Carnations during such winters as the last, but who keeps count of the number of Roses that have succumbed under similar conditions? and yet no-one has seriously proposed that these should be generally wintered under glass. Hortus.

Pansies.—This has been a remarkably favourable season for these plants in the south of England, as the abundant rainfall has kept them growing and blooming continuously the entire season. Those who value their stock should see that the old flowering shoots are now cut out, so that the young ones which spring from the base may have time to get well advanced before winter sets in. The young ones, if they are smothered by the old shoots, are weakened and die off in the winter. These beautiful plants give such a variety of colour, and are so well adapted for edging, that they never seem out of place or season in the flower garden, and in either the spring or summer arrangements they are equally effective.—J. G. H.

NOTES ON HARDY PLANTS.

Oyster Plant (Mertensia alpina).—Like very many other things, this is found to flourish in gardens under totally different conditions to those of its wild home on the sea-shore. It is not difficult to grow if you can get fresh ripe seeds. According to my experience, they will grow on walks, in sand or ashes, in pots with other plants, or on the manure heap. Slugs are fond of the leaves, and a sharp look-out has to be kept for them.

Spiræa gigantea has been grown here but one season, and it promises to be a noble plant. My specimen was very small, but it has grown 5 feet high and flowered. The palmate leaves are 9 inches across; the flowers remind one of those of the common Meadow-sweet, but the panicles are three times the size. The long, straight stems support themselves against wind and rain, although they are very graceful.

Stobæa (Berkheya) purpurea has proved a grand rainy-weather flower. Since June my two specimens have been most showy; the heads are 4 inches across, and the rays of a pale satin purple. Once expanded, the ray florets never close until they fade; the heads are arranged in a short spike on stems 4 feet high, and as there are lateral stems, the plants are showy. There are still (September 10) plenty of flowers. Some say that this species is not hardy, but with me it is quite safe out of doors. I have grown it many years without any protection in a dry stony soil. My difficulty is to keep those who work in the garden from pulling it out for a Thistle when it is out of flower.

Aster diplostephioides is a beautiful plant of coarse growth, but the heads of flower are lovely. There is a charm and richness about the flowers that it would be hard to describe. They remind one of those of Stenactis speciosa, but they are more massive, noble, and of better colour, which is saying a great deal. The heads last a long time. My specimen has stood out two winters here. It blooms in midsummer, grows 2 feet high, and is a perfect perennial.

Daphne Blagayana.—This is more easily propagated than some of the genus, and it is fast becoming a favourite plant. I took some twigs off my strongest plant in early summer, and they are all rooting nicely in pots in a mixture of silky loam and chopped Sphagnum; the pots were kept moist, but fully exposed, as there was not sufficient sun to hurt them.

Scabiosa graminifolia is a dull, dwarf, grey-coloured plant with a dirty-looking, pale purple flower. It should only be kept on one side of the garden—the outside. J. Wood.

Woodville, Kirkstall.

Cactus Dahlia.—"J. C. C." writing in The Garden, Sept. 15 (p. 242), says: "Henry Patrick is a white variety, but the colour is not pure." Having grown this variety since it was first sent out, side by side with Constance and Mr. Tait, I have proved it to be superior to either of those two kinds. I think "J. C. C." cannot have the true variety of Henry Patrick. I have now a row of Henry Patrick and Constance planted alternately, and I can cut from half a dozen to half a score of good blossoms off each plant of Henry Patrick, while I have the greatest difficulty in finding a good bloom of Constance in the whole row. As regards the colour, I send you a few blooms of Henry Patrick and the best I could find of Constance, by which you will see that for whiteness and in every other respect Henry Patrick is quite superior to Constance. Mr. Tait, which is growing on the same ground and with the same treatment, is not yet in bloom. From my experience with all these varieties I have no hesitation in pronouncing Henry Patrick as not only the best of the three mentioned, but the best white decorative Dahlia I have seen. — John Green, *Norfolk Nurseries, Durham.*

*** The flowers sent quite agree with our correspondent's remarks.—Ed.

Double Zinnias.—In front of the glass-covered Peach wall at Gunnersbury Park, which is at least 150 feet in length, Mr. Roberts has a long narrow border, one half of which is planted with double Zinnias and the other half with dwarf German Scabious. For cutting the Zinnias are magnificent just now, for having been planted in good soil they have made a vigorous growth, helped by the moist character of the summer, and they carry numbers of flowers, the red, violet and purple shades being particularly attractive. Mr. Roberts not only grows a good strain, but he grows the varieties well. He is rewarded by an abundance of blossoms, and he is able to cut large quantities for house decoration. It is his intention another year to plant the whole length of the border with double Zinnias, not only to cut from, but also because the display is so effective. A line of the double Indian Pink makes an appropriate edging to the Zinnias.—R. D.

FLOWER GARDEN NOTES.

The weather.—The glorious summer weather of the last fortnight has produced a wonderful change in the garden. It would have been impossible to have had at this late date such vigorous plants and such a wealth of fine foliage under any other circumstances than by an excess of rain and cool weather at the time that warmer weather was due. A far greater gain is the benefit that ornamental shrubs have derived from the cool, moist summer, I mean those used more especially for garden embellishment in association with flowers in beds and borders, of which the various kinds of Retinosporas may be quoted as the best examples, and the growth of which has been all that could possibly be desired. The colour and fine appearance of the shrubs at the present time are simply unique; and, with truth, I might say the same of flowering plants generally. I note the best.

Dahlias.—The show varieties of these are not grown here, single-flowered kinds and the Cactus type being most in favour, because the least formal and more free-blooming, a mass of flowers rather than perfection of individual blooms being what is most desired. This we get, more particularly in the single forms, the one greatest drawback to their culture being continuous seeding, and consequently a lot of time has to be expended in keeping seed pods off, as without such attention the flowering would soon cease. Our rule is to pick them over once a week, and this ensures an abundance of flowers the season through. The Cactus varieties do not bloom so profusely, nor require so much attention as to removal of bad flowers, but to display the blooms we find it necessary to pinch off a part of the foliage that conceals the flowers, and this we look upon as almost equivalent to pinching off seed-pods from single varieties, and treat them accordingly, *i.e.*, remove parts of the foliage that conceal the flowers once a week, the same as is done to the seed-pods of single Dahlias. Of the two, I prefer the single kinds, because of their greater freedom of flowering, and their adaptability to pinching out the points of the leading shoots to secure a dense, bushy growth. Both sections are at the present time a complete mass of flowers. I ought to add that only named varieties are grown, as this is the only sure way of avoiding disappointment at flowering time. If seedlings are grown, they should be planted in some out-of-the-way part of the garden until tested, certainly not in the flower garden

proper, where only the best of the several kinds of flowers should be cultivated.

Hollyhocks.—The wet season has suited the plants well, and the lesson will not be thrown away. Water in abundance shall in future be given them and the richest ground possible. The ground for the plants was deeply trenched and highly manured with cow manure, and as growth progressed more food was supplied by a rich dressing of manure in the form of a surface mulching. The results are extra fine plants, which are free from parasites, and have leaves like those of a great Cabbage. The spikes of flower range from 6 feet to 10 feet in length. Liberal feeding and plenty of water at the root is evidently the best preventive of the Hollyhock disease. Their full beauty can only be realised by a sight of them, and the sceptical are welcome to see them.

Yellow and White Marguerites.—We have used these in various ways, but the most effective is in a mixed flower border that is for the most part planted with summer-bedding plants such as Lobelia cardinalis, Anagallis, Cupheas, Marvel of Peru, Calceolaria amplexicaulis, Heliotropes, Fuchsias, and seedling Petunias. I maintain that in arrangements of flowers of every description there should always be some characteristic feature in each arrangement of bed or border, and these Marguerites give a finish to the arrangement, while their long-lasting flowers are an additional reason for using them. Our plants are from cuttings struck in the spring, my experience being that these are best for planting in the border, as they grow away kindly as soon as put out; whereas autumn-struck plants that have been cramped in pots during the winter often refuse to grow till the summer is far advanced.

Fuchsias.—These are amongst the best of our summer bedding plants, and belong to the few that have been satisfactory this summer. The warmer weather has caused them to break into renewed growth, whilst in regard to flower it would be impossible for them to bloom more freely. They are used in several beds as a kind of central block—oblong and round—and are a good distance apart, so as to admit of other plants being planted underneath. The Fuchsias are all dark red-flowered varieties; hence the colours of the flowers used as undergrowth are for the most part white and light blue, such as Violas Mrs. Grey and Countess of Hopetoun, blue Ageratums, and Agathæa cælestis, the entire block of Fuchsias and the groundwork plants being, as it were, built in with a wall of variegated Pelargonium Lady Plymouth.

Hyacinthus candicans.—This has this season gained high honours, and must be grown much more extensively another year. We planted the bulbs in groups of three in the herbaceous plant borders, and for the last five or six weeks the tall spikes (in some instances over 3 feet) of pure white bell-shaped flowers have been conspicuous objects. This Hyacinthus was also planted largely in conjunction with Gladioli in the Rose beds, and now that the Roses are scarce and these bulbous plants at their best, their value in this connection is obvious. The bulbs of both winter safely in our dry soil, provided the crowns are well protected with ashes or Cocoa fibre. I would not advise such wintering in soils that are at all wet, and even in dry soils annual lifting and replanting is preferable.

Herbaceous Phloxes.—These have been and still are wonderfully free, and nearly all of them have grown to double their usual height, clearly indicating what moisture-loving plants they are. I fancy that I have discovered a way of lengthening the flowering season. My wrinkle was gained in this wise. A number of plants threw up an enormous display of flower-spikes, and the thought occurred to me to cut back half of the number on each plant with a view of getting the flowers of the remainder finer. This was done to about half the lengths of the flower-stems, as to cut them quite down I thought would make the plants look thin, and here comes the wrinkle. The surplus stems cut back in this manner have each thrown out three or four other small shoots and these have developed flower-heads, and though not so fine as the spikes that were not cut back, they are now very handsome. The earlier spikes are past. Another year this way of lengthening the flowering season will be practised on every plant. W. Wildsmith.

Lavatera rosea.—Some very fine and striking bunches of this comparatively new annual, also known as Malope grandiflora rosea, were recently shown by Messrs. Sutton and Sons, of Reading, at the exhibition in connection with the Bath Floral Fête in the Sydney Gardens. I have seen this annual before, but never so deep in colour, so large, and so striking as at Bath. This enterprising firm sent to Bath a very remarkable collection of flowers from the open air, admirably arranged in large bunches. I made a note of a few of the leading flowers in the collection, and they comprised the rich golden Coreopsis coronata, Lupinus hybridus insignis, Godetia Lady Satin Rose, Malope grandiflora, and grandiflora alba, Chrysanthemum carinatum in variety, and especially the showy albo-coccineum, the pretty blue Lupinus nanus, Rhodanthe maculata, Lupinus hybridus albo-coccineus, Lobelia fulgens Queen Victoria, bunches of the beautiful Shirley Poppies, Chrysanthemum coronarium, double white and double yellow; Phlox Drummondi in very fine variety, Gaillardias, double Zinnias, Stocks, Mikado Poppies, &c., thus illustrating what a wealth of hardy things is available for the decoration of the garden at this season of the year. I think that the fine development of these hardy flowers was one of the main attractions for visitors, and it showed what striking characters can be given to some of these common flowers when they have a good and painstaking cultivator. Not only is good soil given them, but the plants are thinned out so as to leave ample space for individual development. Many of the annuals grown for the decoration of gardens are left far too thick. It is not to be wondered at that showy annuals are contemptuously referred to as rubbish when indifferently treated in this way. If anyone will have annuals in their best form they must be cultivated, and not sown on poor ground and in out-of-the-way spots as unworthy of serious attention.—R. D.

Rose Garden.

T. W. Girdlestone.

EXHIBITION ROSES.

It is satisfactory to note that the majority of the Roses recommended in the supplement issued this year by the National Rose Society to their catalogue of select varieties have been conspicuous at the leading exhibitions during the season. Crown Prince was very generally and well shown, and is at last obtaining the recognition it deserves as a handsome, broad-petalled, deep purple-crimson Rose of great richness of colour. The two previous hot summers were, of course, much against dark Roses, but this year the dark Roses have had it all their own way, and Crown Prince in particular has found many admirers, not only as a striking flower for exhibition in a cool season, but also as a very vigorous, free, and perpetual variety in the garden. Another dark Rose that has flowered in great beauty this season is Jean Soupert, a variety which is undoubtedly one of the most distinct and striking of the dark Roses, with its velvety maroon-crimson flowers, and, considering what fine blooms are afforded by this Rose in the autumn, it is somewhat surprising that it should have been apparently overlooked by so many growers.

Alphonse Soupert early in the season was very beautiful, the glowing rose colour of the large perfectly formed flowers being very telling either in the garden or in the exhibition; and Heinrich Schultheis, another invaluable addition in the same line of colour, though quite distinct, has been seen on all sides in great beauty. Both these Roses have the additional advantage of being excellent autumnals.

At the early shows there were some splendid blooms of Her Majesty (notably one among others at Bagshot which will long be remembered by those who saw it), but subsequently the wet and cold spoiled most of the full light Roses. Nevertheless, by the blooms seen last year and this (as long as the sun shone), Her Majesty has entirely vindicated her claims to be considered one of the finest, if not the most magnificent, of Hybrid Perpetuals yet raised.

Lady Mary Fitzwilliam was another Rose of which thousands of blooms that with fine weather would have been perfect were soiled and disfigured by the incessant rain; but Earl of Pembroke came to the front and stood the wet remarkably well, the high centre of its very distinct brownish-crimson flowers appearing remarkably adapted to throwing off the rain.

In the matter, however, of withstanding the effects of the wet weather, few Roses were this year more conspicuous than the recently included Ella Gordon and Suzanne Marie Rodocanachi. Both these fine Roses continued to furnish throughout the dripping Rose time blooms of the most perfect form and colour, and nothing could have been more welcome than the rich red colour of the smooth-petalled Ella Gordon, which appears likely to replace Mme. Victor Verdier in many gardens, and the brilliant telling rose colour of the very distinct and constant Suzanne Marie.

The dark coloured Victor Hugo, which, by the way, is also a wonderfully free autumnal, flowered frequently in great perfection, and was often in evidence, notably at one or two of the Surrey shows.

Of the eight Tea-scented varieties recommended, seven were exhibited almost everywhere — Jules Finger, Princess of Wales, Souvenir de Gabrielle Drevet, and The Bride especially being staged at times wonderfully fine.

The Garden Roses included in the supplement have almost without exception again demonstrated their beauty and value in spite of the unpropitious season, and there can be little doubt that the National Rose Society's illustrated catalogue, with the supplement, now affords a thoroughly reliable list of the best varieties of all classes, from which amateurs of little or no experience may make selection in the full confidence that whatever Roses are noted there are quite first-rate of their kind.

Mrs. James Wilson (Tea).—From Messrs. Alex. Dickson and Son, of Belfast, comes an exquisite bloom of one of their new seedling Tea-scented Roses, which they are about to distribute under the above name. In form the novelty closely follows Marie Van Houtte, the firm conical centre being surrounded by broad, beautifully smooth petals—an excellent type of flower, while the colour is very pale lemon, faintly flushed with a tender rose shade on the margins of the outer petals.

Groups of Marie Van Houtte have taken advantage of the few fine days lately and are simply masses of flower—flowers of first-rate quality, moreover, perfect in form and colour, with the pure yellow centre and clear rosy margin; the sun-painting on the exterior of the buds is also at this time of year strikingly beautiful. Anna Olivier is hardly less conspicuous, the colouring of the innumerable blossoms being exceptionally rich.

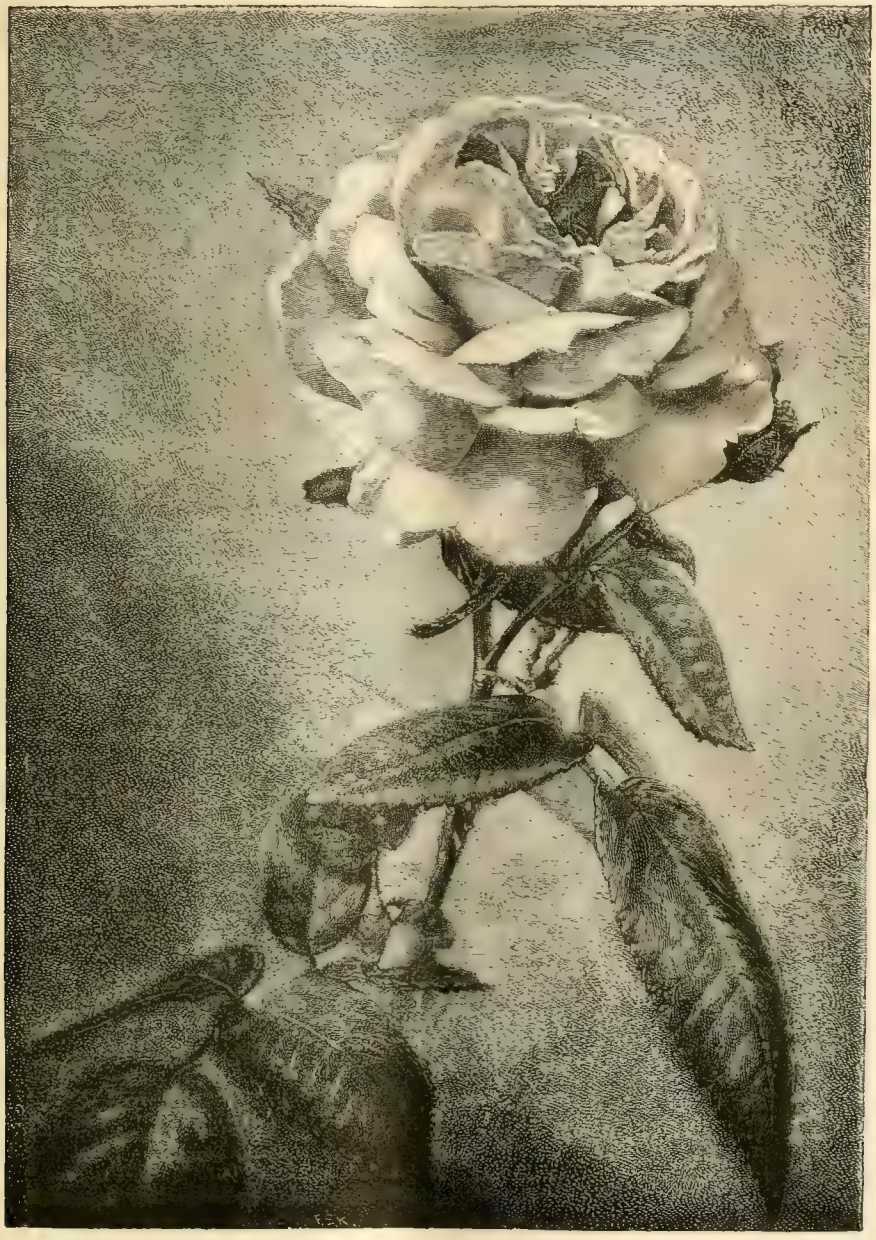
Gloire de Margottin (Margottin, 1887).—Mr. Benjamin Cant states that on the 15th inst. a most beautiful bloom of this new Hybrid Perpetual Rose was developed in his nursery at Colchester. The colour is described as the very brightest red, almost scarlet, and the flower as very large and of fine form; and Mr. Cant, than whom there is no better judge, states his opinion that this variety will become a universal favourite in the garden and also as an exhibi-

tion Rose, being perfectly distinct from any other sort, very sweet-sweeted, and the plant is a vigorous grower.

ROSE DUKE OF EDINBURGH.

Perhaps there are few Hybrid Perpetual Roses which have won the admiration of Rose lovers (of the fair sex especially) at first sight more constantly than the Duke of Edinburgh, an admiration, moreover, which rarely diminishes upon greater intimacy, and which, after a lapse of twenty years, still suffices to place His Royal Highness in the very front rank. Invariably among the twelve varieties most frequently exhibited in winning collections throughout the season, constantly recommended as one of the best of the bright Roses for general cultivation, and advocated by many growers as one of the best pot Roses of its colour, the variety Duke of Edinburgh has achieved an enviable reputation with Rose growers of all classes throughout the country. Certainly the effect produced by a group of plants in bloom, especially with the setting sun upon them, is not to be surpassed for brilliancy in the entire Rose garden.

A reputed seedling of General Jacqueminot, Duke of Edinburgh was raised in the Old Nurseries, Cheshunt, during the partnership of the late Mr. George Paul and Mr. William Paul, and was left there unbloomed in 1860. It was not until five years later that a small flower attracted attention by its brilliant colour, and the variety was then thoroughly tested, with the result of its being distributed in 1868, to the delight of all rosarians, amongst whom it has remained a popular favourite ever since.



Rose Duke of Edinburgh.

The plant is hardy, a very vigorous grower, and its smooth wood and glossy green foliage are very distinctive in appearance; the flowers are large, with very broad petals of the most brilliant dazzling crimson, shaded with deep crimson. This shading, however, varies considerably in different seasons; in a hot, dry summer it is frequently almost absent, the flowers appearing nearly pure scarlet; whereas in dull cool weather the rich crimson shades at the base of the petals are as dark as in such varieties as Duc de Wellington, &c. Nevertheless, the flower is always attractive, and it will probably be a long while before there is sent out a more brilliant, and at the same time more vigorous and consequently more deservedly popular, Hybrid Perpetual than the Duke of Edinburgh. T. W. G.

NEW ROSES RAISED AT LYONS.

President Dutailly (F. Dubreuil).—A strong grower and very hardy, having the dark foliage of the species. The flowers are of medium size, cup-shaped, and almost full. The flower-stems carry from three to four blooms, and the colour is of a fine dark crimson, slightly tinted with purplish brown, lighter in the centre. It is remarkable as being the first Perpetual Provence of its class.

Tea Mme. Carmen.—This is of the style of Gloire de Dijon, and a seedling from Mme. Berard. The flowers are produced singly, very double and medium in size, with the petals dense and crumpled. The colour is of a light flesh rose, slightly tinted with yellow. It has brilliant foliage, and is very perpetual.

Tea Joseph Metral (Bernaix).—Foliage small and dark; flowers very abundant, sometimes twenty to twenty-five on the same stalk; bright crimson, very full, good size.

Dwarf Perpetual Polyantha Blanche Rebatel (Bernaix).—This grows from 12 inches to 18 inches in height, and is exceedingly free-blooming. The flowers are about 1 inch across, the colour bright crimson, slightly striped with white. The first of that colour in its class.

Tea Mme. Cambon (Bernaix).—Foliage small and dark; flowers bright yellowish pink, and some, times wholly white, or nearly so; medium in size-semi-double, and very free; it has also fine buds.

Tea Mons. Desir (Pernet père).—This has dark foliage; flowers solitary, dark crimson, tinted purplish brown, of medium size, and nearly full. It is a free bloomer and strong grower.

Souvenir de Joseph Pernet (Pernet père).—Strong grower, the foliage dark; flowers large, fine shape, nearly full, very round petals; the colour is a very brilliant light crimson, edged with dark purple; it is a very free bloomer.

Hybrid Tea Comte Henri Rignon (Pernet-fils-Ducher).—This is of rather dwarf and bushy habit, with small and dark foliage. The flowers are borne singly, large, and are of fine shape, the colour being very light rosy salmon. It is an abundant bloomer and very hardy. J. Sisley.

List of garden Roses.—In The Garden of Sept. 15 (p. 250) is given a list of garden Roses, and I note that the variety Viscountess Folkestone (one of my own raising) is placed in the Hybrid Tea class, whereas it should be in the class for pure Teas. It matters little to me how it is classed, but as it is likely to lead to confusion, I think it right to make an explanation. The Rose originated between two old varieties that have always been catalogued as Teas, the seed parent being placed in commerce in 1839, and the pollen parent in 1866. I am quite positive it was the produce of these two Roses, as the fertilisation was so carefully done that there could be no mistake. It is exceedingly difficult to produce seed from the seed plant, and although I persevered for twelve years, I was only able to obtain one hip of seed. I have just been informed that at the Bath Rose Show a leading exhibitor was disqualified for having Viscountess Folkestone in his stand in the Tea class, for what reason I cannot tell, but they were wrong, and did a great injustice to the exhibitor. Viscountess Folkestone was awarded a first-class certificate of merit as a Tea Rose, signed by four men as capable of judging a

Rose as any in the kingdom, and who have for many years been members of the floral committee of the Royal Horticultural Society. Who the exhibitor at Bath was, and who were the judges, I have not the least idea, but should they notice these remarks, I trust they will give some explanation through the medium of your paper.—H. Bennett, *Shepperton*.

—— Your list of garden Roses, with the best varieties marked with an asterisk, rather surprises me. I am not a large Rose grower, but when such a paper as The Garden gives its authority to a list it stamps it as the best. I notice that Charles Lefebvre and Gloire de Dijon are not considered two of the best varieties; also that the following are left out altogether: Hybrid Perpetual kinds—Marie Baumann, Alfred Colomb, Prince Camille de Rohan, and Xavier Olibo; and of the Tea varieties, Comtesse de Nadaillac, Catherine Mermet, Belle Lyonnaise, and Souvenir d'Elise Vardon.—C. J. G., *Croydon*.

Roses in Hampshire.—Autumnal Roses are now flowering freely in the outdoor garden, and amongst them is the ever-welcome Souvenir de la Malmaison, with its exquisite blush tint. It is singular that the blooms of this variety, which are so beautiful in autumn, are rarely presentable in midsummer, but it should find a place in every garden for the good service it does at this time of year. Our old and constant friend Gloire de Dijon is good at any time. Then there is Homère, another excellent variety, even better now than in the longest days. The Tea Roses are all so lovely in the bud, that when there is a call for button-hole Roses they should receive special attention. Niphetos has of late been very charming, and Triomphe de Rennes, with its lovely lemon-coloured buds, is one of the safest to plant in quantity for a supply of flowers when the days are drawing in.—J. G. H.

SHORT NOTES.—ROSES.

Sombreuil.—This Tea Rose on its own roots is now making shoots a yard long, which terminate in great clusters of sweetly-scented pure white flowers. These open well and are cup-shaped.

The Macartney Roses are now flowering in great profusion, the large single white flowers of the type being most beautiful, while the double variety Maria Leonida produces immense trusses of full and fragrant blossoms.

Madame Edouard de Bonnieres de Wierre (Lévêque, 1886) is throwing fine examples of its rich velvety-crimson flowers, which are most sweetly scented, and the variety continues to appear a promising addition in spite of its terrific name.

Madame Etienne.—The globular flowers of this lovely Tea are now in perfection. The petals are so delicate that the early blooms rotted, but now they open well, displaying their tender colour, which passes from flesh to a soft rose in the centre.

Madame de Vatry is a strong-growing, free-flowering Tea variety that is not often seen. The blooms are somewhat flat, but of good substance and a deep rose colour. We recently saw in an old garden a large bush of this Rose 4 feet high, and it was a mass of flower.

Vallee de Chamonix.—This is a pretty Tea Rose which is rarely seen in English collections. It both grows and blooms freely, the flowers being globular and of good form. In colour the outside petals are yellow shading to fawn, while the inside of the flower deepens to buff tipped with rose.

Madame Scipion Cochet proves to be a beautiful Tea variety. It grows freely, forming a dense bush, while the shoots are so thickly clothed with glossy green foliage that the plant is ornamental when not in bloom. The flowers are very pretty and of good form, and in colour embrace harmonious combinations of many shades of white, yellow, pink, and rose.

Niphetos is so largely grown under glass that many regard it as a tender kind. This is a pity, for it grows well in the open air, and was very beautiful as we saw it recently on a warm autumn day. The flowers were as large and as pure as those of any grown under glass, and in addition they were of greater substance and more double. This last quality we have always found in open-air blooms of Niphetos.

Paul's Single White.—All who delight in single Roses should plant the above-named kind, which is truly perpetual. It is now growing and flowering as freely as early in the season, and its pure white flowers or rosy-tinted buds are much appreciated. The scent, too, is delightful. If anyone has an old building to cover or a tree to wreathe with garlands of fragrant bloom, plant this single white Rose and the desire will soon be gratified.

Ducher, the white China Rose recommended on page 215, although the whitest in its class, is a Rose of very doubtful value. It is not free enough, and the flowers do not open well enough to make it anything like a first-rate garden plant. In favour, however, of the extended cultivation of the other varieties named on page 215 too much can hardly be said.

Madame Andre Duron (Bonnaire, 1887).—Some half-dozen plants of this new Rose, which was sent out last November as a Hybrid Tea, are now flowering freely, and as far as can be judged from the form and colour of the numerous flowers, the foliage, growth, and general appearance of the plant, the variety differs in no respect from the old Bourbon, Sir Joseph Paxton.

Rose Mme. Georges Bruant has been flowering since June. It is also sending up long shoots, which show its affinity to R. rugosa. Bushes 6 feet high and smothered with semi-double flowers form quite a mound of white. Judging from the vigour of a young specimen planted in May, it soon attains large dimensions. The flower-buds are very beautiful, many of them being from 1½ inches to 2 inches long and sharply pointed.

Amabilis is a strong, free and lovely Tea Rose. Weakly examples planted this year have grown into bushes 2 feet high. The shoots are clothed with glossy leaves, and terminate in great clusters of flowers. The latter are flesh-white, passing to pink and deepening in the centre to tender rose. They have a most delicate appearance. The buds are long and pointed, and when fully expanded the flowers are broad, cupped, and have undulating petals, a peculiarity which renders this variety distinct and attractive.

ROSE MARECHAL NIEL IN LINCOLNSHIRE.

Most cultivators of this popular Rose are so accustomed to see it grown under glass that the majority of them are under the impression it is useless to attempt its culture in the open air, except in the extreme southern counties. This is erroneous, as with judicious management, and when planted in a slightly sheltered position, it grows as freely as any other variety, and sometimes with much greater vigour. Last week, in an amateur's garden in South Lincolnshire, I saw a fine plant growing vigorously against a low south wall. It was, I was informed, planted seven years ago in a prepared soil of good turfy loam, wood-ashes, and a few half-inch bones. When planted it had been budded the previous year on the common Brier stock; with a little extra attention, it quickly became established and began making exceptionally vigorous growths of from 10 feet to 12 feet in length and as thick as one's finger. In spite of the weather experienced this season it has made two shoots nearly 14 feet in length, and these, probably before the end of the season, will make at least another foot. No protection whatever is given, even in the severest weather, beyond a covering of Bracken placed over the roots. This is done about October and is allowed to remain until the end of March or April, when it is removed, the plant pruned, and a good top-dressing of cow manure placed over the roots. Over this a sprinkling of soil is given, which has a tendency to prevent the manure from becoming dry. Last year, owing to the exceptionally dry season and the sunny position in which the tree is, it was impossible to prevent the moisture from evaporating, and in order to cope with the drought successfully and keep the roots moist and cool, no less than three successive top-dressings were given during the season. To this attention undoubtedly was due the enormous quantity of rich blooms the plant produced this season. I was informed that nearly 200 flowers were gathered from a space of wall not more than 100 square feet. Thus it is obvious that where such good results can be obtained it is well worth the attention of all interested in the culture of this ever popular Rose.

A somewhat similar case to the above came under my notice some years ago. Although the plant grew equally as well, the position was less favourable, as the locality was one of the coldest in the West Riding of Yorkshire. It was not, however, planted in a prepared soil, but in the ordinary staple, which was of a stiff limestone, such as is generally found in that district. As in the above case also, the plant had no special attention as regards protection from frost, but was treated in the same manner as other varieties, chiefly climbing Teas, growing by its side. It is, of course, needless to say that the wall on which it was growing was facing south, and, I might add, was well sheltered from the north and east winds by a thick belt of trees.

C. Collins.

ORCHIDS.

W. H. GOWER.

HABENARIA MILITARIS.

This is a strikingly beautiful plant, which it would appear was first discovered in Cochin China by M. Godefroy-Lebeuf, and which about two years ago startled the English Orchid growers with its brilliancy. I have seen it flowering in the nurseries at Holloway with Mr. Williams and at Chelsea with Mr. Bull, and more recently with Messrs. Seeger and Tropp at Dulwich, where amongst many curious orchidaceous plants to be found in the nurseries in Lordship Lane there were some exceedingly fine racemes of bloom of this species. They might be likened to those of Calanthe veratrifolia, the flowers being the colour of a Lifeguardsman's coat. This plant, however, does not attain the height of the Calanthe, and therefore is more readily accommodated. It loses its leaves in the winter months and remains dormant, like the other members of the family, and is therefore a terrestrial or ground Orchid, a class of plants which, unfortunately, the majority of English growers utterly dread. Habenaria militaris is of such brilliancy and of such a quaint and distinct appearance, that I hope every collection will have specimens of this Cochin China beauty. Of these terrestrial deciduous Orchids there are a great quantity, and amongst them many handsome kinds which should really receive every attention from the cultivator, instead of the utter neglect and disdain which is their almost universal lot in this country.

I myself have paid a considerable amount of attention to ground Orchids, but have never had the present plant under my care. I am told by those who have grown it that it requires for soil a mixture of peat, loam, and thoroughly decayed leaf-mould, to which should be added some rough sand. The pots should be of fair size and well drained. It should be planted an inch or two below the surface, and the top of the soil kept below the rim of the pot, as in potting any other bulbous or tuberous plant. In the spring growth will commence, and before this occurs the plant should be repotted into new soil, and at this season should be placed at the warmest end of the Cattleya house, fully exposed to the light and near the glass, to prevent its becoming weakly through what gardeners term "drawing." During the summer it will continue to grow, and if the tubers are strong it will, by the beginning of September, have developed a terminal head of bloom, the flowers of which are brilliant scarlet, and these last a considerable time if they are not wetted. After flowering the stem will decay gradually, and the supply of water must be also gradually withheld, but never be entirely stopped. When the foliage is gone, remove the pot or pots to a cool, but not cold position, which is away from the sun, and here during the winter months the plants may remain, care being exercised in watering. Give just sufficient to keep the soil in a friable, moist condition without its becoming wet. About the month of March the tubers may be shaken from the old soil and repotted,

after which the pots may be placed in a warmer position. Still maintain a moderate water supply until growth begins to push through the surface, when more heat, more water, and more light will be necessary.

Odontoglossum Harryanum nigrescens.—Flowers of a superb form of this plant come from Mr. Osborn, gardener to H. J. Buchan, of Wilton House, Southampton, and it is certainly the very finest form which has hitherto come under my notice. The whole flower is over 4 inches long, the sepals and petals being rich bronzy brown, the former transversely streaked and the latter streaked longitudinally with orange-yellow; the lip is over 2 inches long, ground colour of the basal part bright mauve-purple, netted at the sides with thread-like lines of gold, crest golden orange, and the anterior lobe pure white. This form has fulfilled one of my suggested results of cultivation, and its petals stand forward and do not meet across the lip, which to my mind is a great disfigurement. This fine variety is without this fault, but it remains to be seen if all the forms will grow out of it. Messrs. Horsman and Co. were extremely fortunate in being the first to introduce this grand plant, which Prof. Reichenbach has named in honour of Mr. Harry Veitch, of Chelsea. It appears to grow freely, flower profusely, and thrives well under quite cool treatment.

Cypripediums at Camberwell.—The Cambridge Lodge collection is always gay with these plants, and although it is early yet for many of the kinds to bloom, there is a number in flower, amongst the most notable in bloom being a very highly coloured form of C. marmorophyllum, the foliage being similar or almost identical with that of C. Hookeræ. It is a cross between C. Hookeræ and C. barbatum. The flowers are larger than those of the first-named parent, and considerably brighter in colour. Amongst others in bloom are C. geminiferum and barbatum pulcherrimum, the last a very chaste and pretty form. C. aurorum has growth in the way of venustum, the flowers large and the pouch very open, showing its inside, which is crimson; petals green at base, crimson at the tips, and bearing a few black warts on the edges; dorsal sepal large, white, striped with bright green. C. Canhami, which appears to improve by acquaintance; a fine form of C. tonsum, calurum, Ainsworthi, vernixium, and Spicerianum are also flowering. Here most of the Slipper Orchids are grown warmer than in the majority of cases, but an abundance of air is admitted.

SHORT NOTES.—ORCHIDS.

Lælia elegans Turneri.—This rich and rare variety is now flowering well in Mr. Williams' nursery at Holloway, bearing seven flowers on a spike.

Oncidium incurvum album.—This rare and handsome plant is now flowering in the nurseries of Messrs. Seeger and Tropp at Dulwich. It is the exact counterpart of the typical plant in growth, but the flowers are wholly pure white.

Lælia elegans Tautzianum.—This, the most superb of the dark-coloured varieties of L. elegans yet introduced, is now flowering in The Woodlands collection at Streatham, bearing three dozen of its large and richly-coloured blossoms. They are associated with numerous other very highly-coloured forms of the species, such as Turneri, nyleptha, prasiata, and others.

Renanthera matutina.—This somewhat rare species is now flowering in the Cambridge Lodge collection at Camberwell, and under very cool treatment. The flowers are somewhat laxly set on the spike, the sepals and petals being orange-red, with a few spots of a deeper hue, whilst the small lip is white. It is a singularly pretty and fantastic species.

Saccolabium Hendersonianum.—This fine species was recently blooming in Mr. Measures' collection at Cambridge Lodge, Camberwell. It belongs to the section with erect spikes, of which S. curvifolium is a familiar example with its cinnabar-red flowers, and S. cœleste with its elegant azure-blue flowers is so attractive. The present species is equally beautiful, although very distinct, its flowers being wholly of a rich rose colour. Although for some time a native of our gardens, it has never become plentiful. It is a native of Borneo.

Chysis aurea maculata.—This is a plant not absolutely new, but it has not been imported since 1850, nearly forty years ago, and consequently is very rare. It is one of Mr. Carder's lucky finds whilst collecting in the early part of the present season, and it was recently flowering in the nursery of Messrs. Shuttleworth and Carder at Clapham. The flowers are waxy in texture, sepals and petals white at the base, the upper part tawny orange, front portion of the lip spotted with purple, the base wholly purple. It is a free-flowering variety.

Oncidium macranthum.—I have before remarked upon the desirability of allowing the spikes of this plant, and kindred species, to be trained upon the roof, in preference to training them upon sticks, and a spike so trained is now bearing upwards of fifty flowers in The Woodlands collection. This plant is truly beautiful, but some friends and gardeners, with whom I was recently discussing the matter, displayed their want of taste by voting for the bush-faggot system. All these plants with climbing spikes are far more effective trained upon the roof than in any other way.—W. H. G.

Lælia purpurata.—A short time since this species was noted as flowering with Messrs. Horsman and Co., of Colchester, and there were recently dozens of blooms open in the nurseries of Messrs. Seeger and Tropp at East Dulwich. These were on plants which had been imported late in the spring of this year, so that these flowers were really formed in Brazil. There were amongst them some superb varieties both of the white and the dark-petalled forms, and when the plants become established, the Messrs. Seeger will be able to produce some excellent flowers of this beautiful and popular species. It is a great pity that this is not its season of flowering, as it produces a charming effect just now.

Odontoglossum grande.—A group of this species bearing some three or four dozen expanded flowers was recently to be seen with Mr. Measures at Streatham. This, the most showy species in the whole genus, is almost entirely discarded. I once saw upwards of a hundred flowers open at the same time—a superb exhibition of itself. This was many years ago, but the sight is clearly and vividly impressed upon my memory. It is one of the easiest Orchids to grow if kept cool and moist, and under these conditions it produces thick, leathery leaves and an abundance of flowers which may be used for decorating the dwelling-house.—W. H. G.

Pachystoma Thomsonianum.—This handsome and very Cœlogyne-like plant is now flowering with Mr. Williams at Holloway. It flowered first with the Messrs. Veitch, of Chelsea, and is a native of Western Africa, and probably comes from the coast region, and therefore requires strong heat and abundant humidity in the air. It is an exceptionally beautiful plant, and the flowers are thoroughly distinct. The peduncles are erect, freely produced from the base of the pseudo-bulb, and they usually bear two flowers, each of which measures some 3½ inches across; sepals and petals spreading, of the purest white; lip three-lobed, side lobes erect, approaching the column, but not enclosing it; these are white, streaked on the inner side with red, the middle lobe being much lengthened out, triangular, recurved, and of a rich deep red. Not only for its singular beauty, but also for its contributing to the display in the Orchid houses during the very dullest season, this plant should be largely grown.

Vanillas.—When M. Van Houtte, of Ghent, introduced V. Phalænopsis it was hoped that the day had come when this genus would become popular. But one seldom or never sees the plant, and I am unable to say whether it is in the country. M. Godefroy-Lebeuf, of Argenteuil, I observe, is very sanguine about rendering Vanillas popular, as he recently showed me a new red-flowered species which he has introduced, and another handsome flowered kind called V. Walkeri. These two species and M. Van Houtte's might be trained upon the rafters of the Orchid house, which they may perhaps serve to enliven with beautiful flowers. Those kinds which we already have in cultivation, such as V. aromatica, planifolia, pompona, and africana, grow freely in rough peat fibre. They require strong heat and a moist atmosphere. I hope before long to have the pleasure to see flowers of M. Godefroy's new kinds.—W. H. G.

Masdevallia Carderi.—This is an exquisite gem which I saw for the first time recently in the nurseries of Messrs. Shuttleworth and Carder, of Clapham. There is nothing in the whole genus so thoroughly distinct and few more beautiful, although gay colour is not its style of beauty. The spike is partially pendent, and on the apex it bears a pendent flower of quite a campanulate shape and of a creamy white; towards the basal part there is a continuous band of rich cinnamon-brown. The three small tail-like ends of the sepals are reflexed, these being lemon-yellow dotted with brown. It appears to thrive well under quite cool treatment, as do all the collection of the genus grown by Mr. Shuttleworth, which is by no means a limited one.

Cypripedium calurum.—The more one sees of this section of Mr. Seden's hybrids, the more one is compelled to admire them for their decorative qualities. I recently noted a plant in the Cambridge Lodge collection at Camberwell bearing four spikes, each spike with five flowers in prime condition, and each with the same number of buds to come. The bright rosy-red colour of the flowers renders them very attractive, and the plant when fairly strong may be expected to be in bloom every day in the year.—W. H. G.

Warscewiczella aromatica, sometimes found under the names of Zygopetalum aromaticum and Huntleya aromatica, is a rare, beautiful, and little-known plant. It was, therefore, with much pleasure that I noted it flowering in Mr. Measures' collection at Camberwell. The flowers are solitary, some 3 inches across, and creamy white, saving a blotch of azure-blue at the base of the lip. It is pleasantly fragrant. It appears to enjoy warmth, as it was growing with the Phalænopsids.—W. H. G.

Odontoglossum nevadense.—I recently observed this rare species in the establishment of M. Garden, Bois de Colombes, near Paris. As a species it is somewhat variable in colour. The flowers are large, some 3½ inches across, the sepals and petals being rich bright brown narrowly bordered with yellow, and marked longitudinally with stripes of yellow near the base; the three-lobed lip is white, the side lobes being streaked with bright brown; the front lobe is white, sometimes yellow, with a dentate margin.—W. H. G.

Oncidium Jonesianum.—This beautiful species appears to be flowering in quantity this season, which will in all probability restore the popularity it had to a great extent lost. Many examples are now flowering in Mr. Williams' nursery, and he attributes his success to having placed them in a higher temperature. I believe we are indebted to Mr. Horsman for the introduction of this species, but we have not had any details as to its surroundings in its native home; these would be most acceptable to the cultivator.—G.

Sobralia macrantha.—I have before pressed the claims of the various members of this genus upon the attention of The Garden readers, but I usually get the answer that the flowers are too short-lived. I recently saw a plant, and not a large plant either, in Mr. Measures' collection at Streatham which had been in flower for two months, and during that time had produced fifty-two of its large and richly-coloured blooms. This, in addition to its elegant Bamboo-like growth, should lead to Sobralias becoming again popular.—W. H. G.

Japanese Anemone seeding.—Is it usual for this Anemone to perfect its seeds in this country? Of the many plants here, only one has done so. All the seedlings from it are producing quantities of heads.—A. C.

Figures of Pansies.—I have to thank you for so readily falling in with my request in The Garden, June 2 (p. 521), that you should publish two plates, one of leading show and one of leading fancy Pansies. If you object to having the blooms drawn as they would be exhibited, but prefer that they should be drawn as they grow, I must be satisfied. The plates will still be very interesting, though naturally their usefulness will be lessened. [*Why?*—Ed.] As the object is a special one, I should, however, be much pleased if you saw your way to acceding to my original request.—G. A. Reade, *Roslyn, Dunedin, N.Z.*

*** We shall not figure them in any other way, except as they grow on the plant. There is no

other way in which they are so beautiful, nor in which their natural shape, form, and position are so well shown.—Ed.

Ferns.

W. H. GOWER.

DENNSTÆDTIAS.

These Ferns are included by many authors with the arborescent Dicksonias, from which their creeping rhizomes readily distinguish them, although, as regards sori, they agree with true Dicksonia. The genus was established in 1800 by Bernhardt, and adopted by Moore, whilst Presl established the genus Patania for them, and Smith formed them into a family which he called Sitolobium. Dennstædtias are Ferns of considerable beauty, and amongst them may be found some kinds which may be employed for any purpose where elegant foliage is required, as the various species are widely spread. One species, viz., D. punctiloba, is found in the United States and Canada, and it forms an elegant specimen in the hardy fernery, but is not included in this enumeration. These plants are for the most part strong growers, and the majority of them may be rapidly made to form noble specimens; indeed I would recommend some of the kinds named for growing in the cool Orchid houses, as they would lend an additional charm to Orchids when in flower, whilst to Fern amateurs they are invaluable in the naturally arranged fernery if the more rapid growing species are not allowed to overrun other smaller kinds. To amateurs also who grow their plants for exhibition, or for other purposes of ornamentation in pots these plants are specially suitable, so that Dennstædtias may be taken as a thoroughly good all-round family. The various kinds are easily grown and their rhizomes spread rapidly, so that they quickly fill a space when planted out, and when grown as pot plants they require more surface] room than depth. The soil for these plants should consist of about half and half peat and loam with a small portion of rough sharp sand, not made fine by the use of the sieve. Allow the soil to be of medium roughness and pot firmly. A good space must be left in the pot in order to supply sufficient water to thoroughly wet them through, and ample drainage to carry it away. This remark applies to either the planted-out examples or the pot plants. The following kinds will be found desirable ornaments to any fernery :—

D. anthriscifolia is a singularly beautiful plant for a stove; its fronds attain a height of 4 feet or 5 feet and a breadth of 2 feet or 2½ feet; they are bipinnate, the pinnules being deeply cut into obtuse lobes, the colour is a soft pale green, the sori prominent and bright reddish brown. Although so grand a species, it is by no means a common plant, but I confidently recommend it to anyone having sufficient accommodation for a truly fine Fern. It comes from Tropical America.

D. adiantoides.—This also grows to some 4 feet in height and about a foot broad, tapering upwards. The fronds are bipinnate, the pinnules being obtuse and dentate; the colour is a bright green, the sori large and prominent. It is a stove Fern from Tropical America.

D. davallioides.—In this species we have one of the most elegant Ferns for a temperate fernery. The fronds attain a length of 3 feet and 4 feet, sometimes more, and in specimens now before me the pinnæ are 15 inches long. They are three-times divided, the segments being finely cut and the colour vivid bright green. It forms a magnificent clump when planted out. Native of various parts of Australia.

D. tenera is another bold stove Fern and exceedingly handsome, attaining several feet in height. When well grown the lower pinnæ are from 12 inches to 2 feet long and elegantly shaped, the pinnules being obtuse, bright light green with prominent sori, which add materially to its beauty. It comes from Tropical America and the West Indian Islands.

D. Lindeni.—A species from New Grenada, which succeeds in a temperate house. It is also a strong-growing plant, the fronds being some 5 feet high; they are tripinnate, both pinnæ and pinnules closely set, the former a foot or more long and upwards of 6 inches broad, the latter obtuse and toothed on the edges, the colour bright green.

The above kinds are thoroughly distinct, and may be grown together; other kinds which resemble them, but are, nevertheless, distinct, are D. cicutaria, moluccana, apiifolia, Pavoni, dissecta, &c., all of which are deserving a place in a large collection of Ferns, but, of course, those with limited space will not wish to fill it with members of one genus only.

Propagating.

Hardy evergreen shrubs.—This is the best time of the year for putting in cuttings of most evergreen shrubs, and unless very large quantities are dealt with it is as well to protect them by a frame, as, generally speaking, much better results may reasonably be anticipated from cuttings treated in this way than if they are put in the open ground. Among the plants for which this mode of increase is available may be mentioned the various evergreen Euonymus, Ivies, Aucubas, Privets, Laurels, Box, Osmanthus, Veronicas, &c. The cuttings may be either put in pots or a bed of soil can be placed in the frame and the cuttings inserted therein, while another way is to put them in a sandy border and place a frame over them when finished, but, of course, this can only be done unless the frame is portable, and besides all these methods the cuttings may be inserted in the open ground without any protection. In dealing first with cuttings in pots, I will give a few words as to the advantages of this method. In the first place, smaller cuttings can be used than with the others, and in the case of a rare subject that it is desired to increase to the fullest possible extent this is an advantage, while when many different kinds are placed in the same frame some will probably be rooted much sooner than others are, and if in pots those that are struck can be shifted into more airy quarters, while the backward ones can be kept as close as before. To prepare the pots for cuttings they should be fairly well drained and filled with sandy soil sifted through a sieve with a quarter-inch mesh. The soil should be pressed down firmly, and having been lightly watered through a fine rose, the pots are then ready for the reception of the cuttings. These last should be formed of good side shoots, as they are preferable to the stout leading ones, which being so surcharged with sap are liable to decay. No more leaves should be removed from the bottom part of the cuttings than is necessary for the purpose of insertion, and when complete the cutting must be dibbled firmly in its place. Care should be taken that there is no cavity around the base of the cutting, and, besides this, overcrowding must also be guarded against. A very convenient sized pot for the purpose is that known as a large 4½-inch, which has a diameter of fully 5 inches. When the pots are filled with cuttings, a thorough watering should be given, when they may be stood in the frame which for the future must be kept close. Exactly the same treatment will be required for the cuttings that are dibbled into a bed of prepared soil, but the cuttings can in this case be rather longer if needed. Where these shrubs are required for potting up when they have reached a fair size, it is an advantage to have those that were struck from small cuttings, as there is not the same length of naked stem below the surface of the soil that is found in plants that have been obtained from cuttings struck in the open ground. In order to keep them as dwarf as possible, it is a very good plan to pinch out the top of the cutting as soon as it is struck, in order to induce it to break out bushy. When there are no appliances at hand and the cuttings have to be put in the open ground, as sheltered a spot as possible should be chosen for the purpose, but on no account must it be shaded by overhanging trees. The soil should, if possible, be of a somewhat open sandy nature, while the cuttings must, of course, be much longer than those put in pots. In the case of most subjects for the open ground, a length of 9 inches to 1 foot is a suitable one for the cuttings, and in putting them in three parts of that should be buried in the soil, as they are then to a great extent protected from frosts and drying winds. To put cuttings in the open ground the spade should be inserted in a perpendicular manner, and then drawn towards the operator, thus bringing the soil with it. If the spade is inserted just the depth required for the cuttings, all that is then needed will be to place the cuttings in position, which is easily done owing to the perpendicular wall of soil on one side. Then when a row is completed, all that is necessary is to return the soil that has been removed and tread it down firmly. When this is finished another row can be prepared and filled as before.

Bedding plants.—Most of these, put in a month or so ago, will be well rooted, and the principal consideration now will be to keep them as strong and sturdy as possible so as to enable them to pass through the winter. To accomplish this, plenty of air must be given, and keep them clear of all decaying matter, as especially among Pelargoniums a few dead leaves if not removed in time will often carry off a number of cuttings. If the Pelargoniums are protected by a cold frame (which at this season will be sufficient), they will need but very little water, as if the soil is too moist they grow rapidly, and owing to their succulent nature are liable to decay during the winter. In watering them a fine day should be chosen for the purpose and the lights left off afterwards; indeed, the better way is to remove the lights whenever the weather permits. T.

Garden Flora.

PLATE 668.

THE SCARLET TRUMPET HONEYSUCKLE.

(Lonicera sempervirens minor.*)

Lonicera sempervirens is a North American species introduced as long ago as 1656, but rarely now-a-days seen in cultivation. It is decidedly one of the most distinct and showy of all the species of a genus which also includes the fragrant Woodbine or common Honeysuckle of our woods and hedges. In vol. xx. of the *Botanical Magazine*, published in 1804, there is a good figure (t. 781) of L. sempervirens, which is there called "great Trumpet Honeysuckle," and the editor refers to Miller, who, as he tells us, "enumerates two varieties—the present plant, which, he says, is a native of Virginia, and a smaller and much tenderer sort, native of Carolina. "The latter," adds Curtis, "rarely occurs in our gardens at the present time, but the former is not uncommon, and if planted in a warm, sheltered position and trained up a wall, paling, or lattice, is a very desirable plant both for its foliage and flowers, which latter are produced in June, and continue in succession until the autumn. It has not, however, the pleasing scent of the other Honeysuckles, from which it differs in having nearly a regular corolla, except that one of the segments is a little separated from the rest by being more bent back. Propagated by laying down the young branches, which

* Drawn for The Garden by H. G. Moon from flowers sent from the College Gardens, Dublin, May 20, 1888. Lithographed and printed by Guillaume Severeyns.



TRUMPET HONEYSUCKLE (LONICERA SEMPERVIRENS MINOR.)

readily take root. Cultivated by Mr. John Tradescant, jun., in 1656."

The plant now illustrated is the "smaller and much tenderer sort, native of Carolina," a neat-habited and remarkably profuse blooming variety, which has been figured in the *Botanical Magazine* of a more recent date (plate 1753) as L. sempervirens var. minor. It is moderately hardy in mild and sheltered nooks near the sea, but the better and more certain way of cultivating it to perfection is to plant it out in the border and train it up the rafters of a cool greenhouse or conservatory. A fine example has been for years admired in the greenhouse at Kew, and Messrs. Veitch have made quite a speciality of this plant at Chelsea for many years, and have distributed it extensively under the botanically erroneous name of L. semperflorens minor. Horticulturally speaking, the latter name is almost more expressively applicable than sempervirens, seeing that the plant is not always or perfectly evergreen, but is really a most profuse and constant bloomer, well-established plants affording several successive crops of flowers from April until November. The trumpet-shaped flowers are, on the outside, of a peculiar orange-red or scarlet, and inside yellowish, and are most showy and ornamental either backed and surrounded by the soft green leaves and connate bracts, or cut and arranged in water indoors. Even small plants in pots are very satisfactory, but the plant luxuriates best when planted out in a well-drained border of good fresh loam and leaf-mould or well rotted manure. Fresh loam alone may be employed, and when the plant is established and rooting freely a little weak manure water may be given once or twice a week with advantage.

Curtis points out that the great Trumpet Honeysuckle was not uncommon in his time; whereas our present variety was rare in the gardens of his epoch. To-day the reverse of this seems true. I only once saw the typical plant growing and flowering on a red brick cottage in a Leicestershire village. The severe winter of 1860 killed it, however, and I have never seen the plant since, although it seems very improbable that a plant once not uncommon and withal so showy should have become completely lost. The only point of superiority it possesses over the plant now illustrated is its more hardy character, which would render it a very desirable plant for a warm and sheltered wall in Devon, Hampshire, or the Isle of Wight, and the coast line of Ireland, places where so many half-hardy plants are often thoroughly healthy and long-lived.

The flowers from which the plate was prepared were taken from a plant growing on the back wall of an airy greenhouse, which is very rarely heated, unless it be during very severe frost. When covered with its trusses of flowers it has many admirers, and very few visitors recognise in it such an old introduction to our gardens, from which I infer that it is far less commonly met with than such a distinct plant deserves. F. W. Burbidge.

Two beautiful stove bulbs have been in flower during the past week in the Palm house at Kew, and both deserve attention in private gardens. One is the Ceylon Crinum (C. zeylanicum), a robust looking plant, with a big bulb and long channelled leaves. Its stout flower-stem bears about half-a-dozen lovely blossoms, with the white petals having a broad crimson band running down the middle of each. Being large, the cluster is very showy, and lasts a long time before fading. The other bulb is Pancratium speciosum, than which no flower could be more lovely or more fragrant. It is also a large plant, with broad, luxuriant-looking, evergreen leaves. The flower clusters rise above the foliage, each stem bearing several snow-white blossoms, with long narrow petals and a web-like cup in the centre. Both plants are easily grown in a stove, and may be readily obtained from nurseries. It is a pity that plants like these, possessing such wondrous flower beauty should be neglected for the sake of novelties not half so beautiful.

Chrysanthemums.

E. Molyneux.

Seasonable Notes.

Now that we have a favourable change in the weather, the plants require more water and consequently more stimulants. The buds are swelling up fast, and the plants need at this stage some stimulating food to properly develop the florets later on. I notice that the peduncles are swelling thickly, in some instances below the bud. This is a healthy sign, and augurs well for future promise.

Our plan in watering the plants is this: All are examined in the morning, water being given to those only which need it at the time. I consider it a great mistake to supply the roots with water when they really do not need any. This is especially a mistake in such a season as we have had. It is far better to keep the plants comparatively dry for a few days at a time than to keep the roots continually saturated with moisture. The former plan is much more likely to assist in ripening the wood. About 3 p.m. again the plants are examined, and any that did not require water in the morning will need it at this time. In this manner all the plants are kept properly supplied. We have two casks on wheels, one containing the stimulant, liquid manure or otherwise, as the case may be. From this cask those plants which have set their buds and are swelling receive their food daily. The second cask contains clear water only. This is for those plants which are now forming their flower-buds, and which are better without stimulants for a time until the buds are taken and commence to swell freely.

Many of the varieties from which the crown bud was removed from the points of the shoots will soon be forming another bud at the extreme point of the growth. This bud is named the terminal. There are several reasons why the terminal bud is preferable to the crown bud amongst the incurved varieties. Some, notably the Queen type, do not in the south of England develop such well-formed incurved blooms when the crown bud is selected. For a late show the terminal buds are much the best, because crown buds cannot be kept back enough, so that the flowers are sure to be past their best before the time arrives to exhibit them. If late exhibitions, therefore, are to be attended, the terminal buds must be selected for the future flowers. They may not produce such large blooms, but a medium-sized flower is better than none at all. It is only in the south of England that dependence can be placed upon blooms from terminal buds, and only in a few varieties of the incurved class will satisfactory results accrue. Japanese varieties are in nearly all cases useless as exhibition blooms when dependence is placed on terminal buds. There is one more reason why terminal buds may be employed. In case of accident to the crown buds, terminal buds will fill up the gap. As soon as the terminal bud is formed, it will be seen there are a number of other buds clustering around it for several inches down the stem. These should be carefully removed, so that the strength of the plant may be concentrated on the centre bud. A small penknife is the best instrument to remove the side buds.

Pompons and Anemone pompons grown as bushes are now making their last break, while some kinds are showing their terminal buds. If larger blossoms are required for any particular purpose now is the time to thin out the buds, leaving the terminal one on each shoot. Where crown buds are forming on the other plants, remove the growths around the bud in the same manner as in those of large flowering kinds. With these, however, many more shoots may be left upon the plants.

Plants of all sections growing at the base of walls are now breaking into their last growth. The same treatment should be accorded them as in the case of the pompon section, according to the requirements of the cultivator. After the growths have been thinned and when the new shoots are sufficiently long to allow of it, they should be nailed to the wall. This early securing of the shoots to the wall allows the leaves to get in proper position before the blooms are developed.

Plants of a dwarf character which are grown for grouping will need attention in the thinning of the flower-buds directly they are sufficiently formed to enable the cultivator to select the most promising ones, and in the removal of shoots clustering about the buds. The plants should have more space as they progress. Perfect foliage to plants of this class is indispensable, and can only be had by timely attention and by allowing sufficient space between each. The plants should be well supplied with stimulants now that the buds are swelling. Occasional doses of soot water will be an advantage in retaining dark green foliage, which enhances their appearance. See that the shoots are securely supported by stakes as fast as they grow, as they are liable to break off at the point from whence new growth sprang.

Specimen plants, pyramids, and standards will need timely attention in tying the growths so that they may more easily be got into their permanent position when the time comes for the final tying of the branches. By gradual training the branches are not so liable to break. Thin the flower-buds as fast as they form, and apply stimulants freely if the plants are well supplied with roots.

Chrysanthemum Bronze Queen of England.—This variety, which was sent out three years ago by Messrs. James Carter and Co., is a sport from Queen of England, being an exact counterpart of that old favourite, except in colour, which is a rich bronze, and when it can be had in good condition it is very effective in a stand of incurved blooms. Unfortunately, it is not so easy to obtain in good form as its parent, but by a knowledge of its peculiarities good blooms may be secured. Until last season it was doubtful if it would retain the high opinion formed of it when first sent out, as the flowers when unfolding had a great tendency to reflex their florets instead of incurving inwards. Many flowers, too, presented great deformity in shape. Experience proved to growers of this sort that the selection of the early crown buds was the cause of the mis-shapen blooms, and by depending upon the later, or what are known as "terminal" buds, better formed blossoms could be had. With regard to this variety, my advice is, do not select crown buds, but remove these as fast as they appear, reducing the number of new growths which spring from below the flower-bud to one on a branch and wait for the next formed bud, the terminal. Flowers from this bud may not be so large, but they will possess that essential point, incurved florets instead of reflexed ones. If any doubt exists in the mind of the inexperienced

as to which is the crown or terminal bud, it may be determined in this way. At the base of the flower-bud in the case of a crown three lateral growths spring generally triangular in form. In a few days they will develop, so that the cultivator may at once see they are growth shoots and not flower-buds. In the case of the terminal bud, no such growth appears, but a number of flower-buds form around the base of the centre or terminal bud, no shoots or buds appearing beyond that.

Chrysanthemum Madame Desgrange.—Another season has again proved the merits of this variety and its primrose-coloured sport, C. Wermig, for producing a display of bloom early in the season when inside white flowers are by no means plentiful. Plants about 2 feet high and carrying four to six blooms, each one averaging 5 inches in diameter, are no mean objects for conservatory decoration during the early part of September. When arranged in a group, the white variety produces a solid bank of bloom, as was the case at the recent fruit show at the Crystal Palace, when Messrs. Davis & Jones, of Camberwell, staged a capital lot, the condition of which showed the variety off to perfection. The plants had been grown without having their points pinched, being allowed to break naturally. From this break three and four shoots were selected, each one carrying a full deep flower. Our plants of both varieties have been pinched once—at about 4 inches high—the number of branches required being selected when new growth was made. From these growths the flowers were produced. Arranged in a mass in a large entrance hall the plants have made a capital show for a considerable time. Grown in that form these two varieties are most useful. Now that their flowers are past the question is what is to be done with the plants at this early stage, so that a large stock may be secured for next season's growth? Owing to the plants standing close together the young shoots springing from the base of the stems, and which are to supply the next season's plants, have become long and weakly. Cut down within a few inches of the soil the flower-stems and any young growths lately made. Place the stools under a north wall until the yellow growths regain their natural colour somewhat. Afterwards place the pots in the open where any new growth springing from the base will be short and stocky. These new shoots will produce the cuttings at the end of December for next year's supply of plants.

Kitchen Garden.

PROFITABLE POTATOES.

Soils vary surprisingly, even in one locality, and as Potatoes also vary considerably in different gardens, it follows that no fixed selection holds good for all alike. Those who are not in a position to give a fair trial to the various new and old varieties are obliged to rely, to a certain extent, on the judgment of others who can; but each and all should ultimately decide which are the best varieties for extensive culture in their respective gardens or fields. Room ought always to be found every planting season for one or more comparatively new varieties of good repute. If these do better than older favourites, and are found of good quality, they ought gradually to supersede them, but should they not come up to expectations they ought to be discarded. It is very unwise to cumber the place with a great variety of Potatoes. A limited number judiciously selected is more easily stored, and invariably gives the greatest satisfaction to those who have to eat them. Instead of deferring the selection till next spring or after much time and trouble have been expended sorting over and storing the sets, it is far better to arrive at a decision now, and store sufficient planting tubers accordingly.

Tastes differ as to what constitutes a good Potato, some preferring them dry and mealy, while others like them to be of a closer texture and scarcely so strongly flavoured. With such a great number to select from no difficulty ought to be experienced in finding varieties suited to all gardens and all tastes, and if this cannot be accomplished in any instances something must be wrong with the cultivation. There may be gardens where a really good Potato cannot be grown, but such I have not yet come across. The fault either lies in a rooted dislike to change the varieties that have repeatedly failed, or else in the method of cultivation practised. We are dealing with a very heavy, clayey land, and which is not well drained, yet we annually lift plenty of good Potatoes, and that, too, in spite of such a singularly unfavourable season as we have just passed through. Much of our success is due to the repeated trials made, a selection well suited to our soil having been arrived at and adhered to. If only such varieties as do well in favourable seasons are grown, and there are plenty such, whenever we have a bad year a failure must result; whereas those that succeed in a wet summer are also nearly as profitable as any even in such a year as 1887. I have always advised the retention, in good quantities, of known disease-resisting varieties.

As far as the haulm was concerned, a general and very sudden collapse occurred in this and various other districts, but in the case of many varieties this only resulted in stopping all further growth of the tubers. We shall have fewer large tubers than usual, but this matters little, especially seeing that medium-sized tubers are invariably better in point of quality. The later rows of Old Ashleaf, Myatt's and Veitch's Ashleafs were all affected by disease, the crops being materially lightened in consequence. Cole's Favourite, grown extensively to succeed these, is not badly diseased, and a good crop of handsome good cooking tubers was lifted. It is one of the best varieties in cultivation. Early Regent has also succeeded admirably, not being much diseased, and no amount of bad weather appears to impair its quality. Sutton's Seedling, another second early variety, yielded a very heavy crop of handsome tubers, but fully one-third were diseased; the quality, however, is good and this variety has the merit of being also a good keeper. Satisfaction is a fine variety, the crop being heavy, only slightly diseased, and the tubers are of good size, form and quality. It is a good keeper and should become a general favourite. I was agreeably surprised with the weight of the crop of the variety White Puritan. Very little disease is apparent and the tubers are large, handsome, and for the season good in quality. As a rule, none of the American varieties do well with us, but this may prove an exception. The crops of Midsummer Kidney and Victory were disappointing, but they have been so well recommended to me that another trial will be given them before a final decision is arrived at. Cosmopolitan took the disease badly, and what tubers are sound are not as yet of good quality. Last year this kind did well, but as this is not its first failure no planting tubers will be reserved. The variety Surprise was only slightly diseased, and this proves an exceptionally heavy cropper, the tubers being of good form and of excellent table quality. This variety will be more extensively grown next season. King of the Russets grew vigorously, and in spite of the sudden collapse of the foliage, there is a heavy crop of fine tubers to be lifted. Last season the quality was first rate, and I hope it will again be equally as satisfactory.

Among later varieties there are none which yield more heavily than the variety Prime Minister. Only the tubers pushing through the ridges are touched with the disease, but it is too early to comment on the quality. Chancellor is a well-known disease-resisting Potato, and though the tubers are smaller than usual, they are very handsome and quite free from the disease. Fortunately, we planted this and also Chiswick Favourite rather extensively, and the results have justified our selection. The latter, though not so good-looking as any of the varieties yet named, is a very heavy-cropping, disease-resisting variety, and no fault can be found with the quality when cooked any time during the winter or spring months. Abundance appeared to revel in a moist season, and this ought to replace Reading Hero, which has failed in other gardens this season. Laxton's Reward suits us remarkably well. It is a yellow-fleshed Potato and an improved form of Scotch Champion, and ought gradually to displace the latter. We have grown it two seasons, and find it a sure cropper, disease never reaching the tubers, and it may be cooked early or late in the season. A wet summer suits Village Blacksmith well, and this very distinct variety keeps well and is of good quality. I believe we shall be able to lift good crops of both Magnum Bonum and Scotch Champion, these always doing well with us.

W. Iggulden.

HOW TO GROW ONIONS FOR EXHIBITION.

Of late years we have become accustomed to see Onions of great size and unusual weight placed upon the exhibition table—large, solid, symmetrical bulbs of remarkable development. A dozen or so years ago it was thought a great achievement to set up for show a dozen Onions weighing in the aggregate 15 lbs., but some of the newer introductions will reach 1½ lbs. to 2 lbs. each. It is even said that the finest of the newer Onions have been obtained through carefully made crosses, so the art of the fertiliser has been turned to account in perfecting this popular vegetable. He who would grow fine Onions for exhibition should sow the seed in October, and also sow seed of some of the fine new types with which Mr. Henry Deverill, of Banbury, has favoured us of late, for in Onion competitions it is only the finest that will stand a chance of winning. A sowing should also be made in October so as to get a good start. Some of the finest Onions grown are from Oxfordshire, and it is in that county the fine Banbury Onions have been produced. The mode of culture adopted by the Oxfordshire growers is as follows: A piece of ground being selected for the purpose, in the month of October the first spit is dug out altogether, the next below that is forked up deeply, and then 6 inches to 8 inches of well rotted manure is placed in the trench; then the next spit is put upon the manure, and so this goes on until the ground is fully prepared. The land remains thus until January, and then a coating of soot is laid over it. The soot is helpful in two ways—it assists in killing any grubs that may be in the soil, and it also acts as an excellent fertiliser. Two or three days after the soot is applied, the weather being favourable, the ground is slightly forked over and the surface made firm. So much for the preparation of the land.

The seeds are not sown in the open ground in the usual way, the usual plan being to sow in pans or boxes in January, grow them on in frames, and transplant to the open ground in March. Some growers of Onions for exhibition say there is nothing gained by adopting this practice; but the Oxfordshire men, who grow Onions to a very large size, adopt it, and when once transplanted to the open ground, the plants are never allowed to suffer from want of water. Onion growers are unsparing in their applications of moisture. Even if rain threatens they water. Some of the growers adopt the practice of top-dressing their beds with manure from a spent Mushroom bed, while some do not think it necessary, and trust to good manure under the soil and plenty of moisture upon the surface. When the bulbs have pretty well matured, a little pinching in of the neck is resorted to, which causes the top to die away very gradually. The Onions that are re-

quired for show should be pulled up, and laid with the necks downwards on a rack, so that any moisture they may contain can drain out of them.

Mr. Deverill commenced Onion culture about 1882 by the introduction of the variety Rousham Park, the result of a cross made between the Banbury Improved and the Brown Globe by Mr. Wingrove, The Gardens, Rousham Park, near Oxford. When announced, it was said to be identical with the Banbury Improved, but Mr. Wingrove always contended that it grew to a greater depth than before and was more fleshy, and consequently larger and heavier. In competitions it invariably beats the Banbury Onion for size, weight, and finish. The next introduction was the Wroxton, a variety raised by Mr. W. Finlay, then gardener at Wroxton Park, Banbury. This is globe-shaped, the original type being a flat oval. This variety has a yellow rather than a white skin, remarkably firm flesh, and it is without doubt one of the best keepers in cultivation. The market gardeners in the neighbourhood of York call this the coming Onion for general crops, because it keeps so well; it does not become so large or heavy as the Rousham Park, finely grown bulbs averaging ¾ lb. to 1 lb. each. Mr. Deverill has improved upon it, and his Improved Wroxton, while maintaining all the good qualities of the older type, has added to it a perfect shape, and though by some confounded with James's Keeping, it differs from it. The next introduction was an improvement upon the Rousham Park, inasmuch as it is deeper in bulk and fuller in the neck, and is named the Anglo-Spanish. It was raised by Mr. Neal, at Bampton, Oxon, and well-grown bulbs measure 17 inches and 18 inches in circumference. Last year fifteen bulbs of this variety were exhibited at York, their weight being 20½ lbs. This is not only a fine exhibition Onion, but also a good keeper.

The next novelty in order is the Jubilee, to be distributed in the coming year. It was raised by Mr. W. Finlay, and in October, 1886, it won the first prize at an Onion competition held in the conservatory at South Kensington, the eight shown weighing 8½ ounces more than a similar number of Anglo-Spanish. It is said to be the result of a cross between the Improved White Spanish and an imported Spanish Onion of the grocers' shops. It resembles the Anglo-Spanish, but is a little browner in colour. This was followed by the Cocoa-nut, a selection from Cranston's Excelsior; it is so named because it resembles a Cocoa-nut in shape. It is a very fine Onion and a remarkably good keeper. I saw twelve bulbs of this new variety at the Banbury Chrysanthemum show in November last, and was much struck with their large size and fine symmetry. Mr. Deverill recommends that seed of the Cocoa-nut Onion be sown in a bed in a cold frame in August or September, and transplanted to well-prepared ground in February. When treated in this way he thinks it may be grown to 2 lbs. and 3 lbs. in weight. It is particularly recommended for autumn sowing, as it is very hardy, and comes to maturity quicker than any other he is acquainted with. This will be sent out in the autumn of the present year.

Still another novelty—one known as Ailsa Craig, raised by Mr. David Murray, Culzean Castle, Ayrshire—but no particulars are given as to its parentage; it is simply said to be a seedling. The shape is that of the Rousham Park, and it is very deep and solid in the flesh, the skin being of a brown colour.

In order to maintain a fine character to these Onions, the seed is saved from very carefully selected bulbs. Mr. Deverill plants his very best and handsomest Onions for seed, bulbs that weigh 1 lb., 1¼ lbs., and 1½ lbs. being planted out for the purpose. Not only are the very best bulbs selected for the production of seed, but they have the very best cultivation. In this way a stock of any one or more varieties can be kept fine in character and pure also, and the deterioration that ensues when small, ill-formed Onions are selected for seed is not noticed. R. D.

Death to caterpillars.—A. S. Fuller states, in *Orchard and Garden*, that tar-water will kill the cabbage worm, or green caterpillar of the Cabbage butterfly. His early Cabbages were being rapidly destroyed by these worms, but "one sprinkling with tar-water, applied with a watering-pot, destroyed every worm and egg"—a most valuable fact, if it is a fact. It is prepared by placing a quart or two of coal tar in a tub or barrel, and then filling up with water. In about forty-eight hours the water will smell strongly of tar, when it may be dipped off and applied to plants with a syringe or common watering-pot.

The Potato crop.—I am sorry to have to report very unfavourably on this matter; many market growers in the immediate neighbourhood will lose heavily indeed. In the majority of cases the crops would seem to be hardly worth digging. Lying rather high with a light soil, we are a trifle better off, but yet the yield of sound tubers will be very small, not more than one-fourth of the average. Early Puritan has been our best; it grew very quickly, and was ready for digging before the disease made its appearance.—E. Burrell, *Claremont*.

KITCHEN GARDEN NOTES.

Cauliflowers.

The plants raised in August ought now to be sufficiently large to transfer to their winter quarters, and this should be attended to before they spoil each other in the seed-bed. If a considerable number of handlights are available, a row or rows of these may be set across an open, freely-manured, and deeply-dug plot of ground, the Cauliflower plants wintered in them usually forming the most serviceable crop of the spring and summer seasons. Set the hand-lights about 30 inches apart each way, and if the soil enclosed is not sufficiently pulverised, mix with it a good quantity of fine fresh soil, such as may be obtained by sifting over a heap of old potting mould, finishing off with a surfacing of burnt garden refuse or other charred material. Each square handlight may have nine plants dibbled into it, or in any case about double the number that are to remain undisturbed next spring. Water in if the ground is at all dry, and cover for a few days, or till such times as the plants freshen up; afterwards all the air possible should be given so as to render the plants hardy. Thus treated, the handlights will usually prove sufficient covering even in the severest weather. Handlights are not plentiful in many gardens, and in such cases some other means of wintering a number of plants must be adopted. A single-light or larger frame may be partially filled with old hot-bed material or anything that will not heat, on this being placed about 6 inches of light, loamy soil. Dibble out the plants about 4 inches apart each way, and treat as advised in the case of those in handlights. It is the earlier varieties, such as Erfurt, Mammoth, Early London, Mont Blanc, and Walcheren, that ought to be most largely protected and forwarded under glass, but it is advisable to also dibble out into rough frames a good number of Magnum Bonum, Pearl, Eclipse, Autumn Giant, or any other favourite successional varieties. These, if not unduly coddled, will survive the winter with very little protection, and will be found very serviceable next season. As a rule, we have plenty of Erfurt Mammoth Cauliflowers from the handlights by the time the latest Broccoli are over, but should our stock of plants of the former fail in any way, their place is taken by Extra Early Forcing, raised as early in the year as possible. Cauliflowers, sown late in frames, ought to be kept free of weeds, thinned out where at all crowded, and given plenty of air whenever the weather permits. Plants thus raised and wintered will be available for putting out on warm borders as well as in the open ground. Seedlings now being plentiful, as many as are not required for the handlights and frames may be dibbled out on a sunny sheltered border, where many of them will survive an ordinary winter. Very fine early heads are sometimes cut from plants growing at the foot of sunny walls. The plants may be put out now or early in the spring. They ought to have abundance of good solid manure, this being only very slightly buried, and a ridge of soil formed over it. Dibble in the plants 4 inches apart in a single line and thin out or regulate, if need be, next spring. Where club or ambury is prevalent, all the plants should have their roots well coated with a puddle formed with a mixture of loamy or clayey soil, soot, and lime, this warding off the attack of the insect causing the mischief. Slugs are also very destructive, and young Cauliflower plants ought, therefore, to be well surrounded with ashes or burnt soil, traps, in the shape of Broccoli leaves, also being set for them.

Lifting and Storing Potatoes.

Last season many cultivators were undecided what to do with their Potatoes at this date, the haulm still being quite green and the crops growing. This year the case is very different, green haulm being very rare indeed, and there is no necessity to delay lifting, nor, on the other hand, is there any urgency about it, as the tubers keep as well left in the ground as they will in the best storing place available. In fact, I should prefer to leave them in the ground to storing in any warm position where early sprouting is sure to result. Well moulded up, it must be an exceptionally severe frost that will injure the crop. Last winter we left a quantity of both early and late varieties in the ground till the spring and were rewarded with a capital lot of tubers fit either for eating or planting purposes, these, as events have proved, being far superior to any that have been lifted and stored in sheds. Very early lifting, unless done before the disease affected the haulm, was not to be commended this season, the better plan being to leave the crops in the ground long enough for the diseased tubers to be easily separated from the sound ones. Prior to forking out the Potatoes the ground ought to be cleared of all weeds and rubbish, this being burnt, and the whole of the ground should be loosened up as the lifting goes on. A second digging after manure has been wheeled on in frosty weather will then be ample preparation for Potatoes again or any crop in rotation. The tubers ought not to remain long on the ground, but when fairly dry should be sorted over, those diseased being thrown out, laid in heaps, and heavily covered with quicklime, while the small ones should go to the pigs, good medium-sized ones suitable for planting sets being stored thinly where they will get a fair amount of light and air, and the rest stored for use as required. That portion of the crop intended for late use may, if storage room be limited, be "clamped" or placed in a long, narrow heap and covered first with straw and then a good layer of mould well plastered over it. As a mass of Potatoes is certain to become rather warm in the centre, they must not be too quickly or too rigidly sealed up. Either small draining tiles or tufts of fresh straw should protrude from the ridge at short intervals, these serving to let out any extra heat or steam generated. Magnum Bonum, Paterson's Victoria, Regents, Chiswick Favourite, Chancellor, Idaho, Reading Hero, Village Blacksmith, and Prime Minister are all good keepers, some of them improving in quality by being kept for late use. Scotch Champion keeps fairly well, but, as a rule, it is more fit for use when first lifted and any time up to midwinter.

Various.

Globe Artichokes have been plentiful, being finer and more succulent than usual. The Green Globe is much the best, and ought, where the Purple Globe is still grown, to gradually replace that variety. The young beds formed in April are now producing serviceable heads, and a few are still being cut from the old plants. All exhausted flower-stems should be cut out, and in some instances the suckers ought also to be freely thinned, the aim being to encourage the formation of a few strong crowns at each clump. Leeks planted deeply in holes formed on well-manured ground require but little attention, but those in trenches must be moulded up similarly to Celery in order to properly blanch their stems. Guano or some other fertiliser washed in, or liquid manure of some kind will not be thrown away on Leeks. Cardoons have grown to a great size this season, plenty of moisture and manure suiting them well, always providing they are not planted too low down. It takes quite two months to blanch them properly. The suckers and small lower leaves should first be pulled away from the plants, after which the outer leaves may all be

carefully brought up together and well enclosed either with several folds of brown paper or hay-bands. About three mouldings up are required, taking care not to be in advance of the hearts. A spell of dry weather has given a good opportunity for cleansing the ground, and frequent hoeings will be necessary while mild weather lasts, as tiny seedlings are springing up in all directions.

W. I. M.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(Continued.)

Smilax.—A few kinds of Smilax are hardy and also useful evergreen climbers, as they relieve the monotony of Ivy and other commoner Ever-



Smilax tamnoides.

greens. The North American species, S. rotundifolia, S. herbacea, and S. tamnoides, the species herewith figured, are among the best, and the most easily obtainable. S. aspera is another good hardy kind, and one called S. mauritanica, with small arrow-shaped leaves of a bronzy green mottled with white, is extremely pretty. It is of rapid growth, and makes long wiry shoots, which run 10 feet or 12 feet high. The Smilaxes should always be planted in a snug place sheltered from cold winds.

Spiræa.—No genus of hardy shrubs is so rich in beautiful species as Spiræa; so numerous indeed are they, that even the most liberal selection for a moderate sized garden must exclude many beautiful kinds. The best shrubby Spiræas are for the most part tolerably common and well known, and are readily obtainable from nurseries. There is, therefore, little need to describe them in detail. A selection of the best that are indispensable in every well-planted garden would include the following:—

S. ariæfolia, from North America, a shrub of slender growth, rising from 6 feet to 10 feet high, produces about the end of July a profusion of plume-like flower clusters of a dull white. The beautiful S. japonica, more generally known as S. callosa, is one of the finest of all dwarf hardy shrubs. It is easily recognised by its slender stems rising 3 feet or 4 feet high, surmounted by broad flat clusters of deep pink flowers in the typical form, but there are several varieties that differ in colour. One named splendens is much richer and deeper than the type in colour, as are also those named rubra, superba, and atrosanguinea, while the variety alba produces an abundance of pure white flowers in small clusters. S. bella is dwarfer in growth and somewhat denser than S. callosa.

The newly-introduced S. Bumalda is obviously a variety of S. japonica (S. callosa), and is a valuable addition, inasmuch as it is so dwarf and compact in growth. It does not grow more than 2 feet high, and has broad clusters of deep rose-pink flowers. It is a rapid grower and hardy beyond a doubt. S. Douglasi and S. Nobleana are so similar in growth and flower, that they may be conveniently coupled, though it is advisable to have both, as they flower at different times. They are of vigorous growth and produce dense, erect clusters of deep red flowers. Both are from North America. Nobleana being a native of California, is therefore less hardy than the other, which succeeds in every part of these islands. The Hypericum-leaved Spiræa (S. hypericifolia), from Asia Minor, is the type of a small group, all very elegant in growth and pretty in flower. The stems are tall, slender and arch over in a graceful way, and in good soils and sheltered spots reach as high as 8 feet. The leaves are small and arranged in rows on the branches, which in the flowering season are wreathed with small clusters of small pure white flowers. The Spiræas named in nurseries S. flagelliformis and acuta are forms of this species, and both are superior to the type.

The Canton Spiræa (S. cantoniensis), known also as S. Reevesiana, is among the choicest, and is particularly valuable for forcing as a pot shrub in early spring. It is a slender bush about a yard high, and its small clusters of white flowers are borne abundantly. There is also a beautiful, but less common variety with double flowers. The Plum-leaved Spiræa (S. prunifolia) is most commonly represented in gardens by the double variety (flore-pleno), which is an extremely beautiful shrub. The flowers are like tiny snow-white rosettes, which wreathe every twig and branch in early summer. S. media, better known in gardens as S. confusa, is in the way of S. cantoniensis, and therefore need not be included in a selection; but the variety rotundifolia is a most desirable shrub, though, unfortunately, it is not common, as it has been recently introduced from Japan. What is known in gardens as S. lanceolata is a very pretty shrub, of dwarf growth, and with white flowers in clusters. Of the common Willow-leaved Spiræa (S. salicifolia), there are numerous forms, the best being those named grandiflora and paniculata, both of which recall S. Douglasi. A tolerably common and very beautiful kind is known under the name of S. Fortunei paniculata (see illustration, p. 308). It somewhat resembles S. callosa in growth and flower, but the flower clusters are different, being arranged more in a panicle than in a corymb. It is said to be a hybrid, one of the parents being S. callosa, which is also called S. Fortunei. S. Thunbergi has of late years become quite common, and is a favourite shrub for forcing into early flower. It makes a neat and dense bush, with small leaves of a bright green, and bears a profusion of tiny white blossoms in early spring. It is from Japan and is perfectly hardy, being especially suitable for planting in a bold rockery, or on a raised bank among tree stems.

Lindley's Spiræa (S. Lindleyana) should be planted in every garden, except in the coldest districts. It is a large-growing robust shrub, rising in some places quite 10 feet high. Its foliage is most graceful, being long and pinnate and of a delicate green. The flower clusters which terminate the shoots are large, white, and plume-like, and have a beautiful effect when at their best in late summer, usually about the middle of August. This is decidedly the finest of the group to which it belongs. The other pinnate-leaved Spiræas, such as S. sorbifolia, Pallasi, or grandiflora, are less desirable, as neither are so effective in growth or bloom.



Spiræa lanceolata.

Being a native of the Himalayas, S. Lindleyana cannot be termed an absolutely hardy shrub everywhere. It thrives best in a warm, deep soil, not too light nor too heavy, and is always better for shelter from cold winds, which are liable to injure its young growth in spring. When a large collection of Spiræas is desired than those mentioned in the foregoing list the following may be added: S. vaccinifolia, S. Blumei, S. chamædrifolia, S. trilobata, S. tomentosa, and S. opulifolia, and particularly the golden-leaved variety of it, which is a most effective shrub in early summer, when the young foliage is of a bright glowing yellow.

As to the culture of Spiræas, there is little to say. Like most other deciduous shrubs, they like a good soil, sheltered position, and need attention as regards pruning, the aim being to encourage young flowering growths in preference to worn-out old wood. Their position will be best selected by the planter, who must remember that in order to develop fine bushes they must be allowed ample room, as they abhor overcrowding.

Hardhack (Spiræa tomentosa).—The last of the Spiræas in flower is the Hardhack or Steeple Bush (S. tomentosa), familiar to all northern eyes. It is a handsome plant, which, were it not so common, would be more often seen in gardens. S. tomen-

tosa has erect stems, 20 inches or 30 inches high, covered, as well as the lower surface of the ovate serrate leaves, with a dense brown tomentum, and terminated by a dense panicle of short, crowded racemes of small, bright rose-coloured or rarely white flowers. It is found in low, swampy ground, where it spreads rapidly by underground shoots; it is not particular, however, about soil, and thrives as well when transplanted to the garden or to dry uplands as in wet ground.—*Garden and Forest.*

A NEW KOELREUTERIA FROM WESTERN CHINA.

The great mountain ranges of Central Asia have still in store many surprises for the botanist and the horticulturist. After the numerous explorations which have been made throughout the entire chain of the Himalayas and the adjacent regions, the subjects of research might be supposed to have been exhausted. This, however, is by no means the case, for the producing powers of these imperfectly-known parts of the world do not appear to have been in any degree diminished. Have not the investigations of a single individual, a poor missionary, lost to view in the remotest province of the Chinese Empire, sufficed, in the space of four years, to double the number of known species of some genera of the Asiatic flora, such as the Rhododendrons, the Gentians, the Primulas, &c.?

[In a district of not much greater area than the Department of the Seine, M. Delavay, a priest of the foreign missions, discovered thirty-two new Rhododendrons, and as many new Gentians and Primulas.—Ed. *R. H.*]

Among the many ornamental plants discovered on the mountains of Yunnam by M. Delavay, we may make prominent mention of a superb Koelreuteria. It is well known that up to the present this genus has been represented in cultivation by only one species (K. paniculata), a native of the northern provinces of China, which is frequently to be met with in our gardens, and withstands the winter well in the climate of Paris. Under the name of K. japonica, Siebold described a Koelreuteria which he said was found in Japan, but this has been pronounced by all to be nothing but a simple form of K. paniculata.

It would be out of place here to give a minute description of the old species which everyone knows, and I shall only remark that it forms a tree which seldom exceeds 32 feet or 33 feet in height, with rather soft and slightly greyish leaves, consisting of from six to ten pairs of leaflets which are broadly oval in shape, incised-lobed at the base, and only indented towards the point. Sometimes the two opposite basal lobes of each leaflet are entirely separate from the rest of the leaflet, and in this case the leaf may be considered imperfectly bipinnate.



Koelreuteria bipinnata.

The new Koelreuteria of which we now write is perfectly distinct from K. paniculata, as may be inferred from the following description of it:—

Koelreuteria bipinnata (Franch.), *Bulletin de la Société botanique de France*, t. xxxiii. (1886), p. 463 (fig. 93).—A very robust-growing tree, about 65 feet high; leaves large (some of them 28 inches long and 24 inches broad at the base), regularly bipinnate; leaflets leathery, alternate, distinctly stalked, glabrous or almost so, of a dark green on the upper surface, pale underneath, oval-lanceolate, the limb being divided by the mid-rib into appreciably unequal parts, edged with fine incumbent teeth, and abruptly acuminate. Flowers much resembling those of K. paniculata, of a rather lively yellow colour, with the claw of the petals purplish. They are produced in broad panicles, which are often pretty compact. The capsules are broadly oval, always very obtuse, sometimes almost roundish in shape, over 2 inches in length, and assume a rather pronounced purplish hue as they mature. The seeds are black and about the size of green Peas.

K. bipinnata grows wild in the woods of Talong-tan, beyond Tapin-tza (Central Yunnam), at an altitude of about 5850 feet. It flowers in the end of July, and the fruit ripens in autumn. The tree is very remarkable for its ample foliage and the abundance of its flowers. In autumn it presents a peculiar appearance, caused by the purplish colour of the large bladdery capsules which are borne in panicles from 12 inches to 16 inches in length and breadth. It is to be expected that under cultivation it will be found not more difficult to manage than its congener, K. paniculata. The latter, it is true, is a native of the northern parts of China, but it must not be forgotten that, although K. bipinnata comes from a more southern district, it is only found there at an altitude of nearly 6000 feet—a degree of altitude which almost neutralises the lowness of the latitude. However this may be, the cultivation of this tree will be better understood after some experiments have been made with it. The seeds germinate most readily, and the young plants grow rapidly. Even supposing that the climate of Paris does not suit it, it is almost certain that it will succeed very well in the western or southern provinces of France.—*Revue Horticole.*

THE CUCUMBER TREE.

(MAGNOLIA ACUMINATA.)

A considerable amount of space has been occupied from time to time in The Garden in describing the different varieties of the Magnolia, but my object in singling out the above-named variety is to call particular attention to its merits as an ornamental deciduous tree of large size. The majority of the Magnolias are classed with shrubs of large growth, but they do not often attain dimensions exceeding say 20 feet in height. M. acuminata may claim to rank with native trees of large growth, and be utilised for a sheltered spot in the park as well as in the pleasure-ground. It was introduced into this country from the Southern States of America as far back as 1736, and was probably planted at Claremont about fifty years ago. Our largest plant is now nearly 60 feet high and 5 feet in girth at 10 feet from the ground. It has formed a shapely head, and has a spread of branches quite in proportion to its height and size. The stem is very clean and bright, the young wood and buds being similar in appearance to the smaller varieties, such as glauca and Lenne. In habit of growth it bears at a distance a slight resemblance to the Tulip tree, but a closer inspection shows that the leaf is larger, of a darker and more glossy green, of much thicker substance, and plain instead of three-lobed, as is the Liriodendron. The foliage, when seen at its best, marks this Magnolia as one of the handsomest of our deciduous trees. The flowers are insignificant when compared with those of other varieties, but as they are produced in considerable profusion and are distinct in colour, they produce a pleasing effect backed up by the dark foliage. The fruit, from which the tree derives its name, is in its green state not unlike a tiny Cucumber. In the autumn, when it becomes of a pale red colour, it forms a quaint and striking feature. I hope this note may draw attention to the merits of this Magnolia. It is a tree that may be safely utilised in all landscape work, either as a single specimen or for a short avenue. In the last case, two trees that associate well with it are the Ailantus and the Kentucky Coffee Tree, as their lighter and pendulous foliage relieves the somewhat heavy appearance of the Magnolia. The tree may be propagated from seeds and layers, and was, I believe, extensively grown some years ago as a stock for other varieties. It is not generally known, and large specimens are rare. Now that a taste for rare exotic trees is growing, it may doubtless meet with the attention it deserves,

although at present it is so little in demand as hardly to pay the average nurseryman for keeping it in stock. E. Burrell.

Claremont.

THE SUMACHS.

The Sumachs, as the different pinnate-leaved North American species of Rhus are popularly called, are all valuable ornamental plants. Rhus venenata is the first to bloom, its drooping racemes of inconspicuous flowers appearing in June. This is the most virulently poisonous plant found in the United States. It has much beauty, however, and the colouring of its autumn foliage surpasses in brilliancy that of almost every other native plant, and makes it late in the season the chief ornament of many swamps in the Northern and Eastern States.

The Poison Sumach is followed a few weeks later by the great Stag's-horn Sumach (R. typhina), a small tree, widely and commonly distributed through Eastern North America; and one of the most ornamental of all American plants in foliage, in flower and in fruit, and especially in the colouring it assumes in autumn.

The flowers of the Stag's-horn Sumach are followed by those of the Smooth Sumach (R. glabra), which is blooming just now. It is a handsome shrub, with smooth and glaucous branches, smooth leaves, consisting of many narrow leaflets, which are pale on the lower surface, and immense terminal panicles of yellow-green flowers. It is found on rocky or barren soil, and is the smallest of the American species, rarely rising to a height of more than 10 feet or 12 feet. There is a variety of this species (var. laciniata) now frequently seen in gardens, in which the leaflets are deeply cut and divided. It was discovered many years ago in the woods in Chester County, Pennsylvania.

The flowers of the Smooth Sumach will be followed in ten or twelve days by those of the so-called dwarf Sumach (R. copallina), which may be distinguished from the other American species by the winged margins of the leaf-stalks, and by the brightly shining upper surface of the leaflets. This plant is dwarf only in name, or rather only at the north, where it sometimes covers extensive tracts of sterile, gravelly soil; but at the south, and especially west of the Mississippi River, the dwarf Sumach becomes a considerable tree, surpassing the other species in height and in the size of its stout trunk. This is a variable species, especially in Texas towards the south-western limits of its distribution, where botanists recognise one or two well-marked varieties.—*Garden and Forest.*

Cryptomeria elegans.—This is a desirable tree to add to any collection of Conifers. It is also very distinct in the colour of its foliage and the habit of growth. It does not appear to be very self-supporting, by which I mean that the main stem of the tree does not increase in size and strength in proportion to the spread of branches, so that in time the tree becomes one-sided and requires supports to keep it in position. When very young it has a tendency to throw up more than one leader, in some cases three or four, and unless properly trained it is much inclined to a shrubby form of growth rather than an upright specimen tree. We have here two or three dozen of them planted in different situations, and while the habit of growth and general character are alike in all, by far the finest and healthiest plants are those in partially sheltered positions. I find, however, it is quite possible to damage rather than improve this tree by too much shelter. Some of our specimens are in positions so protected from the effects of strong winds on all sides but the south, that the trees have been drawn up too rapidly and are weak. A healthy tree generally makes a vigorous growth in a season, and the wood is very elastic and pliable, hence the reason for planting it in an open rather than a confined position. The tree appears to be perfectly hardy, and its beauty is very much increased in winter when the growth assumes a reddish brown tint. The tree changes its hue several times during the year. It will grow in most soils if they are well drained, but the most suitable one is a loamy surface resting on a marly subsoil.—T. R. F.

NOTES FROM THE ARNOLD ARBORETUM.

By far the most beautiful of the American Andromedas is A. speciosa. It is a native of the coast country from North Carolina to Florida, where it is found along the borders of the Pine-barren ponds, and, in spite of its southern origin, is perfectly hardy and at home here. It is a low shrub, never more than 3 feet or 4 feet high, with bright green foliage, which, in one variety (var. pulverulenta), is chalky white, with a dense glaucous bloom. The flowers are pure white, a third of an inch deep by as much wide when expanded, and appear in large-racemed fascicles on naked branches of the preceding year. This charming plant has been in cultivation since the beginning of the century, and was once a great favourite in English gardens.

Not less attractive in its way is Philadelphus microphyllus, the smallest of the family, and a native of the mountains of Southern Colorado and New Mexico, whence it was introduced into cultivation by the Arboretum a few years ago. It is a twiggy shrub with small white, deliciously fragrant flowers, which no one who has ever climbed over the cliffs above the Grand Cañon of the Arkansas in the early days of July will ever forget. Philadelphus microphyllus is perfectly hardy here, and an excellent little shrub for the rock garden. The earliest Ceanothus to flower here (where none of the handsome California species are hardy), and ten or twelve days earlier than the common New Jersey Tea (C. americanus), is C. ovalis. It is a common western species, only just reaching New England on the eastern shores of Lake Champlain, and probably very rarely cultivated, in spite of the fact that it is a useful low shrub 2 feet or 3 feet high, of compact habit, good foliage, and handsome white flowers, which come later than those of most shrubs—a valuable quality.

It is the habit of late and continuous blooming through the summer which gives value to the All Saints' Cherry, a European plant of very uncertain origin. It is a handsome dwarf tree, with long, pendulous branches. In nurseries it is generally grafted standard high on the common Cherry, when the branches soon sweep the ground. It produces through the season large white solitary flowers on long drooping stems, ripe fruit and flowers appearing on the tree at the same time. The All Saints' Cherry makes a very pretty specimen for a small lawn or garden. It is very rarely seen in this country.

Acanthopanax spinosum (Aralia pentaphylla) is now in flower. It is a very hardy Japanese shrub, which attains a height here of 8 feet or 10 feet, with wide-spreading, arching, pale grey branches, armed with stout, solitary prickles, and covered with bright green, shining, five-parted leaves, 5 inches or 6 inches across, and borne on long clustered petioles. The small green flowers are not showy, and the value of this plant lies in its graceful habit and handsome and abundant foliage. It is an excellent subject to plant on a rocky bank.

Rosa repens is probably a form of the common and widely distributed European field Rose (R. arvensis), although very distinct for garden purposes. It has prostrate branches, 8 feet or 10 feet long, handsome dark green foliage, and small, pure white, single flowers, solitary, or two or three together. It continues to expand its flowers for several weeks, and is one of the most attractive of foreign Roses in the collection. It is well suited for planting on banks or among other shrubs, where it can send its long stems freely over them, or it is an exceedingly attractive plant when trained to a tall stake or to a pillar.

Many of the American Green Briers (Smilax) are handsome climbing plants. They are never cultivated, however, although some of the strong growing species can be made to serve a good purpose in preventing access across the boundaries of parks or pleasure grounds. Neither man nor beast will try to break through a well-grown mass of the tough, horribly armed stems of the common Green Brier, or Bull Brier (Smilax rotundifolia), one of the handsomest plants in leaf found in the Atlantic forests.

Another species peculiar to the south, S. Pseudo-China, is blooming here now, and although its stems are unarmed, or nearly so, they are so tough and become so interlaced, that passage through them is almost impossible. It soon spreads from the tuberous root-stocks, sending up stems 10 feet or 12 feet long, covered with large, dark green, sharply-pointed leaves, the small clusters of greenish flowers and handsome black fruit being on stems three or four times longer than the petioles. There are still several species of these interesting plants to introduce into cultivation and much to be learned of their horticultural capabilities.

Several of the Viburnums and Dogwoods of the Northern States are now in flower. Among them are shrubs which are unsurpassed in beauty of foliage, or of flowers, or of fruit. They can all be easily cultivated, and all thrive in any kind of soil and in all exposures. Where great masses of low foliage are needed in public parks, or where shrubberies are liable to suffer from neglect, as in city squares or on railroad embankments, or where the adornment of country roadsides is undertaken, these and other native shrubs should be selected for the purpose, rather than exotic garden plants, which always require considerable attention to keep them in good order, and which, often fastidious about soil, are liable to be attacked by insects and fungoid enemies. Our common native shrubs, however, are very rarely cultivated. A few years ago they were completely unknown in nurseries and entirely neglected by planters. Some attention has been drawn to them lately, but they are still rare in nurseries, and it is impossible to obtain them in large quantities. Such plants are easily and quickly raised, and a demand for them will soon create a supply. Attention has already been directed, in an earlier issue of these notes, to the beauty of Viburnum Lentago. Among the species in bloom a few days later is Viburnum dentatum (the Arrow-wood), a compact shrub, with erect branches 8 feet or 10 feet high, ample, sharply toothed, and strongly veined leaves, and broad, peduncled cymes of white flowers, which in the early autumn are followed by bright blue, handsome fruit. Viburnum cassinoides grows 6 feet to 10 feet high in the northern swamps, which are its home. It has handsome, leathery, opaque, or dull, ovate, generally entire leaves, and broad, flat cymes of yellow-white flowers. This is one of the handsomest shrubs in the Northern States. It is easily cultivated, and soon grows into a round-topped, spreading specimen, flowering with the greatest profusion. Viburnum acerifolium is a smaller plant than either of those already mentioned, rarely exceeding a height of 3 feet or 4 feet on the rocky wooded hillsides where it abounds in the Northern States. It is a plant of compact habit, producing freely small, long-stemmed clusters of white flowers; but its greatest beauty is in the rich, deep claret colour which its handsome three-lobed leaves assume late in autumn.

Among the native Dogwoods now in flower the handsomest, perhaps, are C. alternifolia, a shrub-like tree with wide-spreading branches and a flat top, the alternate leaves crowded towards the end of the branchlets, and open, wide cymes of pale yellow or white flowers, followed by deep blue fruit with reddish stalks; and C. circinata, the round-leaved Cornel, a compact shrub 6 feet to 10 feet high, with green, warty-dotted branches, large, pale green leaves, 4 inches or 5 inches across, woolly on the lower side, flat cymes of rather large flowers, and light blue fruit. This is certainly one of the most attractive of all the Cornels.—*Garden and Forest.*

Magnolia hypoleuca.—This is a common tree in the rich forests which cover the mountains in the southern part of the northern Island of Jesso. Here it attains a height of 60 feet or more, with a trunk diameter of nearly 2 feet. In habit, if we may judge from the largest plant in this country, it more

closely resembles M. macrophylla than any other American species, with the same erect trunk covered with smooth, pale bark, and the same wide-spreading branches. The creamy white flowers exhale a delicious fragrance, which may be described as a combination of those of Wintergreen (Gaultheria) and of Banana fruit; they are 6 inches or 7 inches across when fully expanded, and appear in New York late in May or early in June. The wood of Magnolia hypoleuca is straight-grained, easily worked, and dull yellow-grey in colour. It is the wood commonly used by the Japanese in the manufacture of objects to be lacquered; it is preferred for sword-sheaths, and the charcoal made from it is used in polishing lac. Magnolia hypoleuca was first sent to this country in 1865 by Mr. Thomas Hogg, and planted in his brother's garden in Eighty-fourth Street by the East River, in this city, which for many years was the most interesting spot in the United States for lovers of Japanese plants. This tree is now 28 feet high, with a trunk 31 inches in diameter 3 feet from the ground, and it will be a misfortune if the improvements now being made in that part of the city necessitate its destruction. The northern and elevated range of this species, and the fact that Mr. Hogg's specimen has grown so rapidly in an exceedingly bleak and exposed position, seem to indicate that this tree will prove hardy in the Northern and Middle States.—*Garden and Forest.*

PLANTING EVERGREENS.

It is several years since the ground was in such good condition for the planting of evergreen trees and shrubs as it is this season. The rainfall has been sufficient to moisten the soil to a good depth, and the different classes of evergreen trees and shrubs that are usually transplanted at this time of the year are in good condition for moving. The various subjects have made good growth, and a check now would be more beneficial than otherwise, as the effect of the root-disturbance will result in hardening up the growth. When it is decided to do the work in autumn, the earlier it is done after the middle of September the better. The longer the plants to be moved have stood in one position the more necessary it is that early autumn planting should be practised. In the case of plants that have been frequently moved in the nursery quarters there is not the same necessity for pressing on the work, as the trees will be in a better condition to bear removal. There is less cause for anxiety in removing Evergreens that have been regularly transplanted. In the middle of the past July I removed some young Spruce Fir trees and a few other Evergreens. The roots were well soaked with water before the trees were taken up and after they were planted. They did not suffer from moving, and have since made good growth. Of course the season has been all in favour of the newly-planted subjects, but this instance only confirms previous experience, that when Evergreens have been properly prepared and a favourable time chosen for transplanting them, there is less danger in summer than winter when the subjects are not kept out of the ground for any length of time. I would not advocate the planting of Evergreens on a large scale in the summer. I have given my experience to show that when necessary such work need not be delayed in the summer months, because it is not the rule to plant Evergreens at that time. With regard to the size of the plants, there is very little gained by selecting those of large size, unless they have been transplanted every second or third year. When plants have not had this attention, it is better to select those from 3 feet to 4 feet high. The most effective style of planting is secured by grouping the different subjects together, the size of the group depending on the extent of ground to be dealt with. Groups of such things as Hollies, Barberries, Elæagnus, Gum Cistus, and others of similar growth are infinitely more effective than single specimens.

J. C. C.

Impatiens Hawkeri.—Having read "W.H.G.'s" note in The Garden, Sept. 15, p. 246, in reference to the above-named plant flowering freely in Kew Gardens, will "W. H. G." or any grower kindly say if the plant can be induced to flower while in a small state. I rooted several cuttings last spring, hoping that they would be of use for dinner-table decoration, while in 3-inch and 4-inch pots, but was disappointed, as they have continued to grow until they are now over 2 feet high and nearly the same through. They are just beginning to expand their beautiful richly-coloured flowers and will no doubt be greatly admired, but will be of no use for the purpose intended. Plants of this Impatiens have been grown here since it was first sent out, but no seed has been produced.—Erin.

STOVE AND GREENHOUSE.

WORK IN PLANT HOUSES.

Stove. — Winter-flowering plants. — The amount of bloom which the various kinds of quick-growing stove plants that are used for autumn and winter flowering will produce depends much upon the condition that they are in at the close of summer. It is necessary that the growth should be strong and sturdy, yet not gross, such as follows when too much pot room has been given, or too much liquid manure applied before the roots had got sufficient hold of the soil to bear it. Plants with large overgrown leaves and thick sappy shoots always fail to produce flowers in quantity proportionate to their size. Most of the stove plants usually grown for winter blooming require a considerable amount of warmth with sufficient air and an abundance of light to enable them to make growth of the proper description for yielding the full supply of flowers which they are capable of. To correct a want of substance in the plants more than the usual amount of fire heat should be used during the coming month, so as to admit of a corresponding amount of air being given on all favourable occasions. This with raising the plants well up to the roof of the house or pit in which they are grown, and keeping the atmosphere a little drier than usual, will do much to harden the growth and bring it up to the requisite condition.

Justicias.—Where the plants were struck early enough, and afterwards kept moving freely with the necessary attention in stopping they will now be well furnished with healthy shoots. The roots also will have taken well hold of the soil, so that manure water may be given freely. No more shoot pinching should be attempted after this time with the autumn-flowering kinds; such as bloom later, if insufficiently furnished, may be again stopped.

Aphelandras.—The different kinds of Aphelandra being of somewhat slower growth, and having naturally more substance in their wood than some of the winter-blooming plants, will have been less affected by the exceptional season we have had, but they will be benefited by a little extra warmth and less atmospheric moisture. In the case of old plants that have made strong growths, or young stock that is at all under-potted, manure water may be given every other time the soil requires moistening. Let them have enough air during the middle of the day, closing the lights before the external air becomes too cold.

Eranthemums.—Amongst the most useful of the Eranthemums is the lovely blue-flowered species E. pulchellum, which affords a colour that is scarce in winter. Where the plants have been kept warm enough they will still be growing freely. They must not be stopped any more; in fact, it is not necessary to have this species so much the shape of a dense bush as some kinds, as it flowers from the axils of the leaves at the lower joints of the shoots as well as at the extremities. Other sorts that bloom later may be similarly treated, giving each as much warmth as necessary to keep them growing, with air proportionate to the state of the weather.

Euphorbia jacquiniæflora.— Nothing that can be done to get this fine winter-flowering subject as large and as strong as possible should be omitted, for the larger the plants get the better they will flower, as there is no danger of over-luxuriance in their case. Spring-struck stock will now be in full growth. To keep them moving freely they must not be stinted for warmth. This Euphorbia will bear as much heat as most things; without this it cannot be seen in its best form. In small pots, with liberal and continuous applications of concentrated manure such as Clay's fertiliser, the plants can be grown to a size that would scarcely be credited by those who have only given it ordinary treatment. The tops of the plants should be kept close to the roof, lowering the pots as the shoots extend. This Euphorbia is better when not stopped, either in the case of spring-struck cuttings or older examples that had their branches shortened back in spring. It is an upright grower, and nothing is gained by trying to make it branch out. Be careful not to over-water it, even when in full growth. It cannot bear the roots being too wet. This especially must be avoided if the plants are in larger pots than they require. It is through over-watering that most of the failures with this Euphorbia occur.

Plumbago rosea.—This plant will also now be growing freely, and must have enough warmth to keep it moving. Ordinary stove heat is what it requires. If it is grown too cool, the plants are poor and do not attain sufficient size to admit of their giving enough bloom. This is another of the plants that should, where possible, be kept during the time it is making growth, as well as when it is coming into flower, with its tops near the glass; if not absolutely touching it they cannot be too close. An abundance of light and air will give strength and substance to any plant that is at all naturally deficient in these properties. A mistaken idea often exists about plants that have thin, soft-textured leaves and wood in supposing that if after the growth is made they are subjected to a drier atmosphere with an additional amount of air given, that this will set whatever deficiency exists to rights; but this is not so; it is only whilst the growth is in actual formation that full exposure to light with sufficient air has full effect.

Sericographis Ghiesbreghti. — The flowers of this pretty Acanthad arrange so well with other things when cut, that it seems strange it is not more grown. With formal flowers, like Chrysanthemums, it answers well, as its bright feathery sprays contrast admirably with them. The plants should now be kept in a warm house or pit and have plenty of light. Manure water once a week or so will greatly assist the plants, being careful that it is not given too strong. It is necessary to be cautious about this later on when the flowers are set, as if the water is applied in too strong a state it sometimes causes them to fall off without opening.

Poinsettias.—The condition of these plants will to some extent depend on the time they were started into growth. If the cuttings were struck early and have been pushed on in sufficient heat they will now have attained a good size, and the roots will be plentiful enough for the plants to bear liberal feeding. Ordinary manure water made from horse droppings with a little soot in it answers well. They should have it once or twice a week up to the time they come into flower. In the case of late struck plants that are yet small, they should be pushed on whilst there is still a fair amount of daylight. Old examples that were headed down in spring and have been grown on freely since will make the largest heads of bloom, provided that too many shoots have not been allowed to grow. Two to each plant is enough where their flaming bracts are wanted as large as they can be had. Old plants usually make their growth in less time than young ones that are propagated from cuttings struck in May or June. Where they have already attained the requisite size they may be kept a little cooler during the present month, standing them in a house or pit where they can have more air than has been given them during the time they have been in active growth. The atmosphere should also be kept drier, but whilst subjecting them in this way to treatment that will discourage further growth and help the maturing of the wood the plants must not be kept too cold, as if they get chilled through an insufficiency of warmth in cold weather it will cause many of the lower leaves to perish before their

time. All the above-named plants should not require much more shade, unless the weather happens to be unusually bright, and even if is necessary to protect them a little from the full force of the sun, the blinds should only be on for a short time during the middle of the day.

Caladiums.—These plants will now be inclined to go to rest, except perhaps C. argyrites, the foliage of which with a reasonable amount of care can be kept fresh and healthy during the greater part of the year. As the leaves show signs of decay the soil should gradually be allowed to get drier, giving no more water than is necessary to prevent flagging. This must not occur, as the leaves should die off the natural yellow colour. When the tops are gone the tubers may remain in the soil in the pots, if there is a shelf or an unoccupied place where the temperature will not fall much lower than 60° for any length of time, as it is not safe to subject them to much less heat than this.

Alocasias.—Most of the species are evergreen, and consequently should not be dried off in the way that the Caladiums are. But it is best to keep the soil somewhat drier through the end of autumn and the early part of the winter, as the plants will make more progress when the growing season again comes round after having had a rest. A. macrorhiza variegata is an exception to the others in the treatment it needs during winter, as it is necessary to keep it growing; consequently the soil requires to be only kept a little drier than in summer. To grow this species well it wants to be kept in a higher temperature through the winter than many stove plants need, for if it is allowed to get into a stagnant state it seldom moves freely afterwards. It should have a place at the warmest end of the stove and be kept well up to the glass.

Greenhouse.—Camellias.—Though Camellias are quite hardy in many parts of the country, it is better not to let them remain out of doors after the time that there is danger of frost, as a low temperature has a different effect on plants that have had their growth made under glass with, in many cases, more or less artificial heat. Previous to housing them it is well to go over the whole of the plants and give them a thorough cleaning from scale with which—either the white or the brown species—the plants are usually more or less affected. Brushing and sponging are the safest means of removing the pest, being careful not to use a hard brush too freely on the leaves, or they will be disfigured. In the case of plants that have been a long time in the same pots or tubs, it is necessary to see that the drainage is right. T. B.



Spiræa Fortunei paniculata. (See p. 304.)

Lapagerias in bloom.—The Lapageria is undoubtedly entitled to rank as one of the finest of all greenhouse plants, and at the present time it may be seen at its best in many gardens. The distinctive features of both are well shown when the white and red variety are so planted that their branches intermingle, and the blossoms depend in close proximity to each other. In planting, however, care should be taken to obtain only the best forms, for there are several inferior varieties, especially among the coloured ones. This is no doubt owing to many of them being raised from seed; indeed, I have seen the flowers of some seedlings so light in colour as to suggest a cross between the white and red forms. Where three are required, the beautiful mottled variety should also be grown. —T.

A FEW GOOD GREENHOUSE CLIMBERS.

Where a glass structure devoted to plants, be it either greenhouse, conservatory or stove, has the roof clothed with a well-selected assortment of climbers, they form, when in a flourishing condition, by no means the least interesting feature of the house, and if a suitable choice be made, a certain amount of flower may be obtained almost throughout the year. The principal greenhouse climbers in flower in the winter are Kennedya Marryattiana and Hibbertia dentata. The first-named is a free-growing climber with silky trifoliate leaves and clusters of deep scarlet-coloured blossoms. This is useful as a rafter plant in a medium-sized greenhouse, as so situated it flowers throughout the winter. The other is an evergreen climber, with the young leaves and shoots of a bronzy tint, and has deep golden-coloured blossoms. The early spring is enlivened by some further additions, prominent among which is the New Zealand Clematis indivisa, with its handsome dark green glossy leaves and great profusion of pure white, star-shaped blossoms. This is as free-flowering as the common Traveller's Joy of our hedgerows, and may be planted in either a large or small structure, as if struck from cuttings or grafted in the manner that the hardy kinds of Clematis are, it will flower freely in a small state, and yet will grow rapidly till it attains a large size, flowering at the same time every spring. A good companion to this, inasmuch as it blooms at the same time, and the colour of the blossoms contrasts markedly with those of the Clematis, is Akebia quinata, a very slender twining plant with prettily divided leaves of a cheerful green tint and claret-coloured blossoms. The individual blooms are small, but are bore in great profusion and last in beauty a considerable time. This is fairly hardy around London, but flowers best when treated as a greenhouse plant. Another spring-flowering subject is Stauntonia latifolia, but its principal recommendation is the ample dark green foliage; however, the blossoms, though by no means showy, are so sweetly scented, that a good-sized plant when in full bloom will perfume a large structure. Both the red and white Lapagerias are too well known to require any recommendation. A little-known climber, and yet one that should be very generally grown, is Rhodochiton volubile, whose growth, though slender, is rapid. The flowers are borne on the growing shoots, and in the case of vigorous specimens they often extend along the branches for a length of 5 feet or 6 feet. The bell-shaped calyx is as conspicuous a part of the inflorescence as the corolla. This last is tubular, and of a very deep crimson hue, in fact almost black, while the calyx is of a claret-purple tint. The leaves are heart-shaped and borne on the slender shoots at intervals of about a couple of inches, while a flower is produced from the axil of every leaf. As it is one of those subjects that flower as they grow, the more liberally it is treated the better it will bloom. One of the Trumpet Honeysuckles (Lonicera sempervirens) is beautiful when grown under glass, as a succession of clusters of the showy scarlet and yellow blossoms will be kept up throughout the summer months.

Several of the Passifloras are useful climbers, two good, useful, and beautiful varieties being Passiflora cærulea and its white variety, Constance Elliott. Another good Passion Flower is Impératrice Eugénie. Near allies of these last are the Tacsonias, of which the extremely bright-coloured blossoms of T. Van Volxemi, combined with the profusion in which they are borne, serve to render it a general favourite; while not less beautiful is the hybrid T. exoniensis. The egg-shaped fruits of Van Volxemi form an attractive feature when hanging suspended by the long, slender flower-stalks. Tacsonia insignis bears very showy blossoms, but it is extremely difficult to maintain in a flourishing condition. Where it is

necessary to cover a large space in a little time there is nothing to surpass the ordinary form of Cobæa scandens. The variegated-leaved variety of this last is far more fastidious in its requirements than the type, for it often fails to grow in a satisfactory manner, and sometimes dies off without any apparent cause. The variegation, however, is so pure and constant, that a thriving specimen is certain to be much admired. Wherever the atmosphere is at all smoke-laden, it will be very difficult to induce it to thrive. This is often regarded as far from an easy subject to strike trom cuttings, but it is not difficult to root if the weaker short-jointed side shoots only are chosen for the purpose, as if the stout succulent ones are taken the probability is that they will decay. I have, however, seen a good stock worked up by means of layers, which is perhaps the best means of propagating it. The typical kind seeds freely, and an unlimited number can be raised in this way, but though I have often tried to raise seed of the variegated variety, I have always failed. The seed germinated readily enough, but the seedlings died off during their earlier stages. The seed-leaves and stems were all of a yellowish tinge, and in this respect quite unlike the robust character of those raised from the common form.

A pretty climber for the summer is Mandevilla suaveolens, as the large white Convolvulus-like blossoms are borne freely. One point, however, to be remembered in planting this Mandevilla is the fact that it is deciduous. The pure white, highly-scented blossoms of Rhynchospermum jasminoides cause it to be a general favourite, and in the case of a thriving specimen the very deep green foliage serves as a suitable setting to the pure white blossoms.

Another sweet-scented climber is Jasminum Poiteau, but it does not generally flower so freely as the Rhynchospermum. Solanum jasminoides is a pretty white-blossomed, free-flowering subject that is hardy on walls in the south of England. Sollya linearis is a slender-growing climber suitable only for limited spaces, as it does not reach the size of many of the others. A great point in favour of this climber is the bright blue colour of the bell-shaped blossoms, thus supplying a colour which is but little represented among greenhouse climbers, or, indeed, among greenhouse plants in general. Hoya carnosa is an old-fashioned subject, but the clusters of wax-like blossoms are so attractive and so widely different from those of any of its associates that it must be accorded a place on the list. At the same time it makes a first-rate wall plant, as it will attach itself to the bricks if they are occasionally moistened; indeed, a good proportion of brick rubbish is necessary to mix with the soil in which it is grown. Berberidopsis corallina, a South American leathery-leaved evergreen with pendulous blossoms of a crimson hue, was at one time expected to form a valuable climber, but it does not flower freely enough to become popular. Several of the Bignonias are handsome climbers, but, as a rule, they must attain a considerable size before they flower freely. B. Cherere and B. speciosa both need a temperature rather above that of an ordinary greenhouse, but do not require the heat of a stove. Both are, however, very beautiful when in flower, as also is a near ally of the Bignonias, viz., Tecoma jasminoides, and the one great point in their culture, if flowers are needed, is to keep the pruning knife from them as much as possible. As an instance of this, I may mention being consulted regarding the non-flowering of a large plant of Tecoma jasminoides, which covered a considerable space on the roof of a greenhouse, and which was annually pruned to keep it within bounds, the result being that no blossoms were ever seen. I advised that it be allowed to run wild, and the result of this treatment was that after being allowed its own way for a season it flowered freely. Ruscus androgynus is a member of the Butcher Broom family, but widely different from the common kind, as it forms a stout rootstock, from whence are produced Asparagus-like shoots, varying in size according to the strength of the plant. A large-sized shoot grows very quickly, and is furnished with long pinnate leaves of a leathery texture that will resist draughts and exposure without fear of serious injury. This plant is more suited for furnishing pillars in large conservatories and in similar places than it is for training to the roof, as the large dark green foliage requires plenty of room for its full development. In such a structure as the temperate house at Kew its merits can be fully appreciated.

Besides the climbing plants enumerated above, there are a number of others that though not strictly climbers are of a loose, rambling habit of growth, and are well fitted for training on roofs, rafters, or pillars. Among them are included some beautiful flowering subjects, of which mention may be made more especially of Plumbago capensis, whose profusion of delicate porcelain-blue blossoms make such a display during the summer. The white-flowered variety should, when more common, be grown as well as the type, to which it forms a suitable companion, as it is, except in colour, a counterpart of it. When employed to form a screen at the end of a structure or in some such a spot, its beauty is displayed to great advantage, a remark which applies with equal force to Bougainvillea glabra, which in such a position ripens its wood well, and consequently yields a profusion of blossoms.

Habrothamnus elegans is a well-known pillar plant, and the large clusters of brightly coloured blossoms are borne more or less continuously nearly throughout the year, while the purplish tinted fruits are an additional recommendation. A companion plant to the above is Cestrum aurantiacum, the flowers of which are yellow, but in all other respects it greatly resembles a Habrothamnus; indeed, it is often met with under the name of H. aurantiacus. When grown from cuttings this may be flowered in pots 6 inches or 8 inches in diameter during the winter. All the free-growing Fuchsias are at home when trained to a pillar or roof; indeed, some of the looser-habited varieties that are not popular as pot plants for this reason are seen to great advantage when employed as climbers. There is a great choice of varieties available for the purpose, and a few of the original species, such as the little F. gracilis and its variegated variety, which as a roof plant will yield its myriads of blossoms, are very beautiful. The showy F. corymbiflora may be also grown in this way, and those two curiosities among Fuchsias, F. microphylla and thymæfolia, form very pretty pillar plants. Clianthus puniceus, whose clusters of red lobster-claw-like blossoms are so showy during the early part of the summer, makes a capital screen, but must not be too much exposed to the direct rays of the sun, as red spider is liable to attack the foliage, and when it once gets a foothold is very difficult to dislodge. To ward off the spider as much as possible, a good syringing should be given to the plants occasionally. Acacia Riceana, whose loose habit of growth unfits it for growing into a bushy specimen after the manner of the other members of the genus, is just at home when trained to the roof of a greenhouse. In such a position the long, cord-like branches clothed with small dark green leaves will hang down for several feet, and when in full flower it is very beautiful. The blooms are of a sulphur tint. Brachysema lanceolatum, with silky leaves and bright red, Pea-shaped blossoms, may be used under much the same conditions as its allies, the more vigorous of the Chorozemas. These last do well when trained to some support, and produce their bright blossoms during the dull days of winter. Another member of the Leguminosæ well fitted as a rafter plant is Swainsonia Osborni, whose rose and white blossoms are freely borne. Several of the Abutilons are also good pillar and roof plants. For hiding any unsightly object, Thibaudia acuminata is well suited, as given some good open peat soil to grow in its rate of progress is rapid, and it will soon become a mass of dark green glossy foliage that retains its freshness throughout the whole year. The flowers are tubular and of a thick, wax-like substance, but they are not particularly showy, while the plant is, unless sometimes in the case of an isolated specimen, by no means free-flowering. This is also at home on the back wall of a greenhouse, in which position its freedom from insect pests is a great recommendation. H. P.

The Amazon Lily (Eucharis amazonica).—The demand for cut flowers of this Lily in Belfast, the Messrs. Dickson, of Royal Avenue, informed me when there a few days since, has increased enormously. Their glass structures are at Newtownards, and they have set apart a 150-foot house for its culture alone. When going through this house and observing that each plant seemed the very picture of health, I inquired as to the Eucharis mite, which has been accused of such ravages elsewhere. Messrs. A. Dickson assured me that from twenty years' experience they believed there was no such thing. Bulbs, they said, get diseased from want of sufficient heat or too much moisture, generally from both causes, and then minute worms or mites are found on the roots of diseased bulbs, the same as on any diseased vegetable matter. These, they are satisfied, are the effect or result, not the cause. They consider a temperature of over 70° indispensable.—W. J. Murphy, *Clonmel*.

Books.

OBSERVATIONS ON INJURIOUS INSECTS.*

The annual report which has lately been published by Miss Ormerod on the various injurious insects which have been reported on by her various correspondents is the eleventh of the series. It does not deal with the attacks of so many different kinds of insects as many of the previous ones, but I do not think it should be inferred from this that certain kinds of insects which do not happen to be alluded to in this report were less aggressive than usual last year. The insect which has received most attention in 1887 is, as may easily be imagined, the Hessian fly. Forty-one pages are devoted to this pest, and woodcuts are given of the insect, and of wheat plants attacked by the grubs. A map of England and one of Scotland are given, showing the districts in which this insect has been found. It seems evident that the pest is spreading, but the amount of damage done has not been so great as might have been anticipated when one considers the amount of injury caused by it in other countries. A technical description of the fly, written by Mr. Meade, a well-known authority on two-winged flies, is given, which will be of great assistance to anyone wishing to identify this insect. Fortunately, the natural enemies of this fly are numerous. They are all small four-winged flies, and it is much to be hoped that, with the help of these parasites, this pest may be prevented from increasing in the way some persons fear it may. As far as is known at present, Oats have hitherto escaped the attentions of this insect, and one may hope that they may continue to be exempt. A case is mentioned where Wheat stalks which were attacked were growing within a foot or two of some Oats, but none of the grubs could be found on the latter plants. "The leaf or sheath of the Oats fits so loosely on the stem compared with that of Wheat, that I do not think it gives the necessary shelter and protection to the larvæ (grubs)." Barley seems to suffer when attacked more than Wheat. The damage to Wheat, as estimated by Miss Ormerod's correspondents, is, on the whole, very small. In one report from Lincolnshire the loss is estimated at 2 or 3 bushels per acre, but in none of the others is it spoken of as of any importance. The strong-strawed kinds certainly suffer least. I expect that this Hessian fly scare will soon blow over, and that before long we shall hear little or nothing about it.

An insect which has been well known for many years as being injurious to the stalks of Corn appears to have done more injury last year than the Hessian fly. I allude to the grubs of the ribbon-footed Corn fly (Chlorops tæniopus), which feed on the stems of Barley, gnawing long furrows on the outside of the stalks, which prevent the ears attaining their proper size. These grubs would appear to have been much more numerous than usual last year; but I think this is probably owing to a great extent to persons being on the look out for injury to their crops by the Hessian fly, but it is possible that the unusually warm dry summer had something to do with it. This remark applies also to the grubs of the Corn sawfly (Cephus pygmæus),

* "Report of Observations on Injurious Insects and Common Farm Pests during 1887." By Eleanor A. Ormerod. Simpkin, Marshall & Co.

which were noticed more often than usual last year. The sawfly grub injures Corn by feeding inside the stems, making its way through the knots. When the Corn is about ripe it gnaws a ring round the stem, which soon breaks off at this point, the grub remaining in the lower part of the stem. This pest may be more easily destroyed than those previously mentioned, as the grubs remain in the stubble, which should either be ploughed deeply in or collected and burnt. Tulip root in Oats is reported on, but does not seem to have done much injury. This disease is caused by a species of eelworm (Tylenchus devastatrix). On the Continent, Wheat, Rye, Buckwheat, and Onions are also mentioned as suffering from this pest. But in this country only Oats and Clover are known to be attacked by them. It is recommended that "where stock have been fed on straw and Clover which has suffered from eelworm attacks it is absolutely necessary that the manure made from infested fodder should not be used on any field where crops are to be grown which are liable to infestation for the following reason, that this kind of eelworm can be passed through the animal along with the digesting food without being harmed, and therefore is just as likely as not to be carted out with the manure from the yards." Crops which are liable to this pest should not be grown on land which has recently borne an infested crop. When land has become tainted, ploughing it deeply and burying the surface of the soil at the bottom of the trench is the best thing to do, giving it a heavy dressing of gas-lime is also useful. The disease known as Clover sickness is now traced to the same source as Tulip root. The eelworms attack the crown of the Clover plants, so that they are easily reached with dressings. The common granary weevil (Calandra granaria) is reported on, though it does not appear that this insect was particularly troublesome last year. Cleanliness is said to be the most essential thing in dealing with this insect; frequent scrubbing and lime-washing granaries and filling up all places where they can hide themselves will soon prove too much for them. As they are very fond of warmth, everything that can be done to keep the Corn cool, such as stirring the heaps or laying pipes through them, are useful. The Black Currant mite (Phytoptus ribis) has been troublesome in many places; this is a difficult pest to eradicate, on account of its very small size, for as it cannot be seen without a magnifying glass, it is difficult to ascertain its whereabouts, except when its presence is revealed by the distorted appearance of the buds. Miss Ormerod suggests breaking off the infested buds and destroying them, but I think a far better way is to cut off the shoots which bear affected buds as close as possible and burn them. I cannot fancy that the mites if they fall to the ground on the leaves can ever reach the bushes again, as is suggested, for they are by no means active creatures, and I should imagine were utterly incapable of travelling over a foot or more of soil and then ascending the bushes. This pest must be carried from bush to bush by the wind, birds, or the clothes of those who cultivate the Black Currants. Where and in what state the Hop fly, or aphis (Phorodon humuli), passes the winter has been for many years a matter of much dispute; if it laid its eggs or hibernated on the bine the aphides would not be able to reach the Hop garden the next spring, as the bine is always carted away, and neither eggs nor insects have been found on the Hop plants during the winter. Latterly many persons have suspected that the Hop aphis in the autumn migrates to the Plum and Sloe, and in the spring back again to the Hops; this has at last been satisfactorily proved by a no less competent observer than Prof. Riley, who has made observations on this insect both in America and in this country. This habit of the Hop fly will account for the attack of the winged fly which usually occurs about the end of May, but previous to this by some weeks wingless individuals may be found on the young Hop shoots; these must have wintered as eggs or insects on or about the Hop plants. The moral to be drawn from these observations is to wash all the Plum trees and Sloe bushes near Hop gardens with a Hop wash in the spring before the migration takes place, and to put some dressing about the Hop plants which will destroy those aphides which are wintering there when they try to come forth in the spring. The caterpillars of the common white butterflies are mentioned as having been very destructive last year in some places, but the wonderful numbers in which the butterflies appeared in most parts of the country are not alluded to in any way. The caterpillars of the Turnip moth (Agrotis segetum) were very troublesome last year; unfortunately, no satisfactory means are known of getting rid of this pest but handpicking, which is costly and often impracticable. The second part of the report is devoted to the ox and horse warbles, ox gadfly, murrain worm, and sheep's-nostril maggots. It is very certain that with a little care and trouble the warble flies might be almost stamped out. At the grammar school at Tarporley, in Cheshire, the head master, Mr. W. Bailey, has been instructing such of his boys as care to learn in the life history of our common noxious insects. Last year nineteen of his pupils examined 293 head of cattle and destroyed 104 warbles. One can only wish that Mr. Bailey's example should be followed by many others; but, alas! how few schoolmasters know anything of natural history. The injury that these grubs are capable of doing to animals may be gathered from the fact that a beast died of mortification of the back from the attacks of upwards of 400 warbles. The last insect reported on is the murrain worm. This name is given in some country districts to the caterpillars of the elephant hawk moth (Chærocampa elpenor), which is thought by the common people to be the cause of the disease among cattle called murrain. This is a most absurd notion, and Miss Ormerod only draws attention to the insect to show how erroneous this idea is. Everyone interested in agriculture should obtain this report, for though perhaps not so interesting as some of its predecessors, the matter in it is well worth the attention of those for whom it is intended. I expect that if more persons would purchase these reports they could be sold at a much cheaper rate, which should be an inducement to agriculturists to buy them, as it is to the interest of every cultivator of plants that their neighbours as well as themselves should do their best to eradicate injurious insects. If a garden or a farm which is properly cultivated is surrounded by others which are not, it is sure to suffer from the insects and weeds bred on the adjoining land; but if everyone would use the best means of freeing their land from pests of all kinds, the cultivation of crops would be much more successful.

G. S. S.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

Sept. 25.

Dahlias were the chief feature on Tuesday last at the Drill Hall, and for the time of the year the flowers were wonderfully fresh and of superb quality. Very few plants were shown, and with the exception of a fine collection of fruit from Messrs. J. Veitch and Sons very little in that department was staged.

First-class certificates were granted as follows:—

Nerine excellens.—This has flowers of a lovely rose-pink, but apparently the plant is not a strong grower. From Mr. T. S. Ware, Hale Farm Nurseries, Tottenham.

Lilium Wallichianum.—Two plants of this Lily were sent, each carrying one white flower with the petals pleasingly reflexed. From Mr. T. S. Ware.

Aster Townshendi.—A charming blue-flowered variety, the blooms of medium size. From Mr. Ware.

Harpalium rigidum.—A semi-double-flowered form of this favourite hardy border plant came from Mr. Ware.

Canna Paul Bert.—A very fine, richly coloured variety. From Messrs. Cannell and Sons, Swanley.

Canna Geoffrey St. Hilaire. — Another wonderfully fine form, the flowers large and of a deep rich scarlet. From Messrs. Veitch and Sons, Chelsea.

Ornamental Beet MacGregor's Favourite. —A narrow-leaved variety, of rich colour and with a very graceful drooping habit of growth, the plants resembling some of the dwarf Dracænas. From Mr. B. S. Williams, Victoria Nurseries, Upper Holloway.

The following Dahlias came Mr. C. Turner, Slough: Maude Fellowes, white ground, flushed mauve; Hugo, deep scarlet, fine form; Agnes, pale yellow, very dense flower; all these being show varieties, and of pompon kinds the following were certificated: Juliette, orange-buff; Vivid, deep red; Admiration, crimson, tipped white; and Lothair, yellow, heavily tipped scarlet.

Messrs. Keynes, Williams, and Co., Salisbury, received a certificate for each of the following Dahlias:—

Matthew Campbell (show).—This has buff-coloured flowers, flaked crimson.

Cactus Dahlias.—Honoria, pale yellow, and Panthea, carmine, both true Cactus forms.

Pompon Dahlias.— Eurydice, white, flushed scarlet; Little Ethel, French white; Whisper, yellow, flushed pink; Little Darkie, maroon; Isabel, bright yellow, tipped bronze—all of very fine form.

Dahlia John Cooper (show), white, flaked crimson. From Mr. Humphreys, Chippenham.

Dahlia Lady Montefiore (single), sulphur, flushed red. From Messrs. Cheal and Sons, Crawley.

Of plants very attractive was a fine group of Nerines, from Mr. Ballantine, gardener to Baron Schrœder, Englefield Green. They were chiefly scarlet-flowered varieties and very brilliant. The plants were very robust, displaying remarkably high cultivation. A silver medal was awarded. A similar award was also made to Messrs. James Veitch and Sons, Chelsea, for baskets containing wonderful heads of bloom of Hydrangea paniculata grandiflora, Cotoneaster uniflora in good berry, a grandly berried bunch of Cratægus Pyracantha Lælandi, a box of blooms of Rhododendron javanicum hybrids, &c. The only silver-gilt medal granted was given to Mr. B. S. Williams, of Holloway, for a remarkably fine group of Nepenthes arranged one above the other with excellent effect. N. Excelsior, amabilis, and intermedia had huge pitchers in great profusion, but Dominiana was, perhaps, the most profusely burdened. Hibberti, Mastersiana, and Williamsi all had deeply coloured pitchers. Mr. C. F. Tautz, Shepherd's Bush, showed a fine plant of Cycnoches chlorochilon, which carried one expanded truss of three fine flowers of a greenish sulpher hue and quaintly formed. Mr. Sidney Ford, Leonardslee, had a box of his grand strain of Celosia pyramidalis, comprising beautiful shades of colour.

Messrs. W. Paul and Son, Waltham Cross, sent several wreaths of Lapageria rosea and alba, the bells being deeply coloured and very fine. Mr. G. F. Wilson, Weybridge, had a basket of spikes of some of his beautiful Lilies. Mr. Stevens, Putney, showed Japanese Chrysanthemums C. Wagstaff, pure white, and H. Wellam, mauve-white, but neither fully developed. Some remarkably fine spikes of Cannas came from Messrs. Cannell and Sons, Swanley, as also some excellent double and single blooms of Begonias, Cactus Dahlias, &c., to which a silver medal was awarded. Mr. T. S. Ware, Tottenham, had one of his customary fine and interesting displays of hardy flowers, Gaillardias being specially prominent, to which also the award of a silver medal was made. Mr. R. Dean, Ealing, showed spikes of a fine strain of Pentstemons and a bunch of richly coloured hardy Primrose flowers.

Dahlias were numerous. Mr. Turner's flowers, comprising nineteen seedling show varieties and some bouquet flowers, made a fine show. Purple Prince, Glowworm, rich scarlet; Miss Gladstone—the old variety—mauve white; and Perfection, buff, were exceptionally good. A silver medal was awarded to Messrs. Keynes, Williams and Co. for their fine group of flowers, the show varieties

being exceptionally fine, richly coloured, and of perfect form. Rarely has such a brilliant array of show Dahlias been seen so late in the season. Messrs. Paul and Son, Cheshunt, also obtained a silver medal for a grand bank of Dahlias in great variety, show, bouquet, Cactus, and single kinds, with numerous bunches of hardy flowers, making a display such as was literally wasted when no one came to see it. A bunch of a lovely mauve-blue Jacobæa attracted considerable attention. Bronze medals were granted to Messrs. Rawlings Bros., Romford, for a fine lot of show Dahlias of their own raising; also to Mr. G. Humphreys, Kingston Langley, Chippenham, for show, Cactus, and Pompon flowers in great variety; to Mr. J. T. West, Brentwood, for a similar exhibit; and also to Messrs. W. Paul and Son for eight boxes of Roses, the flowers generally being fresh and good.

Fruit committee.—The collection of Apples, Pears, Plums, &c., comprising about seventy dishes, from Messrs. Veitch and Sons, was the chief feature before this body. Many of the Apples, especially Lords Suffield and Grosvenor, Warner's King, Grenadier, Frogmore Prolific, Emperor Alexander, &c., were very fine. The best Pears included Clapp's Favourite, quite ripe, Fondante d'Automne, Mme. Treyve, and Fondante de Cuerne. Plums comprised all the best known varieties now in season. Mr. Richards, Somerley Gardens, Ringwood, exhibited a very fine and handsome Queen Pine, weighing 7 lbs. 6 oz., not easy to beat. Mr. Waite, gardener to the Hon. Colonel Talbot, Esher, was awarded a first-class certificate for a couple of fruits of Glastonbury Perfection, a green-fleshed Melon, having rounded, rather smooth fruit, but of very rich flavour. Mr. E. Rosefell, Brixton, showed samples of the Canadian Peach Tomato, a medium sized, round fruit of a pale red hue. Mr. R. Dean showed an Apple, apparently Borovitski, now in season. Some fair samples of Peaches, Nectarines, and Plums, from Mr. Fairgrieve, Dunkeld Gardens, N.B., were shown, and Messrs. Hurst and Sons, Houndsditch, had several fruits of a prolific Cucumber, the result of a cross between Telegraph and Bluegown, but they were generally ill shaped.

NOTES OF THE WEEK.

Grapes Black Morocco and Madresfield Court.—We have received an excellent bunch of each of these two Grapes from Mr. W. Coleman, the berries large, jet black, and showing the highest culture.

Exhibition of fruit.—We are asked to state that an exhibition of Grapes, Apples, Pears, and Tomatoes will be held in Ledbury Park on October 25 next. Now that a greater interest is kindling in fruit culture, exhibitions of this character are on the increase.

A curious Dahlia.—A singular malformation of a Dahlia flower comes from Mr. A. Mortimore, Alnwick House, Catford Bridge. The flower is double and has two faces, so as to give the appearance of two flowers closely pressed against one another.

Crocuses at Weedon.—Our first Crocus opened its flower on the 6th inst., viz., the variety zonatus, being a week earlier than last year. We have now a beautiful lot of the following varieties in bloom: zonatus, pulchellus, speciosus, nudiflorus, and a few of medius.—G. Goldsmith.

Aster Amellus.—This Aster and its variety bessarabicus are, without a doubt, the two best early flowering kinds. They are also very dwarf, not growing more than 1 foot high. This is an advantage, as they can be used in many places where the taller kinds would be inadmissible. Both are now in bloom, and are very effective in a mass. The flowers are very large and deep blue.

Railway flower gardening is still increasing. We were a few days ago agreeably surprised to see upon the platform at Horsham Station large circular beds of Phlox Drummondi, Verbenas, and annual Chrysanthemums in full flower. There is generally so much bareness about railway stations, that any attempt to beautify them is deserving of notice, specially when, as in the town of Horsham, such marked success is achieved.

Clematis Jackmanni.—There is a very fine specimen of this showy creeper growing against a wall in Messrs. J. Saltmarsh and Sons' nursery at Chelmsford. Mr. Saltmarsh thinks it must have been one of the original plants sent out about 1864. The stem of the plant measures 1 foot in circumference a few inches above the soil. It grows and blooms freely every year. An improvement upon this known as C. Jackmanni superba deserves mention; the flowers are large, well formed, and of a deep blue colour; it is also very free blooming. I have noticed that C. Jackmanni varies in character in different parts of the country, and I have an impression that seedlings have been put into commerce for it. It otherwise seems difficult to account for the variations.—R. D.

The Flame Nasturtium (Tropæolum speciosum).—This brilliant hardy climber has been seen to the best advantage this season growing against Messrs. J. Cheal and Sons' office in their nurseries at Crawley. The aspect is almost east. Some rough rockwork has been thrown up against the building, and at the back of this the Nasturtium grows, and has gradually spread itself until it has covered a good space of the wall. This season, despite the dull weather, it has bloomed grandly, as it always does. Once placed in suitable soil it simply needs to be left alone. But it is necessary that the soil be fairly light, moist, and deep. If the beauty of this showy subject were fully known and appreciated it would be planted a great deal more than at the present time.—R.

The Belladonna Lily.—The bed of this fine autumn-flowering Lily in front of one of the ranges of plant houses at Gunnersbury Park, usually crowded with flower-stems, is blooming very sparingly indeed this season. The lack of flowers is attributed by Mr. Roberts to the cold, wet, and sunless summer, and he is no doubt correct. The only plants that are blooming appear to be those at the back of the border and nearest to the house.—R. D.

—— We have a number of fine bulbs of this beautiful Amaryllis planted at the foot of the plant stove wall which faces full south. A properly prepared bed was made for the bulbs, as it was well drained with clinkers. Last year during the third week in August scores of spikes, each carrying several fine blooms, were to be seen, and they lasted into October. This year at the present time (Sept. 22) one solitary bloom spike, and that a poor one, is all that is to be seen in the way of flowers. Nor are there any signs of other spikes showing above the soil.—M.

Eryngium planum.—The flat-leaved Sea Holly has withstood the cold and wet extremely well. It has been as beautiful this year as last season. The broad, flat leaves form a green rosette, and the flower-stems rise to a yard in height. They are much branched, and bear great panicles of deep blue flowers with round heads. The colour is deeper than in any of the Sea Hollies, and the flowers keep bright for nearly two months. They also retain their colour for a long time when cut and placed in vases without water. The heat of last year ripened seed on this kind. In a garden that only had one plant, there have sprung many seedlings, some of them 10 yards and 12 yards away from the parent plant.

Seedling Mexican Lobelias.—The common scarlet Lobelia fulgens and L. splendens are at the present among the brightest flowers in the autumn garden, and I have lately seen some charming effects produced by them in combination with white flowers, as the Japanese Anemone and Lilium longiflorum, which flower at the same time as the Lobelias, and associate well with them in point of habit. Besides the glowing scarlet of the typical L. fulgens and splendens, I have noticed several splendid seedlings in a few gardens about London, especially at the Italian Exhibition at Earl's Court, where among the plants exhibited by Messrs. Lee, of Hammersmith, there are some most beautiful sorts, different from any I have seen elsewhere. One is a rich cherry-crimson, another a delicate rose-pink, and a third has a touch of orange in the flower colour, and all are extremely lovely. As the plants are well grown and have massive spikes they attract everyone's notice. I wonder Messrs. Lee do not send these seedlings for certificates, as I am sure there is nothing to surpass them in their way. I imagine they have been obtained by intercrossing the old L. splendens with the violet-purple L. Milleri. As brilliant and enduring autumn border flowers, these Lobelias have few rivals, and their simple culture is a recommendation. We might even yet see a "florists'" race of Mexican Lobelias now that a break has been obtained.—G.

A note from Scarborough.—Wishing to convert you to Tritoma culture, I send you a spike of T. nobilis (7 feet high stem), as you seemed to be doubtful as to its superior worth. A clump of twenty spikes will glorify any garden at this season. Francoa appendiculata I send with it, because the inferior F. sonchifolia is grown for it, and F. appendiculata is far the best. It is quite hardy here. These bright autumn days have made my Beschorneria bracts really brilliant.—H. W.

Cactus and single-flowered Dahlias.—From Mr. Richard Lett, Souldern, comes a gathering of single and Cactus Dahlias. Amongst the single varieties were several of extremely fine colours; but those disfigured by blotches and stripes should be carefully excluded. They are seldom constant and never beautiful. Amongst the Cactus kinds were flowers of the white Henry Patrick, one of the finest of its class. The flowers evidently showed that they came from thoroughly well-grown plants.

National Conference on Apples and Pears.—We are requested to remind intending exhibitors and others interested in the cultivation of Apples and Pears that the date of this important meeting is only three weeks distant, viz., Oct. 16 to 20. Thanks to the fine weather of the past few weeks, the fruit crops have wonderfully improved, so that we may now anticipate a good display. Arrangements are being made for the conference, which promises to be of a highly practical character. Those intending to take part in the same should at once communicate with the secretary, Mr. A. F. Barron, at Chiswick.

Agapanthus umbellatus maximus.—Many years ago this variety came from the Cape to England. It was a large form of umbellatus. Afterwards Mr. Wilson Saunders, then at Reigate, introduced another still more stately form, which I once cultivated largely. M. E. H. Krelage informed me that they possessed, at Haarlem, another very fine variety, which his father had brought from Frankfort-on-Main. He stated that this variety was very beautiful, but slow in growth, difficult to propagate, and not easy to flower. I obtained two plants and did everything to make them grow successfully, but my treatment was not suitable, and after several years they were no larger than when they arrived. After several trials and careful observation I found out their special requirements. Then they grew well, and I now have the pleasure to report their flowering. The umbel is much more compact and not so spreading as in the other maximus varieties, and the individual flowers are larger, sometimes measuring 2½ inches across, and of a bright deep blue colour. It is the finest Agapanthus I have ever seen. To those who like beautiful autumnal flowers it can be strongly recommended.—Max Leichtlin, *Baden-Baden.*

BOOKS RECEIVED.

"The Flowering Plants of Wilts." By Rev. T. A. Preston, M.A. Wiltshire Archæological Society.

"British Mosses." Two vols. By F. E. Tripp. George Bell and Sons, Covent Garden.

A. B.—We cannot advise unless we see the house.

Weather Plant.—Would some correspondent kindly say what plant is alluded to in the note on the Weather Plant on which a paragraph appeared in The Garden (p. 257)?—S. K

Names of plants.—*Constant Reader.*—Olearia Gunni.——*J. L.*—1, Lythrum salicaria roseum; 2, Centranthus ruber.——*Alexander Trail.*—Vanda cærulea, without a doubt.——*C. K.*—Montbretia Pottsi.——*L. E. B. D.*—Physostegia virginiana.——*P. P. Bouverie.*—Inula capularia viscosa.——*W. P. T.*—Chenopodium vulvaria and Disandra prostrata; you should have numbered them.——*In square cardboard box.*—Nicandra physaloides.——*M. S.*—Indian Balsam (Impatiens glandulifera).——*Hope.*—The Heath is Erica vagans; the other Dianthus armeria.

Names of fruit.—*J. D. N.*—Not Pond's Seedling, but Prince Engelbert; being from a north wall, it is not so deeply coloured as usual. Others next week.

WOODS & FORESTS.

THE SCOTCH FIR.

(PINUS SYLVESTRIS.)

There are several varieties of this tree grown in this country, and as some of them are very different in character and constitutional hardiness from the native species, and as some of them occasionally find their way into the market either mixed with the species or in quantity by themselves, a few hints regarding their merits or demerits may prove useful at this season to the planter. The Continental variety, known by the name of P. haguensis, is so deficient in hardiness as compared with the true Highland Pine of this country, that it never should be planted on exposed situations at high elevations. When planting a hill ranging from about 1200 feet up to about 1400 feet elevation, I had some of this Pine sent me by mistake. The plants looked well, but were rather deficient in small roots as compared with those of the native species. They were, however, planted, and the greater part of them grew and established themselves, but in after years their brown colour and scathed, stunted appearance could be distinguished from the plants raised from seed of the native tree at a distance of fully a mile from the plantation. Although the tree is unsuitable for planting on exposed situations, yet when planted in the lowlands and in sheltered places, it is found to grow very well; but as the quality of its timber is inferior as compared with that of the Highland Pine, it never should be used, even in cases where there is nothing to be feared as regards adverse climatic influences. The seeds of this foreign variety can be had at a cheap rate, and considerable quantities at different times have found their way into this country. As the plants can generally be bought at a cheaper rate than that of the native species, this might induce those who are unacquainted with the merits of the two kinds to order the one that is less expensive. This, however, would not be economical, and should always be guarded against.

In planting bare exposed ground I would not use this foreign variety, for the trees are not only worthless as timber in such situations, but they are also a decided eyesore and a fertile nursery for the propagation of beetles and insects destructive to Pine woods generally. I have seen this foreign variety grown in Ireland, where the climate is more genial than that of this country and frosts less severe and of shorter duration, with perfect success, and when young they made fully as rapid progress as the native tree. Plants, however, raised from seeds collected from the Highland Pine often show considerable variety in the colour of their foliage and arrangement of their branches. Although this difference cannot readily be detected in the seed-bed, yet when the trees are planted out and in rapid growth, the contour and general appearance of the trees become more pronounced. To persons unacquainted with this peculiarity of the tree they might be apt to think they were mixed with the inferior foreign variety, so that it is necessary to explain this in order to prevent mistakes. When cutting up the timber of this tree for use I have sometimes found a slight variation in the quality and texture of the wood, the reason of which can only be explained by the difference in the texture of the soil in which the trees grew. Sometimes this tree is damaged in the deer forest by gunshot wounds, as I have occasionally found bullets embedded in the trunk. These, however, do not injure the tree so much as small shot when it lodges near the top or in the leader, and when it penetrates the stem lower down it weakens the spot so that it is apt to snap over during a gale. Gamekeepers and others when shooting hawks, squirrels, and other vermin should try and save the trees as much as possible. The native tree not only produces a better quality of wood than the foreign, but also brings up its girth in better proportion to its height than the latter. Planters would do well to keep these hints in view when forming new plantations. There are several species of coniferous trees of recent introduction which promise well both for utility and ornament, and it is quite right to plant and give them a trial on a small scale. But in all cases where the soil is poor and the site exposed the Scotch Fir should be the principal kind used. We know its adapability for such positions, and if the plants are properly prepared and selected and the work of planting skilfully carried out, success is certain. In addition to its merits as a timber tree, the Scotch Fir when allowed space for its full development is extremely ornamental, and in winter when the Oak, Sycamore, Beech, and other deciduous trees of the first rank have a bare, cold appearance, the Scotch Fir imparts warmth to the landscape. Many fine old specimens of this tree are to be found throughout Great Britain and Ireland, and as the trunks of many of them are loaded with resin, I regret to say that in many cases I have found them hacked in a shameful way to procure torchwood to kindle fires. Factors, foresters, and others in charge should try to put a stop to this practice. J. B. Webster.

The Balsam Poplar (Populus balsamifera).—This is one of the handsomest and most valuable of the foreign Poplars. It is an American species, which has been acclimatised in this country. The leaves are about 5 inches long by 3 inches broad, sharp-pointed, deeply serrated, and of a light green colour. The fresh young leaves of this tree, when applied to external inflammations, are said to produce a very beneficial and cooling effect. When the buds are distilled in spirits or strong brandy, before they begin to expand, a glutinous balsam is obtained, which is said to be very valuable in surgery. The wood of this tree is comparatively worthless; but it has a handsome green foliage, and forms a very beautiful object in the landscape. It is propagated by cuttings, and grows very quickly. It thrives best in a damp mild humus, with a subsoil of moist boggy earth; if planted in a dry sandy soil, it almost invariably dies. The Balsam Poplar suffers much from the ravages of insects, which pierce the wood. —J. H.

Paper from wood.—The fact that the tops of Pine and Spruce trees cut in the Maine woods can be utilised in the manufacture of paper-pulp has more than local or mere industrial significance. The fires which do such immense injury in the coniferous forests of this country can generally be traced to the tops and branches of trees left by lumbermen behind them in the woods. These by the middle of the following summer become perfectly dry and afford the very best material to start a great fire with, in case a careless hunter or tramp or berry-picker drops a lighted match or a spark comes from his pipe. In Europe there is a demand always for such minor products of the forest; and the material itself pays for the cost of gathering up every part of the tree which the lumberman cannot make use of, to say nothing of the increased safety this gives to the forest, and to the priceless surface coating of decaying vegetable mould which fire consumes. No one in this country has wanted the tops and branches of trees, and lumbermen have preferred to take the chance of almost inevitable fire rather than pay the cost of having the woods cleared up behind their operations. The upper part of the main trunk as well as all the branches and chips and all unsound logs, the whole amounting generally to a third of the whole bulk of the tree, have been left in the woods to burn or rot; while in the case of Hemlock it is only within a comparatively recent time that any use of the tree except the bark has been made. In districts in Maine now, however, the tops and large branches of the trees are gathered; and the wood, from which the knots and sapwood is first removed, is thoroughly steamed to extract all resinous matter, and is then ground into dry pulp. If it is profitable in Maine to do this, it will doubtless prove profitable in other parts of the country; and one of the principal causes of forest fires may, perhaps, in time be eliminated in this way.

The Goat Moth.—The goat moth caterpillar, which does much damage to large trees, especially Birches, may be destroyed by boring after them, and filling up their holes with paraffin and lime. The trunk should be well dusted with lime, and the trees well watched throughout the summer for any stragglers that may have escaped. Coal-tar has been recommended as a remedy, as it gets under the bark and into the wood of the trees, and destroys them rapidly. In some valleys where Poplar trees are cultivated to a great extent, it is a positive scourge. There is, however, a simple way of preventing the mischief: it consists in daubing the bases of the young trees every two years with coal-tar. A ring of this liquid painted on each tree will have the desired effect, as the caterpillars dread it like the plague.—Q.

A monster Pine.—I have worked in the forest among this timber for several years, have cut many hundreds of trees, and seen many thousands, but have never found one larger than the one I felled on a stream which emptied into Jackson Lake, near the head of Buskahegan stream, in the eastern part of Maine. This was a "Pumpkin Pine." Its trunk was as straight and handsomely grown as a moulded candle, and measured 6 feet in diameter 4 feet from the ground, without the aid of spur roots. It was about 9 rods in length, or 144 feet, about 65 feet of which was free of limbs, and retained its diameter remarkably well. I was employed about one hour and a quarter felling it. The afternoon was beautiful; everything was calm, and, to me, the circumstances were deeply interesting. After chopping an hour or so, the mighty giant, the growth of centuries, which had withstood the hurricane and raised itself in peerless majesty above all around, began to tremble under the strokes of a mere insect, as I might appear in comparison with it. My heart palpitated as I occasionally raised my eyes to its pinnacle, to catch the first indication of its fall. It came down at last with a crash which seemed to shake a hundred acres, while the loud echo rang through the forest, dying away among the distant hills. It had a hollow in the butt about the size of a barrel, and the surface of the stump was sufficiently capacious to allow a yoke of oxen to stand upon it. It made five logs, and loaded a six-ox team three times. The butt was so large that the stream did not float it in the spring; and when the drive was taken down we were obliged to leave it behind, much to our regret and loss. At the boom that log would have been worth £10.—*Springer's Forest Life.*

"The Garden" Monthly Parts.—*This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price* 1s. 6d.; *post free,* 1s. 9d.

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"The Garden Annual and Directory" for 1889 *will contain a Complete List of Gentlemen's Seats, their Names and Gardeners; List of the Nursery Trade, with a new List of the American Trade. All changes of address, with applications for advertising spaces, to be sent at once to the Editor of the "Garden Annual," Mr. James Hood, 37, Southampton Street, Strand, London.*

London: 37, *Southampton Street, Strand, W.C.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

PEARS.

ONCE more the Pear season is upon us; indeed already some of the most precocious and fleeting varieties have passed, or are passing away. Williams' Bon Chrétien this year, with us, is much larger and better in quality than it was last season, proving at once that planting very early sorts against south, or west walls even, is a mistake, especially when such a number of really fine late varieties cannot be grown to maturity without their heat-absorbing and sheltering aid. Dunmore, again, a very old Pear, seldom met with in catalogues or gardens, unless they are old and the trees antiquated, this cold wet season against a limestone wall facing east is large, bright, and much better than I have seen it for some years. But what of this, when we know from past experience that a great number of our fine dessert kinds grown against south or west walls will barely remain fresh and plump for a single month after they reach the shelves in the fruit room? Well, I think this fact shows that Pears are as fickle as our climate; that these very early sorts should always be grown as bushes, pyramids, or standards, that is if we would have them of fair size, brown, russety, and worth eating. Further, it shows that some of them may have been banned with a bad name, simply through over-kindness when roughing it in the breeze, although detracting somewhat from their size, might have added considerably to their eating qualities. Pears, after all has been said for and against them, are intended for eating, and sensible judges, whilst admiring size, will never be carried away by this quality alone unless the big, bright russetless examples are in other respects equal to good brown samples, which keep longer and eat firm and buttery. It is as yet impossible for anyone to say what the Chiswick conference and gathering together of fruit from all parts of the country is likely to bring forth, but crops of Pears generally having been reported good, the show should be a very good one. If so, the season now passing away having been cold and sunless, the jurists should test by flavour as well as by appearance. By this means the years 1887 and 1888 having presented extremes as opposite as the poles, Pears which were bad last season and prove good this may certainly be marked off for future culture as standards or bushes. Varieties, on the other hand, that were good last year and bad this season, should be recommended for wall culture. In this way, independently of the opportunity which will be given to producers and consumers for ventilating their grievances, the third conference inaugurated by the Royal Horticultural Society should prove a godsend to those, notably the editor of THE GARDEN, who are now trying to pare down fat catalogues by making short lists of select varieties, alike good in hot and dry, cold and wet seasons. If this is the only outcome, the conference will not have been held in vain, as two such remarkable seasons may not fall together again in a lifetime. W. C.

Cyrtanthus sanguineus.—A potful of bulbs named Cyrtanthus sanguineus is now flowering at Didlington Hall, Norfolk. As the flower is new to me, and, moreover, remarkably beautiful, I send you this short notice of it in case of its being new to other readers of THE GARDEN. Unlike other Cyrtanthi, this flower is widely expanded, nearly as large as a bloom of Vallota purpurea, and of a most brilliant orange-red colour. Its throat is large and Eucharis-like, creamy-yellow in tone, shading to green at the base. The stamens are adhesive to the throat nearly up to its mouth, where they curve evenly on each side to the pistil, giving a marked character to the flower, which is enhanced by a deep red stripe between each stamen in the throat. So far the flower-stem has only produced one flower on each bulb, but, judging from the manner in which the bulbs have grown, it seems probable the scape will be many-flowered. Even under these circumstances, the effect of a potful is more brilliant than the favourite Vallota purpurea. The bulbs, which are evergreen, were sent last year from Natal by a friend who had himself collected them.—E. H. W.

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSES IN 1888.

EXTREMES meet; consequently everybody ought to have known that next to a summer of almost continuous sunshine and consecutive fine days there would come a season of cloud and storm and uninterrupted wet; yet most people appeared surprised at the dogged persistence of the rain during the June and July (it is absurd to call it the summer) of 1888, and very few rosarians seemed really pleased. Poor Roses! When will they ever get the weather they want? First, it is too incessantly hot and dry, and then it is far too wet and cold, while the longed-for perfect Rose season seems as far off as the millenium.

The plants wintered remarkably well, for though the cold was long-continued it was never very severe, there being hardly more than 20° of frost on any occasion, and the long winter was followed by a late chilly spring, which kept the plants back and seemed likely to be the means of tiding them safely over the dangerous period of spring frosts—a time when rosarians live in a state of constant anxiety. As a matter of fact, however, the dreaded visitation was this year of a comparatively mild character, some 8° of frost on the 27th of April being the most serious drop in the temperature, and at that time the growth of the Roses was not sufficiently advanced to be much injured, so that early in the year there appeared every prospect of a fine, or at any rate a normal, Rose season. The wood had been magnificently ripened by the continuous sunshine of 1887, and was found at pruning time to have been uninjured by frost, the early growth was not cut off, and everything was full of promise. It soon, however, became apparent that, after the drought of the previous summer and the comparatively rainless winter, the dryness of the spring was being too long continued, and the Roses began to suffer. Some rain fell during the first week in May, and the trees began to grow a little, but the rest of the month was almost rainless in the south of England, and in the incessant perishing east winds all growth seemed to be arrested, or even to be going back in the case of the climbing Teas, &c., whose young shoots became yellowed and withered looking.

By the first week in June all the chief Rose pests, with the exception of aphides, were very prevalent. Grubs and caterpillars in immense numbers necessitated constant watching and hand-picking, and both mildew and red rust contributed to the disfigurement of the foliage. Presumably the early and abundant presence of these tiresome visitors was attributable to the abnormal dryness of the previous summer, which favoured all reproductive processes, both insect and fungoid, and to the dry spring, which was additionally favourable to their further development.

At last, after a glorious 4th of June, rain fell in considerable quantity, the amount of growth on the Rose trees seemed doubled and trebled almost instantly as if by magic, and again the hopes of Rose growers were high. "Now, with a week's rain and then some hot weather, there will be a glorious season," was the generally expressed opinion.

But, unfortunately, having turned the tap on, the clerk of the weather, like the distraught heroine in Lecocq's celebrated opera, "forgot to turn it off again," and while during four of the six weeks between April the 23rd and June the 4th rain only fell on one day of the week, between the 4th of June and the 23rd of July there were no less than thirty-two wet days.

Well might disappointed Rose growers endorse the dictum of a great botanist who had travelled all over the world, and who when asked his opinion as to the best climate remarked, "Well, on the whole, I think climate's a failure."

The first Rose did not blow until the 27th of May, and then it was only the thornless Rose (R. alpina), the usually early Teas on the walls not putting in an appearance until several days later. Of these, Maréchal Niel, although so late, was still the first, opening on the 29th of May, and Rubens followed on the 30th. Before June was a week old these were joined by Climbing Devoniensis, Souvenir d'un Ami, Marie Van Houtte, Gloire de Dijon, Grace Darling, several of the species, such as rugosa and its varieties, pulverulenta alba, and last, but not least, that grand early climbing Rose, Fortune's Yellow. The absence of many early Roses this year made the extreme beauty of Fortune's Yellow especially conspicuous, and it was so far advantaged by the cool weather that prevailed at the time, that its flowering was prolonged over a period of three weeks. Several growers endeavoured, by exhibiting cut blooms and by other means, to draw attention to this charming and unique Rose, to which the otherwise disappointing season of 1888 will have rendered some service, if only by obtaining for it the recognition it so thoroughly deserves.

A little later on, the single Austrian Briers, especially the Copper Rose (R. punicea), were grand. All these brown-wooded Roses seem to revel in a hot season to ripen their growth well, and then they blossom with the most amazing freedom. The single varieties were very little injured by the rain, and they also continued in flower for a long while, owing to the dull weather. The semi-double Harrison's Yellow was good, but the Persian Yellow, being so much fuller, and also blooming later, and being thereby caught in the rain, was for once the least attractive of the family. The great masses of bloom of the single Rosa multiflora stood the rough weather far better than might have been anticipated, and, in fact, the singles generally were very fairly in character, the most conspicuous being R. macrantha, R. indica (especially Harpur Crewe's beautiful variety), R. rubrifolia, R. rugosa alba, R. Brunonis, and R. lucida. Hebe's Lip flowered most abundantly, as usual, but lacked sunshine for the full development of the rich colour on the margins of the petals. It was satisfactory to see this Rose so well and largely exhibited in the class for garden Roses at the National Rose Society's show at the Crystal Palace, where also that best of all the striped Roses, Rosa mundi, was very extensively staged,

although in a good many instances under the misnomer of York and Lancaster.

The Rose shows, with few exceptions, were very disappointing. At some of the earliest fixtures, before the rain had become chronic, the blooms were very fine, notably the celebrated Oxford Teas, notwithstanding the fact that the magnificent blooms of Comtesse de Nadaillac, which are now annually looked for, as a matter of course, at the hands of Mr. Prince, somewhat lacked the wonderful richness and depth of colour which characterised them in the two previous summers. At one or two of the latest shows, also, the Roses were very fine, but throughout the greater part of July steady rain, varied by thunder-showers and hail-storms, with an almost continuously low temperature, precluded the possibility of anything like first-rate quality in the blooms.

It had been anticipated that the display of Teas at the National Rose Society's Metropolitan Exhibition would have far surpassed in extent that of either 1886 or 1887, splendid as were the displays made in both those years; and it was confidently predicted that the judges would find the most serious part of their labours in adjudicating upon the great classes set apart for Teas and Noisettes only. But in the event the flowers were found to have suffered much from the bad weather, and though the exhibits of the larger growers were sufficiently numerous, the quality of the blooms was sadly below the average. Generally there was a great absence of light-coloured Hybrid Perpetuals, nearly all the full, delicately tinted flowers, such as Lady Mary Fitzwilliam, Duchesse de Vallombrosa, and Her Majesty, being, of course, hopelessly dirtied by the rain; but at the same time very good examples were seen of many of the crimson and dark Roses. As indicating the varieties that may be best relied on in a wet season, it may be useful to give the names of some of those most prominently exhibited at some of the shows held during the rainiest part of the season. These were A. K. Williams, Prince Arthur, Baroness Rothschild, Camille Bernardin, Dr. Andry, Mary Bennett, Dupuy Jamain, Earl of Pembroke, Marquise de Castellane, Ella Gordon, François Michelon, Duchess of Bedford, General Jacqueminot, Heinrich Schultheis, Jean Soupert, Lord Bacon, Crown Prince, Louis Van Houtte, Mme. Isaac Pereire, Marie Finger, Suzanne-Marie Rodocanachi, Marie Baumann, Alfred Colomb, Merveille de Lyon (by far the best white Hybrid Perpetual for exhibition in wet weather), Mrs. George Dickson, Etienne Levet, Thomas Mills, Ulrich Brunner, Victor Hugo, Xavier Olibo, Charles Lamb, Garden Favourite, Gloire Lyonnaise (frequently exhibited in great beauty), Earl Dufferin, Lady Helen Stewart, Mme. Henri Pereire, Mrs. John Laing, and early in the season Alphonse Soupert. Eclair also has been better this year than ever before, and the same may be said of Duke of Albany. Caroline Swailes was very useful; but among the lights, Mr. Bennett's Viscountess Folkestone bore the palm, for, in spite of its delicate colouring, the flowers never varied in all the wet, and were constantly seen in the greatest beauty.

In the garden Roses were seen to less advantage than for a good many years, the Teas especially presenting a very indifferent appearance. No varieties, however, looked brighter and better than A. K. Williams, Baroness Rothschild and its three white varieties, Ulrich Brunner, Gloire Lyonnaise, Suzanne-Marie Rodocanachi (very bright pure rose and most constant), Viscountess Folkestone, Ella Gordon, Cannes la Coquette, Earl of Pembroke, Marie Finger, Heinrich Schultheis, Annie Laxton, Alphonse Soupert, and Lady Helen Stewart—all erect-growing and conspicuous Roses, that stood boldly up in the beds in defiance of all storms.

There was little of novelty to note in the arrangements of the exhibitions, which proceeded on the usual well-known lines, but it was satisfactory to observe that the interest in the classes for Moss Roses and for garden Roses at the National Rose Society's great show was more than maintained; while in the competition for buds of varieties suitable for button-hole bouquets there was ample evidence that at last growers generally are realising the fact that Ma Capucine, Madame Chedane Guinoisseau, and varieties of similar type are without doubt THE button-hole Roses.

The new Roses that were prominent at the shows were not very numerous, but were a good deal above the average in interest. Of those of 1885-86, Her Majesty, which was expected to be everywhere, was magnificent early in the season, but in the wet disappeared almost entirely, as could only be expected in a Rose so full and so tender in colour. The Bride and Viscountess Folkestone were finely and extensively exhibited, and a few good blooms were seen of Clara Cochet and Comtesse de Frigneuse.

Of the 1886-87 Roses, Mrs. John Laing, Earl Dufferin, Lady Helen Stewart, Ethel Brownlow, and Princess Beatrice were very conspicuous, and all first-rate. A very handsome dark Rose, Madame Henri Pereire, was also a good deal shown, and should be valuable, the others most often seen being Silver Queen, Chateau des Bergeries (Tea), Comte de Paris, Madame Bois, and Madame Edouard de Bonnières de Wierre, a name which had probably better be at once curtailed to Madame de Wierre.

Some fine weather in September has done its best to make amends for the dripping, disappointing Rose time, and a profusion of beautiful blooms of the Tea-scented Roses has been one result—another, and perhaps a more important one, being the ripening of the immense growth made by the plants. No doubt many established Rose trees that had suffered in last year's drought have benefited by the rainy weather, which has also afforded many southern growers an opportunity of seeing some of the dark Roses in unusual beauty; but, like Mr. Gilbert's policeman, "taking one consideration with another," rosarians in general will in all probability not desire for a long time to come to experience such another Rose season as that of 1888.

Monsieur Noman.—During the last week of September some three dozen flowers of fair quality were cut from a group of fifteen small plants of this very free-blooming variety, which although its growth is short makes a sturdy plant, and its exceptional freedom in autumn seems to be rather too commonly overlooked. At the same time there were cut half a dozen capital blooms from a dwarf plant of another Rose that was sent out at the same time as M. Noman in 1866, namely, Princess Mary of Cambridge.

Sombreuil is a very free autumnal, but is far too much of a Bourbon to deserve to be allowed to rank among the pure Teas. The same thing has before now been urged about Comte de Paris. No question ever arises about these Bourbon Teas, which lack the refined beauty, both in flower and plant, of the best type of Tea Rose at the exhibitions, because they possess the eminently Bourbon characteristic of almost invariably throwing rough and worthless flowers in the summer, although attractive in the autumn. Nevertheless, if they are to be admitted, why should Mrs. Bosanquet, for instance, and Souvenir de la Malmaison be excluded?

In The Garden, August 4 (p. 97), occurs a surprising note, to the effect that White Baroness, Helen Paul, and Merveille de Lyon growing side by side, could hardly, without labels, be distinguished one from the other, "so great is the resemblance between these three kinds"! It would be possible, no doubt, at times to find blooms which many growers might think were either White Baroness or Merveille de Lyon, though the two are distinct enough as garden plants. But Helen Paul is a flesh-coloured Rose of Victor Verdier race, quite without the Baroness' characteristic power of opening clean in the wet, and most nearly resembling its raiser's Hybrid Perpetual Jules Finger.

Souvenir de Victor Hugo (Pernet, 1885).—The Hybrid Perpetual of this name is a wonderfully free autumnal. The plant is a strong grower in its class—of Victor Verdier race—the foliage large and handsome, and apparently able to resist mildew, as it looks always green and fresh. Even if it should not prove quite large enough for exhibition it is certainly a very pleasing garden Rose, bright, free, and with a beautifully smooth petal.

Rosa rugosa and its white variety.—These are very striking just now in a border at Gunnersbury House, Acton, where they form a background to Gladioli and other flowering plants. Not only are both flowering, but many of the berries are nearly coloured, and so blossom and fruit alike are on the plants at the same time. Rosa rugosa appears to be a perpetual flowerer. Gardeners seem to be awakening to the value of R. rugosa as a decorative plant, and the fact that it affords a double period of service in their flower and fruit is an additional reason for planting it. One of the best hedges of R. rugosa I have yet seen is at Messrs. Sutton and Sons' nursery at Reading. The seed was sown in the open ground in a long line, and in two years it germinated, and now the plants have grown into a stout thick hedge and they bloom with remarkable freedom. If the stems of this species are not too spiny, I should think it would make an excellent covert plant. Its dense growth close to the ground constitutes it a good subject to plant as a low shelter hedge, and in this respect it could be made useful where sweeping winds are found to be of a hurtful character.—R. D.

SHORT NOTES.—ROSES.

Henri Ledechaux is just now very bright; a most telling colour in the Rose garden at any time.

Laura Davoust, generally classed as a summer Rose, has lately been producing some fine trusses of its beautiful double pink flowers.

Baroness Rothschild, always a first-rate Rose, though late in blooming, is one of the most reliable autumnals, and all through September has been very fine.

Annie Laxton.—A considerable group of this very distinct Rose now (September 30) presents a charming appearance, all the plants being covered with flowers and half open buds, and looking almost as bright as at the end of June.

Adam is a rosy Tea that blooms most freely in autumn, though its pendulous habit is somewhat against it out of doors. There is, however, no more charming variety for cultivation as a standard pot Rose under glass.

Madame Lambard.—Blooms of this Rose now are simply superb. It has been remarkably good all through the season, but seems to become even finer and more abundant as autumn approaches.

Duke of Edinburgh is now (Sept. 20) flowering very brightly on dwarf plants; the brilliant colour of the blooms makes them very conspicuous among the preponderating light-coloured Tea Roses at this time of year.

The Bride, like her mother, Catherine Mermet, gives most lovely blooms in autumn. Nothing could exceed the beauty of these two Teas as they have been developed in the recent warm September weather.

Marquise de Vivens (Dubreuil, 1885).—The colouring of this pretty bud Tea is even more beautiful now than in July, the white of the lower part of the petals and the contrasting margin of bright rose being more sharply defined.

Roses for early forcing.—I want to force, so as to have them about the end of February, some choice Roses for buttonholes. Will any reader kindly give the names of a few of the best varieties?—T. J. C.

Comtesse Panisse is a very handsome Tea-scented Rose, large and perfect in form and quality early in the season, and a good autumnal. It is a strange thing that exhibitors should so generally neglect this fine and reliable variety.

Madame Hoste (Guillot, 1887).—Plants of this new Tea-scented Rose that were budded in June have produced excellent blooms during September of good size, form, and pure pale yellow in colour. There is no doubt about its being a very beautiful variety.

Max Singer (Lacharme, 1885).—This hybrid multiflora has bloomed without intermission from the middle of June, and is still producing, as it will evidently continue to do until stopped by frost, numerous trusses of its full cherry-red flowers. A most useful climbing or pillar Rose.

Merveille de Lyon, the Baroness's most valued offspring, is happily as free as the type, and furnishes an abundance of pure white blossoms at a time of year when fine Roses are especially acceptable; and both the other white sports, Mabel Morrison and White Baroness, are equally perpetual.

The best red Roses now (Sept. 27) in bloom are A. K. Williams, Ulrich Brunner, Mme. Nachury, Camille Bernardin, Dupuy Jamain, Mme. Isaac Pereire, Victor Hugo, Lady Helen Stewart, and Reine Marie Henriette, all good garden Roses, free, vigorous, and perpetual.

Celestial is a most exquisite summer Rose which growers will do well to bear in mind, now that the planting season is approaching. It is most free-blooming, and the buds and half-expanded flowers, of a rosy flesh tint, are far more refined both in form and colour than those of Maiden's Blush.

Rosa Leggeriana began to flower in the middle of June, and has bloomed without intermission ever since. The graceful plant is still covered with pure white starry blossoms, and presents a most charming appearance, as, judging from the number of buds still to expand, it will continue to do until the flowering is finally stopped by frost.

CHRYSANTHEMUMS.

E. MOLYNEUX.

HOUSING THE PLANTS.

INTENDING exhibitors of Chrysanthemums should now be preparing for housing some of the plants. Much of the success gained is due to a knowledge as to when each variety should be housed. Many exhibitors of Chrysanthemums are not successful, through the fact of their blooms being either too early or too late. Cultivators living in the south of England experience this very much, as they invariably lose many of their best flowers before the day appointed arrives. Where a home show only has to be considered, the time for housing the plants is not of so much importance as long as the plants are placed under cover before the flower-buds are injured by early frosts. Where a cultivator proposes to exhibit on a certain date, housing the plants is a most important point. Some kinds require a much longer time to develop the blooms after they reach a certain stage in the growth of the flower-buds. Circumstances do not sometimes permit of the plants being housed exactly at the time wished. The locality, too, in which the grower resides has to be considered. If it is a low, damp situation the plants should be taken inside earlier, as in a low-lying district early frosts are more to be feared than where the position is high, and consequently drier. Once the colour of the flowers can be seen, nothing is gained by allowing the plants to remain outside, because they will at that stage unfold their florets nearly as fast out of doors as they will inside. The tender swelling flower-buds are easily destroyed by frosts. Therefore buds which are more developed are certain to be crippled if allowed to remain outside after the colour can be seen. When such an accident as this occurs the flowers produced are always crippled, and the centre of each bud is often blackened, which prevents the developing of the florets in a regular manner. Growers who have lived in a district for some time know when to expect these early frosts.

If a show is to take place from the 10th to the 20th of November, all plants should be housed by the 8th of October, and so on in proportion to the dates fixed. No plants are safe outside without protection after the time named. Varieties that did not set their buds as early as was desired and all late-flowering kinds should be removed inside first, so that they have more time to develop than would be required had the buds been "taken" at the desired period for each particular sort. By the time these lines are in print any plants of the Queen type which did not set crown buds will require a position inside the house, where they can have as much light and air as possible. Of late varieties which set early crown buds the following are typical kinds: Grandiflorum, Meg Merrilies, Boule d'Or, Mabel Ward, Eve, Cherub, Golden Dragon, and Ceres. Other sorts that may be termed ordinary flowering November kinds are Mlle. Lacroix, Val d'Andorre, Thunberg, The Queen family, Princess of Wales, Jardin des Plantes and Empress Eugénie. Such kinds as the last-named should be housed early in October. Another batch of varieties which only require a short time to develop needs mention, of which the Rundle family, Prince Alfred, Lord Wolseley, Mr. Bunn, Refulgence, Mme. Bertie Rendatler, Elaine, and Comte de Germiny may be taken as types. These may stay outside as long as they can be left with safety from frosts. Thus it will be seen that it is better to arrange the removal of the plants at three stated periods, by reason of the different times required to develop each variety.

Before housing, the plants should be thoroughly examined for mildew, which generally infests the under sides of the leaves in autumn, and is more difficult to eradicate than when on the outer surface. The best remedy is to lay the plants on their sides and syringe them as previously directed. Remove all dead leaves and lateral growths from the plants, and wash the pots clean so that no more moisture need be given than is absolutely necessary. Any plants which show signs of the drainage being blocked should be seen to before they are taken inside. No position suits Chrysanthemums better than vineries or Peach houses after the fruit has been gathered. The leaves in the early houses will be falling about the time the Chrysanthemums are housed, thus admitting more light to the plants. A span-roofed greenhouse is a capital place for them, but it is seldom that such a house can be devoted to the purpose. Whatever the house is that the plants are to occupy it should be thoroughly well fumigated if there are any other plants which have to be placed in there along with the Chrysanthemums. This is a wise preventive against green-fly, which attacks the buds and partly expanded flowers, and if allowed to remain unmolested proves a serious trouble later on when the florets are expanding. Anything done now at this stage to prevent the spread of this pest is a distinct gain. The glass should be thoroughly washed, so that all the light possible may fall upon the plants during the dull days which are sure to follow this date before the blooms are thoroughly developed. An absence of light to the plants affects the colours of each kind to some extent; the brighter each one is, so much better will be the chances of success in close competition. The manner of arranging the plants must depend upon circumstances and personal taste of the cultivator. Nowhere are Chrysanthemums more effective than in a large conservatory, where Palms are the chief feature. Plants of Japanese varieties of tall habit of growth standing among the green foliage of Palms are very effective.

Where vineries, Peach-houses, or a greenhouse are devoted to them, a long sloping bank arrangement is the best, both for seeing and attending to the plants. An arrangement of this sort admits of the colours being arranged in masses, or blocks of one section can be placed together just as the cultivator fancies, but if exhibiting is the chief point to consider, it is wise to place the Japanese varieties in a house by themselves, so that more fire heat can be given to them during the time the blooms are developing. This section will stand more fire heat than the incurved varieties, as too much heat is liable to make the florets of the latter soft and flabby and induce them to reflex rather than incurve. A little fire heat, to which can be given a free circulation of air, assists the flowers of the Japanese section in developing, the colours are brighter, and the florets come out cleaner and more regularly than they do where no fire heat is employed at all. When all sections are arranged together, this additional heat cannot be given so freely without detriment to others which do not require extra warmth. In all cases place the plants as near the glass as possible, as they may have the benefit of all available light; the colours of each are by this means brought out more in their true character than they can be where the light is diffused. The flower-stems also do not become drawn up weakly, as they do when the plants are far from the glass. The strength of the flower-stem is a good indication of what is to follow in the shape of large blooms. When first housed as much room should be given to the plants as is consistent with the space at disposal; afterwards, when all are housed, the plants may stand close together. When arranged in a solid bank, the bottom leaves of the inside plants quickly turn yellow and fall, but I do not know that so much harm can happen to the plants in consequence, because by the time that takes place the bottom leaves of the plants will have performed their work. The back walls of any cool houses which are bare in the winter may be utilised by training some of the tallest plants upon them. It is often difficult to dispose of the very tall-growing kinds, of which Thunberg is one, but in such a manner it is easily done, and the plants seem to thrive well when so placed. Watering the plants should be attended to very carefully when in their new quarters. It is seldom that the plants will need it more than once a day, and not always that. Any water required should be given in the morning, so that the surplus moisture resulting from the application of water to the roots may have time to dry up before night comes, when the house must be kept more closed than it is in the daytime. A dry atmosphere prevents the spread of mildew more than a close one. In damp or foggy weather less air may be admitted and the hot-water pipes should be warmed during the day, when air can be freely admitted, otherwise, when the outside temperature and weather admit, air should be freely given to the plants night and day. If mildew shows signs of spreading on the surface of the leaves, dust with sulphur at once.

Late-struck Chrysanthemums.—I alluded some time since to a number of July cuttings of the Japanese Chrysanthemums, which rooted so much more freely on the inner portions of the pans than on the outer sides. There is now very little difference indeed between them; practically all are in the same stage with reference to budding, almost every top having the buds formed. But I notice also that whilst these late-struck plants should thus appear to be so precocious, the tops of the shoots of the old plants from which these cuttings were taken show no buds yet; indeed, are fully a fortnight later. Should that be the proper state of things? The young plants were under glass only long enough to make root and get fairly established in the pots. The old plants have been growing without check on a warm border. Has the conversion of tops into cuttings, and finally pot plants, a natural tendency to promote earlier blooming in all cases, or is this only an exceptional circumstance? Possibly restricted root-action promotes earlier bud development. Of course, those shoots of the old

plants from which the tops were taken last summer would naturally be later in showing bloom, because of the loss of their tops; but I am rather comparing the young plants now with those tops of the old plants which were not beheaded, and which it might be expected, having had from the first no check, would now be carrying prominent buds. I observe that Mr. Molyneux in his excellent Chrysanthemum book advises the taking off of cuttings for dwarf plants in August. Mine were taken off about the middle of July. I will try later propagation next year.—A. D.

NOTES OF THE WEEK.

Worcester Pearmain Apple.—An exceptionally fine fruit of this beautiful Apple comes from Mr. G. Mounsdon, Lifton Park Gardens, Devon. We also received a double-flowered Begonia of value for its orange-red colour.

The Apple crop in Kent.—Our Apple crop is very short, and the trees have only just recovered themselves from the attack of maggot in the spring. Our small nursery trees on Paradise are again wonderful, and our fruit will, we think, be finer than ever.—Geo. Bunyard.

Dwarf perennial Sunflower.—Flowers of a dwarf Sunflower come from Messrs. Oakenhead and Co., Cork, and are of the usual cheerful yellow colour, so marked a characteristic of the perennial Helianthus. The special point of this variety seems to be its dwarf habit.

Gladiolus from Zurich.—We have received from Messrs. Froebel and Co., Zurich, a Gladiolus described by them as a cross between G. Saundersi superbus and G. gandavensis. It seems to be a most useful Gladiolus, the spikes strong and the flowers open. The colour is scarlet with a mottling of white.

Hypericum nepalense.—In one corner of the rockery at South Lodge, Horsham, is a collection of Hypericums. When there recently many of them were in flower, and we noted H. nepalense as being one of the very best. It has a vigorous shrubby habit, sending up shoots a yard high, which branch freely and flower profusely.

White Snapdragon.—In the descriptive note accompanying the faithful woodcut of this good plant I am credited with being the raiser of it, an honour which does not belong to me. I am unable to state where it originated; but having got it some years ago I named it, and finding it to be a plant of merit I have sent it to many gardens where hardy plants are welcome.—J. T. Poë, *Riverston*.

Lilium auratum in gardens.—I wonder that more people do not grow Lilium auratum in the open garden. I have to-day seen a splendid lot at The Priory Gardens at Warwick, planted out in the spring of last year, and allowed to remain in the ground all winter, with a little ashes over the crowns. In one case there were twenty-three grand flowers rising from a single bulb, and twenty-five in another case. A mat, supported by stakes, thrown over them when in full bloom, afforded a perfect protection against the snow which fell this morning (Oct. 2).—Lloyd Evans, *Warwick*.

Autumnal Crocus.—C. speciosus was our first Crocus to bloom this season, but it was very closely followed by C. nudiflorus and C. zonatus. All are very free-flowering kinds here, especially C. pulchellus, which is nearly blue in colour and most exquisitely veined, while the feathery stigma glows like a hot coal. On warm, still days, when there is bright sunshine, the flowers open widely, and seem to give us a hint of spring rather than of the dark wintry month which the Dahlias and Chrysanthemums prophesy as being now at hand.—F. W. B.

Golden Madame Desgrange Chrysanthemums bedded out.—Those who have seen a large bed of this beautiful Chrysanthemum in bloom will agree with me that it would be difficult to find anything more lovely at this season. A large bed of it here, edged and carpeted with Tufted Pansy La Brilliant, has made a very good effect this summer. The Chrysanthemums opened their first blossoms on the 3rd of August, and for the past six weeks the plants have been a mass of flower, and will continue for some time yet. The soft yellow colour of the above is not to be had in any hardy plant that I know of at this time of year. I also find it most useful for pots, but I have never seen it so fine as it has been this autumn in the flower garden. Its dwarf, compact habit and the beautiful colour of its flowers should make it a most desirable plant for bedding out.—A. Campbell, *The Gardens, Ashford, Cong, Ireland*.

*** Excellent flowers of this beautiful Chrysanthemum. We quite agree that it is a desirable plant for beds.—Ed.

A curious Gloxinia flower.—I send you by to-day's post a specimen of Gloxinia flower raised from seed. You will observe it has seven divisions in the lip, the usual number being five. This plant has had one other flower with seven, and all its others six. I have also one other plant with six and five; likewise the same peculiar malformation of a Dahlia as described in your issue of last week.—T. W. Swinburne.

Clethra alnifolia.—This beautiful flowering shrub is at present one of the features at Leonardslee. It luxuriates along the woodland walks as if it were a native shrub. Groups and isolated bushes are seen associated with the natural Heath and Furze, many of them being 6 feet high and as much through; while they are perfectly covered with the long spikes of white flowers, whose sweet perfume quite pervades the wood.

The Colchicums.—C. autumnale, both pink and white, C. byzantinum, single and double, C. roseum, and, best of all, C. speciosum in variety, are now in flower. The best form of the last-named was given to me some years ago by Mr. Lindsay of the Edinburgh garden as C. maximum. It is very big and beautiful. Some of Dr. Regel's bulbs also vary in size, colour, and time of flowering, but all are bold and free in growth and blossoming. Even with rain and rough winds most days, C. speciosum withstands their effects better than the other species, and is always bold and beautiful in sun or shower.—F. W. B.

A new bulbous plant named Anoiganthus breviflorus is now flowering in the Cape house at Kew and is worth special notice, as its flowers are of such a beautiful colour. It has a round bulb like a Nerine, and at flowering time the leaves commence to push up. The flower-stem of the Kew plant is about a foot high and carries a cluster of eight flowers and buds. The flowers are erect, about the size and form of those of Agapanthus, and of an unusually bright shade of yellow, canary colour in fact. It is, we believe, quite new, and being so attractive will most likely be heard of in the future, and possibly it may prove of value to hybridisers.

Anomatheca grandiflora.—This beautiful new bulbous plant from South Africa is at present in flower at Kew in the open border in front of the Victoria regia house, where it seems to flourish admirably. Compared with those of the tolerably well-known A. cruenta (quite a gem among bulbs), the flowers are three or four times larger, being 1½ inches across. The form is much the same, and so is the colour, except that the carmine-crimson of the sepals is perhaps brighter, while the three lowermost sepals are heavily blotched with maroon-crimson. It is a very showy and altogether desirable bulb. The foliage is broader than that of A. cruenta, and probably the bulbs are larger. Should it prove suitable for open-air culture in wall borders, its value as a beautiful flowering plant will be increased.

Rhipsalis Cassytha.—I send you a sprig or two of a plant under the above name, and which I think is a plant not much grown, nor perhaps very generally known. Those who are fond of curious plants will do well to grow it. The plant belongs to the Cactus family, and is of a slender, pendulous growth, which is destitute of leaves. Its habit is dwarf, not exceeding 1 foot in height, the flowers being insignificant and scarcely discernible, but its berries, or I should say fruit, when ripe are very ornamental, and last in perfection a long time. The plant makes very few roots, and therefore needs only a small pot. Mine are growing in 5-inch and 3-inch size, and good drainage should be provided. It must be potted firmly in mortar rubbish and loam in equal proportions, and if a handful of dry cow manure is added, the plant will be a deeper green and the berries come finer. It is a greenhouse plant, and should be kept rather dry in winter.—T. R. F.

*** An interesting and most singular plant, with berries almost as large and ornamental as those of the Mistletoe. It is a native of the tropics, and introduced as far back as 1758. A plate of it is given in the *Botanical Magazine* (t. 3080).—Ed.

Picea Webbiana coning in Ireland.—I send you, from Mr. C. Brinsley Marlay, Belvedere House, Mullingar, two cones of Picea Webbiana, taken from a tree about 16 feet high. As I believe it is very rare to see this Picea coning in this country, I thought it might be interesting to you.—C.

*** A vigorous, healthy shoot, bearing two cones, of Picea Webbiana, a tree all admire for its exceeding beauty, though somewhat sombre when seen in its Himalayan home. It was introduced in 1822 from the Himalayas, where on the mountain slopes it forms dense forests at an elevation of 12,000 feet, and it also forms part of the vegetation of Afghanistan. It grows to a height of 90 feet, and in India is regarded as of considerable economic value. There are several fine examples in various parts of England, and a good specimen is a picture of vigorous growth, the gloominess of which is relieved by the silvery underside of the linear leaves.—Ed.

Books.

THE ORCHID ALBUM.

The September number of this book is just to hand, and contains excellent figures of the following plants:—

Oncidium intermedium.—This is a beautiful and showy plant, introduced to cultivation upwards of fifty years ago, but yet very rare in this country. It is said to be a native of the island of Cuba, which has not contributed largely to the embellishment of our Orchid house. This species, however, is a great beauty. It produces a large panicle bearing many flowers, which are of a rich yellow colour, profusely spotted and barred with chestnut-brown. It requires the heat of the intermediate house and enjoys an abundance of light. It deserves searching for in its native country.

Lælia purpurata blenheimensis.—This is a very richly-coloured form of the old L. purpurata, and bloomed by Mr. Whillans at Blenheim. Although not an extra large flower, it is very highly coloured and very distinct. The sepals and petals are of a blush rose, streaked with deep rose-purple, the petals being much the deeper coloured. The lip is wholly deep rose, the front lobe intense dark purple, the apical portion being deep rose veined with purple.

Brassia Keiliana tristis.—This is Professor Reichenbach's name for what is really a very handsome form of the species. I am glad to see so much interest of late being centred in the species and varieties of this old genus, which were amongst the first serious cares of my early Orchid days. The plant under notice produces a many-flowered raceme of flowers, the sepals and petals of which are of a deep umber-brown, the lip being pale yellow, spotted on the disc with a few brown spots. It requires the heat of the intermediate house.

Odontoglossum vexillarium roseum.—A very pretty variety of a highly popular species, taken from a specimen flowered in the grand collection of the Comte de Germiny in Normandy, and well worthy of record. The sepals and petals are all of the same soft clear rose colour as the lip; the base of the lip is stained with yellow, streaked with red, the yellow being separated from the rose colour with a band of white. This is a most free-flowering plant, and recently many excellent and striking varieties have been introduced which will be worthy of similar record. This species, as we have recently noted in the pages of The Garden, is grown by Mr. Vincent, the gardener to the Comte de Germiny, in an intermediate temperature, and under this treatment his plants thrive remarkably well.

W. H. G.

WEST DEAN PARK.

West Dean Park, the residence of Mr. G. Bower, is five miles from Chichester, and within a mile of Singleton Station. The mansion, composed entirely of flint, has a frontage of 300 feet and is of Gothic architecture, having been built by Lord Selsey in 1804. It is situated in a pleasant valley of the Downs, is surrounded and sheltered by chalk hills, and is most luxuriantly wooded. It has a fine park of varied scenery and undulating surface, great groves of Beech, and fine isolated specimens of Limes and Horse Chestnuts. Upon the lawn stand various specimen trees that are interesting, a very fine Tulip tree close to the house deserving special notice. There were also two very fine specimens of the Fern-leaved Beech, each having a large well-developed head with branches reaching nearly to the ground. Even at some distance the trees were conspicuous, forming large, thick mounds of elegant, graceful greenery. Undoubtedly this is a tree that deserves to be planted more extensively. Near at hand was a fine specimen of the Nettle tree, of large dimensions, and still growing vigorously. There was also an enormous example of Magnolia purpurea. The Fulham Oak was here represented by a very fine tree, and there were Cedars with enormous girth of trunk, but the winds sweeping up the valley had carried away many of the upper branches.

The garden itself was not extensive, but pleasure grounds and shrubberies with pleasant walks between covered a great area, and one could wander for hours, finding interesting things at every turn. Groups of hardy flowers forming margins to some of the plantations were very effective, but without doubt the most striking of all were great masses, in different portions of the grounds, of the Goat's-beard Spiræa (S. Aruncus). In these situations it grew nearly 6 feet high, and carried immense panicles of flowers. Plants such as this should be more freely used than they are, for being of vigorous habit they need little attention, and make a welcome break to the usually hard, formal margins of shrubbery plantations.

Evergreen Oaks do well here, and there are some very fine trees. A little stream that flows down through the park enters the lower portion of the grounds, and along its banks grow hardy Ferns in wild luxuriance. The broad sheets of the Hart's-tongue were very pleasing, and contrasted well with the pinnate fronds of other Ferns. One cannot help being impressed with the fact as to how easy it is to profit by and develop natural resources. A spring rises in the shrubbery and helps to contribute to the supply of the little stream. Near it are huge tufts of Bambusa, which are exceedingly elegant.

The plantations of Laurel are followed by large areas of healthy specimens of Box and Portugal Laurels which assume the dimensions of trees, while at the time of our visit they were one mass of flower. Large groups of the Mock Orange were mounds of white, best seen at a distance, for the scent of the flowers is too strong to be pleasant.

The arboretum at West Dean is a great feature. It is some distance from the house, the park intervening. In reality it is an immense area of natural wood cleared of the underbrush, and planted with Rhododendrons and other trees. The flowering of the Rhododendrons was over, but, judging from the extensive area they cover, their remarkable vigour and size, the scene in the blooming season must be of the most brilliant description. This place is thrown open to the public when the Rhododendrons are in bloom. Here are also many beautiful trees growing up among the Rhododendrons. The Hemlock Spruce is represented by several good specimens doing remarkably well. Cupressus Lawsoniana, C. macrocarpa, and large examples of Thuja Lobbi are also here—a type of tree-growth, pleasing in comparison with the larger deciduous trees that were left standing when the arboretum was formed. Leaving the better specimens of English forest trees was wise. There is a depressing sameness about arboretums that are formed of Coniferæ alone. But here the darker hues are brightened and lightened by the fresher green foliage of Beech and Birch, Oak and Lime. The effect of the Douglas Fir, the Cedars, and the fine specimens of Nordman's Silver Fir is very striking, and the quantity of upright cones, which are this year unusually abundant upon the horizontal branches of Nordman's Fir, gives additional charm.

There were specimens of Pinus austriaca, corsica, Cembra, contorta, Strobus, and excelsa. Abies Morinda, another handsome tree not often seen, was especially fine. The branchlets have a very graceful pendent habit,



West Dean Park, Chichester. Engraved for The Garden.

and the light green colour is uncommon among trees of this type. Picea nobilis and P. Pinsapo were represented by good specimens. Three large trees of the Walnut-leaved Ash demand notice. The Copper Beech was judiciously and effectively used as a large foreground tree.

West Dean is a home of beautiful trees. The name is said to be derived from *dene*, a valley, and one might stand upon the hills that surround it and look down upon the masses of trees, quite unconscious of the wealth of beauty to be found therein.

If anyone would visit West Dean, early in June is the best time, as then the Rhododendrons are in flower.

Flower Garden.

THE CANNAS.

Someone remarked to me on September 25, when admiring the handsome spikes of Cannas at the Royal Horticultural Society's meeting, in James Street, Westminster, that "Cannas were the coming flowers," oblivious of the fact that Cannas were grown, or at least existed, in our gardens in the time of Gerard, in 1596. And Parkinson's remarks would lead one to believe he knew of more than one variety. Clusius writes of it as flowering by the sides of houses in Spain and Portugal, and that the inhabitants of those countries used the seeds in the formation of their rosaries. Gerard planted it more than once, but failed to flower it. Parkinson was more successful, as with him it produced "its brave flowers," but no seeds. He further states that "it will not abide the extremities of our winters, unless it meet with a stove or hothouse, such as are used in Germany, for neither house nor cellar will preserve it." Verily, it has been a long time coming! Miller includes the Canna in his "Gardeners' Dictionary," 1733, and describes six varieties, one of them with variegated foliage. There were also the common broad-leaved Indian Reed, the yellow spotted, the fine scarlet-coloured, &c. Miller calls it Indian Reed, but adds: "The inhabitants of America call this plant Indian Shot, and say the Indians make use of this seed instead of shot to shoot wild fowl, &c. Miller states that the seeds were easily obtained, and preferred seedlings to propagated plants. He planted them out of doors in summer and recommended housing them before the frost injured their leaves. Canna indica is figured in *Botanical Magazine*, plate 454, the date 1799, and the editor states it is a plant greatly admired for the beauty of its foliage and flowers. In the year 1818 another Canna is figured in *Botanical Magazine* at plate 1968, Canna iridiflora (Nodding-flowered Canna, or Indian Reed). The editor's comment is that "this is undoubtedly by far the most splendid species of Canna that is yet known." The plant seems to have been raised from seeds collected by Don Jos. Pavon in his travels through Peru and Chili. It is a native of Peru, and is quite distinct from the species C. indica. The flowers are of a pretty crimson colour, pendulous, and have long tubes, reminding one at first sight of those of Cantua dependens. No less than four species of Canna are figured in the *Botanical Magazine* for the year 1822, vol. xlix., viz, C. gigantea, C. glauca, C. pedunculata, and C. speciosa, none of them being of any great merit; vol. li., plate 2498 of the same periodical is C. edulis. This is the species with esculent roots, and the plant figured is very interesting, because, like C. iridiflora, already alluded to, it was raised in the garden of Mr. Lambert at Boyton, from Pavon's collected seeds, which were obtained in Peru thirty years before they were sown. This plant, in the formation of leaf and flower, much resembles some of the seedlings now grown in our gardens. In 1855 (*Botanical Magazine*, tab. 4854) another beautiful Canna is figured (C. Warscewiczi). It produces bright scarlet flowers, while the stem and calyx are of a blood-red colour. It is also grown under the name of C. sanguinea. It was sent, in the first place, by M. von Warscewicz from Costa Rica in 1849. There is ample material to produce an indefinite variety of beautiful garden plants from the Cannas. The French florists have already accomplished good work in hybridising them, and there are now numerous garden varieties in cultivation, and not only have the flowers been improved in size and symmetry, but the colours are bright, rich and varied. The Canna delights in rich deep soil if it has to be planted out of doors in summer, and during the winter it can be put to rest in any house protected from frost, unless, indeed, it is intended to grow the plants for winter flowering. If they be placed in a suitable atmosphere they will continue to flower through the winter; indeed, Messrs. Cannell and Sons, of Swanley, exhibited a very fine collection of cut spikes last year in the second week of November. The flowers were so large and well formed that at first sight they were mistaken for Gladiolus spikes.

Messrs. Veitch are growing a collection of the best sorts in their Chelsea nursery. I saw them the other day, and thought they were very striking plants for the greenhouse or conservatory. The flowers are handsome in their colours of crimson and gold, while the foliage has an excellent effect. Some of it has the crimson hue of the flowers in it, and the rest are green of various shades.

The following varieties were in flower at Chelsea about the last week in September, and the notes I have of them are as under: Admiral Courbet, crimson-scarlet, lower petals spotted yellow; Antonin Crozy, scarlet; Epi d'Or, a very handsome variety with orange-coloured flowers; Felix Crousse, crimson-lake, the lower petals orange spotted; Flamboyant, scarlet, lower petals yellow spotted; Francisque Morel, large carmine-coloured flowers, dark green foliage; Geoffroy Saint-Hilaire, very fine dark foliage, flowers large, orange-scarlet, one of the very best; Hippolyte Flandrin, yellow spotted orange; Jean Charton, a neat dwarf plant, furnished with lively orange-coloured flowers; Lutea splendens, deep yellow, with orange-red spots; Mme. Bernard, crimson, yellow margin; Mme. Just, orange-buff, shading to orange; Senateur Millaud, large dark bronzy foliage, a handsome plant, with deep red flowers—it is excellent as an isolated specimen; Ulrich Brunner, dwarf plant, flowers scarlet; Victor Hugo, reddish foliage, flowers of a rich vermilion colour. Something like a hundred varieties are enumerated in catalogues, and amongst them I observe the variety with striped foliage under the names of zebrina, and also zebrina elegantissima. The pretty variety Warscewiczi is also to be obtained.

It may be as well to add that the plants are easily propagated by suckers. As soon as a sucker has grown a few inches it may be severed with a sharp knife from the old flowering stem, and it will soon become a rooted plant, and as fast as other suckers are formed they may be removed in their turn. It does not take long to get up a flourishing collection.

J. Douglas.

Shrubby Cinquefoil (Potentilla fruticosa).—This shrubby member of a genus principally composed of herbaceous subjects can fairly claim the merit of continuous blooming, for it has been in flower during the whole of the summer. At no time can it be regarded as showy, but the blooms are always bright and cheerful, and it will be often found in flower in some hot sandy spot where little else can hold its own, much less bloom in a satisfactory manner. The shrub under notice forms a small, much-branched bush with pinnate leaves and clusters of golden blossoms.—H. P.

THE RANUNCULUS.

At the May exhibition of the Oxfordshire Horticultural Society, where some of the old florists' flowers still put in an appearance, I saw some stands of blooms of Ranunculus, but, alas! much inferior in quality to what I remember having seen thirty years ago. I am afraid it is now difficult to find in the home counties half-a-dozen collections of the Ranunculus comprising the varieties with which Messrs. Carey, Tyso and others made us familiar twenty years ago. The blooms, perfect in form and varied in colour, some rich and striking in their depth, some soft, delicate, and pleasing, were always greatly admired, as they deserved to be. In course of time the Ranunculus fell out of cultivation as a florists' flower, and even the fine and showy Dutch varieties are much less grown than they formerly were. Persons attracted by the beauty of the Ranunculus have been led to purchase a number and plant them in their gardens; the following season they have been rewarded only with a few blooms, and sometimes by an entire loss of the roots, leading to vexation and disappointment. There must be, and there undoubtedly is, a leading cause for this.

The Ranunculus was originally a single flower, with the sexual organs completely developed. The florist interfered with this arrangement, and from the single type evolved one with the whole surface of the flower covered with numberless petals, but with the loss of the sexual organs largely, if not entirely. The beautiful double Ranunculus then became a malformation, producing petals instead of stamens, and this malformation resulted in constitutional weakness in seedlings, and this, in the opinion of old growers, made it difficult to grow the more perfectly double varieties. The root, with its fang-like divisions, small at all times, exhausted itself in the efforts to produce fully double flowers, and consequently dwindled and died. Generally the varieties lived for a few years, but the choicest among them continually grew less, and at last perished.

And yet it seems a pity that a flower so attractive and winsome should be allowed to die out for want of admirers to grow it. By way of encouragement, let me set forth the best means to manage it successfully. I would strongly recommend the gathering together a collection of the best Dutch varieties—for I am afraid it would be difficult to secure some of the fine English varieties to which attention has been directed above—and obtain seed from them, but only from the best varieties. The seeds can be sown as soon as ripe and dry in pans or shallow boxes of a light free soil, which may be placed in a cold frame. The usual practice is to sow in February, but a good start is gained by sowing in the autumn. The seeds should be sown thinly and slightly covered with fine soil, the surface lightly sprinkled with water, and if possible a piece of glass be placed over each box or pan. As a rule the seeds germinate in a month. There must be careful shading from the sun, and in the case of autumn-raised plants careful covering from frost, so that the young plants are not injured. Air is necessary on all suitable occasions. When the weather is warm enough the boxes of seedlings may be placed in the open air and the young plants supplied with water as needed. After the leaves have withered, the roots can be taken from the soil, dried, and placed in paper bags, kept in a cool and dry place during winter, and planted out to bloom the following spring.

To bloom Ranunculuses well, they should be planted in a well-prepared bed. Those who grew Ranunculuses in the past prepared the beds care-

fully, making them 2 feet deep, the compost two-thirds good rich loam and one-third decomposed cow manure, the two being mixed together in the autumn and kept well turned over in frosty weather. The mixture can be placed on the bed in January and left until planting time, which is the end of February or the beginning of March. It should be done on a dry day, the first process being to level the bed after breaking up the soil finely. The roots should be planted about 3 inches deep and 4 inches apart each way. After planting, the old practice was to place a board along the beds, and by standing on it press the surface down firmly. Then it was always a point in the culture to cover the bed with mats or boards to ward off rain for a fortnight or so, the reason being that it is found in practice that a too rapid swelling of the roots is injurious. Then the bed can remain until May, when the surface soil can be gently stirred, taking care that no injury is done to its occupants. Should the weather prove dry, watering will be necessary, giving a thorough good soaking instead of occasional mere surface sprinklings. In due course a large number of the seedlings may be expected to flower; the best can be selected when in bloom and the inferior ones rejected. By raising a few seedlings annually from the best varieties a good strain can be secured in the course of a few years.

R. D.

NOTES ON HARDY PLANTS.

Dianthus Atkinsoni.—In reply to "A. J. B. S." (p. 234), this superb Pink is certainly more of a perennial than any of the so-called mule Pinks as experienced here. The plant to which my note referred was carrying its third crop of blossom, and was three years old. I have other two-year-old plants; moreover, the "grass" is beginning to show on all; this happens after the flowers are over. There is little or no "grass" during the flowering season, but it quickly develops in the autumn, not only from the base of the old stems, but from several joints on the stems if they are not cut clean off. I find it one of the easiest to propagate, both by stem and crown "grass," and by means of small shoots. I take them in November, insert in sand, and stand them in a cold frame all the winter, and they have hitherto been ready for potting in the following March or April. At the present time I am acting a little unfairly to my biggest plant—allowing it to carry seed. In the best interest of the plant the flowers should be cut off, and not allowed to appear for two months, as they will do. By such means an earlier growth of "grass" and more vigour are obtained. The other cultural conditions are full exposure and light, but rich soil.

Acæna Novæ-Zelandiæ makes a beautiful effect on rockwork. The round fruits, with long, bright crimson spines, are an inch in diameter, and numerously arranged over the dark brownish green and Moss-like herbage, the whole forming a carpet-like patch of rich, and perhaps unique garden colour. It will grow in any sort of sweet soil, but my finest patches are on inclined surfaces of light, sandy stuff. The plant is certainly hardy, and it is also a quick grower. Those who love bedding could do worse than give this creeper a trial, beginning with established pot plants. Evidently it is no worse for a cold, rainy summer.

Veronica salicornioides is another effective dwarf rockwork plant or shrub that only grows about 5 inches or 6 inches high. This applies to its pretty habit and yellowish green conifer-like foliage and stems, but I saw it recently in bloom at the Edinburgh gardens, and though the flowers are small and pale lilac in colour, they are interesting. No collection of dwarf choice hardy plants can be considered at all complete without these new and distinct New Zealand types of Veronica, and they are being added to every year. So far, however, the above-named, to my mind, carries the palm for hardiness and effect.

Great Ox-eye Daisy (Pyrethrum uliginosum).—I gather from what is said at p. 243 that the writer has not really tried to flower the tops of this tall plant in pots. I have done so, also the tops of Chrysanthemum maximum. In both cases the heads were much smaller than those produced naturally, and as much of the beauty of these heads is vested in their size, they were unsatisfactory. Then there was a want of free-grown foliage, and though a point was gained in having the pot plants in flower at Christmas, I did not consider the results worth the trouble. Doubtless, with better management, finer heads of foliage might be produced.

Perennial Flax (Linum perenne).—I do not know the reason for the great outcry for the white variety of this chastely-beautiful Flax. No one can say it is not pretty, but it is not equal in beauty to the typical blue form; and to my mind the richness of the type is detracted from when mixed in a group with the white. They should be grown separately.

J. Wood.

Woodville, Kirkstall.

LILIUM SPECIOSUM.

Some would be inclined to name L. auratum as the finest Lily, and others would give the first place to the Madonna Lily (L. candidum), or to L. longiflorum and its varieties—notably Harrisi; while not a few would regard L. speciosum as the one entitled to hold premier position. L. speciosum is certainly a very beautiful species, and among its varieties is to be found a wide range of colour, varying from pure white to a sort of carmine-crimson. The fact of its flowering at this season enhances its value, for most of the summer-blooming plants have lost their freshness. Specimens of this Lily afford an agreeable change, not only in the conservatory, but also in the house, for as the blooms are without the overpowering smell of those of L. auratum, they may be used in places where those of the golden-rayed Lily would be inadmissible. A few varieties of this Lily are largely grown by the Dutch and imported in considerable numbers into this country every year; while from Japan has lately come large importations of it. The varieties generally grown in Holland are roseum, rubrum, and album, or slight variations thereof; while the bulk of those imported from Japan are L. Krætzeri and a large, well-coloured form of rubrum. In many catalogues there is a long list of varieties of this Lily, but some of them differ very slightly, if at all, from each other. Much confusion exists between speciosum roseum and s. rubrum; indeed, the names are generally used indiscriminately, though in the variety roseum the flower-stems and exterior of the bloom should be nearly green and in rubrum brownish; but sometimes the deep-coloured stems produce flowers which are really paler in colour than those with greenish buds and stems. Besides these two names, there is quite a long list of others, such as L. s. rubrum magnificum, rubrum superbum, rubrum cruentum, roseum Schrymakersi, and purpuratum, all of which are very difficult to distinguish from one another, except it be perhaps the Japanese form of rubrum known usually as superbum, which is a bold, strong-growing variety with very pointed leaves and large, prettily reflexed, bright-coloured blossoms. The finest of all the deep-coloured varieties is, however, that known as Melpomene, which was raised many years ago by Mr. Hovey, of Boston, and by him distributed in this country, I think, about ten years ago. It was soon after then awarded a certificate by the Royal Horticultural Society, and a coloured plate of it was given in The Garden, Feb. 2, 1884. In this variety the petals are, when the flower is first expanded, of a beautiful carmine-crimson colour, set off by a narrow edging of white. Among the importations from Japan there are frequently a few of this mixed with the bulbs of L. s. rubrum, but of course they cannot be distinguished until they flower, or at all events until the foliage becomes developed, for in this variety the leaves are rather rounder, and the stems of the blossoms and unopened buds much deeper in colour than in the case of any of the others. Of white varieties the first place must be assigned to Krætzeri, the flowers of which are most gracefully reflexed and pure white, except greenish stripes which extend about half way down the centre of each petal. The bulbs of this are much yellower and the foliage is of a lighter green than any of the other varieties of L. speciosum, unless it be a form nearly related to Krætzeri, and indeed often confounded with it. I allude to a Lily which last year had a considerable amount of attention directed towards it in the various horticultural periodicals under the name of L. speciosum album novum. This variety has rather more massive petals than in the case of Krætzeri, but they do not reflex in the same regular manner; therefore the whole contour of the flower is less pleasing. The leaves, too, are rather larger and less pointed, while on the upper part of the stem they are mostly arranged in two rows, so that even before they flower it is easy to pick out the one variety from the other, though really the points of difference between them are not greater. With me this year it flowered just a week before Krætzeri, when the most distinctive feature is visible, viz, the bright yellow pollen masses, which in Krætzeri are brown. As so much attention was directed towards this variety last year, I have mentioned it somewhat in detail, but as far as its ornamental qualities are concerned, it and Krætzeri are almost identical, though, perhaps, this last is rather the better of the two. Another white-flowered variety is that known as album, which has the foliage of a much darker green than either of those last mentioned, while the flower-stems and the exterior of the buds are suffused with chocolate. The inside of the flower is, however, pure white, except a small greenish star in the centre, but after a few days' expansion the flower often becomes suffused with pink, while the petals reflex in an irregular manner. Another variety is a form of this last known as corymbiflorum, or monstrosum, in which the stem is fasciated, the blooms being mostly arranged in a confused cluster at the top. This is grown more as a curiosity than for its beauty, and a suitable companion to it is the clustered form of L. speciosum rubrum. One of the most delicate of all the varieties of L. speciosum is punctatum, which has the ground colour of the flowers white, but is dotted over more or less thickly, especially towards the middle, with pink. L. speciosum is of good constitution, that is to say, under anything like favourable conditions it may be depended upon to both grow and flower well. As a border Lily it is very satisfactory, while it may be grown in pots for flowering at this season under glass. Of course specimens may be made as large as desired by putting several bulbs together when potting, but when it is desired to grow them singly a pot 5 inches or 6 inches in diameter, according to the strength of the bulb, is large enough, and when so treated they may be often dropped into ornamental pots and vases, which would not be the case if they were all grown into large specimens. Very little assistance is derived from keeping them under glass at any period during their growing season, so that though our plants when first potted are stood in a cold frame, they are placed outside directly the frosts are over and allowed to remain there till the buds are on the point of expanding, when they are removed under glass. There is then no danger of the blooms being marred by heavy rains which sometimes happens when in the open ground. A good plan when first potting them is to place the bulb rather deeply in the pot and put in only just enough soil to cover the bulb, then when turning them out of the frame in the spring the remaining space in the pot should be filled up with with some good soil, consisting of loam, peat, or leaf-mould, well-decayed manure and sand. The roots that make their appearance at the base of the stem will run into this with freedom and serve greatly to strengthen the stem and keep the leaves in good condition. As the flower-buds become developed occasional doses of liquid manure will also be of service. The only insect pests that trouble this Lily are aphides, and they rarely put in an appearance, but if present they can be readily cleared off by a good syringing with tobacco water

H. P.

Fancy Pansies.—A very enjoyable sight the other day was a big patch of several thousands of fancy Pansies, all seedlings, and growing with unusual vigour for the time of year in a southerly position. Hardly two were alike, the colours and

markings being very varied and beautiful. Irregular in marking as fancy Pansies are, yet they have become more popular than those of the older or show sections, the fine self-coloured bedders only rivalling them in effectiveness. During the present autumn a batch of young plants put out during July proves the Pansy to be one of the very best of hardy flowers for garden decoration, and will bloom late. Next spring they will bloom early and produce fine bunches of flowers.—A. D.

FLOWER GARDEN NOTES.

Mixed border of hardy flowers.—With us these are still in perfection, and if sharp frost will but keep off, they will continue so for some weeks yet, for as fast as one kind is over another puts on its best dress. The Phloxes are just over, and Asters (Michaelmas Daisies) supply their place. Potentillas, Veronicas, Gladioli, &c., are getting past, but the Japanese Anemones and tall Pyrethrums become more beautiful every day. This constant change constitutes the great charm of this branch of flower gardening. By reason of the present beauty of the plants the work of division and rearrangement of such borders will this season have to be deferred until well into November, but those anxious to make a beginning, with a view to greater effectiveness next year, may take up such plants or groups of plants that are least valued or that have done flowering, and after due preparation of the stations, by which I mean deep digging and manuring, replanting may be done. Our borders having been thoroughly overhauled and rearranged last year, this lifting of exhausted and comparatively worthless plants is all that is intended to be done this season. The work will begin immediately by planting a few groups of Hyacinths, Tulips, and Narcissi, and a little later on small groups of spring-flowering plants, such as Silenes, Forget-me-nots, Daisies, Polyanthus, and Pansies. The sowing of hardy annuals for spring flowering in vacant spots of such borders has always, in my case, been more or less of a failure, so that I have discontinued the practice in favour of planting, the seedlings being raised in borders set apart for the purpose, and which can, therefore, be closely watched, so as to prevent mischief from slugs and birds. Remove dead flowers in the border and cut away dead stems; tie up tall plants, and, above all, keep down weeds.

Taking notes for future reference.—For once I am about to advise what I do not practise. Some years ago I made it a rule to take notes of all our bedding arrangements, say of this year as a kind of guide for next; this I continued for several years, with the result that I actually found myself repeating almost entirely the arrangements of former years, and to prevent this I came to the conclusion that I would make no note whatever for guidance in future bedding arrangements. For some years now I have strictly followed this rule, so that if not improvements the arrangements are at any rate different. My plan might—would in fact—prove delusive to the inexperienced flower gardener, and he should, therefore, in this instance practise what I preach and not what I do, at all events till he feels as I do now, that he can do best without a crutch. Only such arrangements as are striking should be noted, that is, those that seem to take your attention whether you will or no, and these generally are those that are least gaudy, their quietness being the point of attraction. Such note-taking ought to be done forthwith, as a sharp frost might now occur any night. Notes as to the colours of little known varieties of plants should be taken by all, and such notes we have just been making of the colour, habit, spread, and height of Dahlias of all sections. Hollyhocks have this season with me grown in favour, and we have had, and still have, some grand plants and flowers, to the effectiveness of which there has been but one drawback, and that the bad mixture. The plants are seedlings, but next season this irregularity of colouring can be avoided by taking note of colours now. Note also should be taken of any plant or plants that have either alone or in conjunction with others obtained approval. I will quote an instance that has occurred here this season—yellow Marguerites and Heliotropes. The mixture is unique, yet it was an haphazard arrangement. The required kinds of plants ran short and these were used as substitutes.

Propagation of bedding plants.—We have completed this work except Violas and Calceolarias, and these we defer propagating till October, a procedure that in some measure prevents the plants making over-profuse growth in spring before it is safe to put out the plants, preference being given to plants with short sturdy growth over larger plants that may at first cover more ground, yet in the long run are not nearly so satisfactory as are the smaller plants. Frames for these and also for the safe wintering of succulents, that do not require heat during winter, are being got ready for use. For the former a slight hot-bed is made up in the frames with leaves and litter, but the cuttings are not inserted till the heat has fallen to 55° or 60°, which is ample to effect a successful rooting of the cuttings, it being undesirable to have any bottom heat after roots are formed. Cuttings of Pelargoniums are liable to damp off if fully exposed to rains after this time, and though it is not desirable to put them finally under cover till the very last moment, some appliance or other should be devised to throw off heavy rains. If frames are at command the plants could be put in these, and the lights be drawn right off whenever the weather is favourable.

General work.—To keep Dahlias and all tall perennials that need supports closely tied to their stakes, and seed-pods and bad flowers constantly picked off. Remove any worthless plants, and after digging the plots, plant out small groups of any kind of spring-flowering plants. Those we have ready for planting as soon as ground can be had are Wallflowers, Canterbury Bells, Nemophila, Limnanthes, Hyacinths and Tulips; newly-rooted layers of Carnations to be cut away from the permanent plants and either be planted out in cold frames for the winter or, as is our intention, to plant them out thickly beneath the shelter of walls, with a view to final planting out in spring. Now that all cuttings have been taken, the flower beds should be made as neat as possible by pinching, or by pegging down such plants as need that attention to keep them within the lines of the design; clip turf edgings, and after rain roll the turf to keep down worm-casts that at this time of year are always troublesome. W. W.

Cactus Dahlias.—I find that charming variety, Mrs. Hawkins, from old roots and in moderately poor soil, blooms in great profusion, the flowers being very fine. So many Dahlias, especially Cactus and single forms, came so tall when from spring-struck cuttings that it is well worth trying them from old or pot roots.—A. D.

Paragon Dahlia.—This beautiful single Dahlia, still one of the most richly coloured of all, has a curious habit of varying in the character of its flowers, as some are ill-formed and have rather starry petals, whilst others are of the most perfect outline. These variations may be found on the same plant. More recently raised varieties are less subject to this variation, which in the case of Paragon may be due to the great age of the stock. After all, pleasing as parti-coloured single Dahlia flowers may be, none are so effective because always so decided in colour as good selfs, let their hues be what they may.—A. D.

Geraniums as border plants.—Most of our hardy Geraniums are very pretty and interesting plants on the herbaceous border, although some of them are a little too vigorous in growth unless they have a very light soil. Such will generally be found to be the case as regards Geranium pratense and its white-flowered variety, G. pratense album, both of which are indigenous to Britain. The former produces abundance of its pretty pale blue flowers during a considerable portion of the summer months; as also does G. ibericum, its flowers being of a rich purplish blue colour. G. armenum is a fine, but somewhat strong-growing species, with rich rose-coloured flowers. G. Endressi has also rose-coloured flowers. There are also G. sanguineum, G. platypetalum, &c. The last-named is a fine variety, but somewhat tender, and succeeds well as a greenhouse plant. The Geraniums are closely allied to the Pelargoniums, and some raisers of new and improved varieties of the latter, more particularly of the zonal section of this very extensive family of plants, have long endeavoured to effect a cross between Geranium pratense and some of the zonal varieties, hoping by this means to transmit in some degree the blue colour of the Geranium flowers into those of the zonal Pelargoniums. Years ago some attempts were made to obtain variegation in the leaves of such species as Geranium pratense, &c., by fertilising, or at least attempting to fertilise, the flowers with the pollen of variegated zonal Pelargoniums. The only noticeable result of this, however, was a seedling of dwarf habit, with yellowish-coloured foliage and white flowers identical with those of Geranium pratense album.—P. G.

Choice ornamental Grasses.—Ornamental Grasses are very useful when used in a cut state to mix with flowers of any kind. From hardy flowers to Orchids, Grasses seem to associate well, giving a light appearance wherever used. To have them fresh and to last a long time, a succession should be secured by sowing the seed at two different times, thus prolonging the season. I find Agrostis pulchella most useful where small vases have to be filled with flowers; mixed with dark Roses, for instance, a pretty effect is obtained. Briza maxima is a capital variety of a drooping character, which harmonises well with cut herbaceous flowers. Eragrostis elegans is a capital late-flowering variety, which makes a good succession. The flowers are light and graceful, while the grass is deep green in colour, and rather broad. For the production of flowers early in July, the seed should be sown in pans or boxes early in March, placing the boxes in a warm house, or a vinery just started answers well. When the seedlings appear and are large enough, transplant them into boxes, allowing a few inches between each plant. Place them in a warm house until new growth starts. They should be gradually hardened off, and early in May planted in beds 4 feet wide. A border with an eastern aspect suits them well. To obtain a succession of flowers, the seeds should be sown in beds of the same size in the open air at the end of April. The seedlings should be thinned to a few inches apart when large enough. The Grass from this sowing will be ready to cut early in September.—*Field.*

SHORT NOTES.—FLOWER.

Lobelia ramosa.—This is a superb New Holland species, I believe from the Swan River district. It is a compact branching plant with very large dark blue flowers, having a white eye. I recently noted it in the open air in the Garden of Plants at Rouen, but it requires protection in the winter. It is a beautiful subject as a border plant.—W. H. G.

Eulalia japonica variegata.—Is this plant hardy in this country? If so, it should be more frequently seen. I recently noted it in various gardens in France, notably at the Comte de Germiny's, at the Garden of Plants in Rouen, and the establishment of M. Godefroy-Lebeuf near Paris. It forms grand masses, similar to that of the Pampas Grass with us, and is very elegant.—W.

The Rouen Violet (Viola rothomagensis).—This is a plant largely used in the squares and public gardens in and about Rouen, especially for spring flowering, but it continues on through the summer months. The flowers are pale lavender in colour and exquisitely beautiful in the mass. It is one of the old plants that appears to be discarded from English gardens, in many instances to make room for far less interesting subjects.

Gunnera scabra makes an imposing feature at Leonardslee. Deep down in a hollow where the Royal Fern revels there is an enormous plant 10 feet high, with leaves 6 feet in diameter. It is also bearing its curious inflorescence. The effect of the large broad leaves is heightened by contrast with the small leaves of the Oak and Beech trees, and it is sheltered from the winds that would soon tear the foliage into shreds.

Clematis graveolens.—With white, lavender, or purple-flowered Clematises we are very familiar, but the flowers of this species are widely different in

colour, being of a pleasing shade of pale yellow. It is a free-growing, but somewhat slender-habited species that should be allowed to ramble at will. Besides the flowers, the feathery clusters of seeds that put in an appearance later on form a very pleasing feature. This Clematis is a native of Tartary, and is quite hardy in this country.—T.

ERYTHRONIUM HENDERSONI.

Probably the handsomest of all the Dog's-tooth Violets is the recently discovered Oregon species, E. Hendersoni. While it is as graceful in habit as the common one, the bright and strongly-coloured flowers are more striking and attractive in their beauty. The petals have a very dark purple and somewhat blotched centre, which is surrounded by a band of yellow, and beyond this they are pale purple. The filaments are also purple, and the anthers are brownish. The flowers vary in number from one to three or four, usually quite large, with the petals, which are about 1½ inches long, more or less recurved, and becoming decidedly so with age. The leaves are mottled, as in most of the species.

Apart from the colouring of the flower, this species is characterised by the peculiar form of the appendages at the base of the inner petals. These appendages differ in form in different species of the genus, and in some are wholly wanting. Here the petal is very abruptly and almost hastately expanded above the very short claw, and the angles are thickened and somewhat saccate. Towards the median line there are two sub-globose, inflated appendages, which, with the filaments, almost close the orifice of the flower. The bases of the inner petals are so broad as to be nearly contiguous. The outer are narrowed more gradually downward, and are wholly naked.

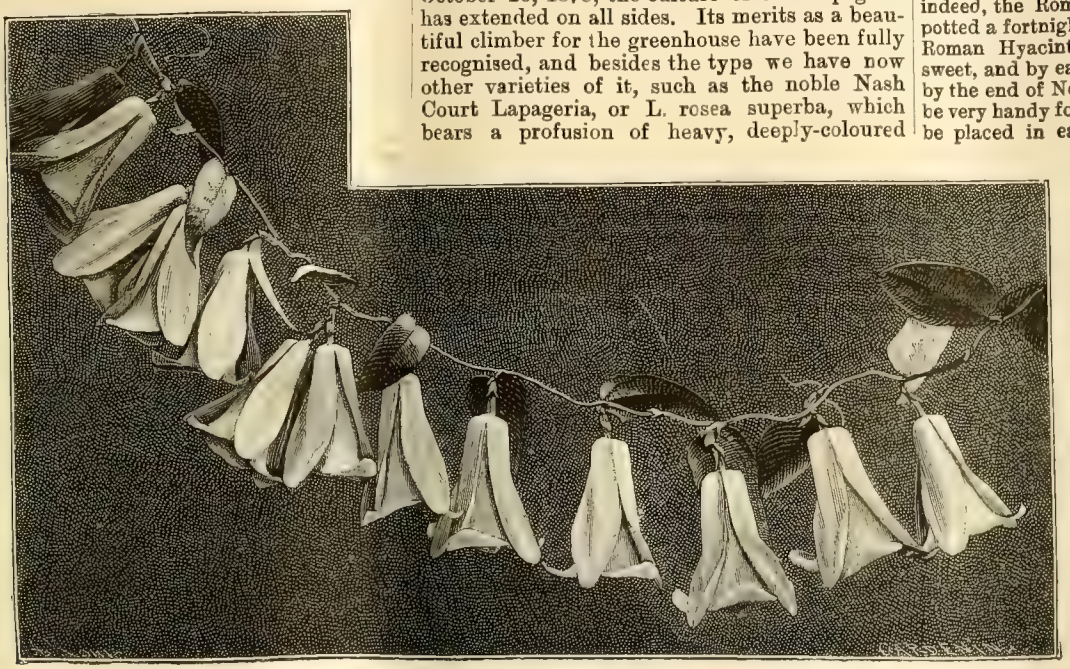
Another character to be noted is the simple, club-shaped style, which bears a very short three-lobed and somewhat cup-shaped stigma. This character it has in common with two other species (E. citrinum and E. Howelli) of the same region, the common eastern E. americanum, E. propullans of Minnesota, and an unnamed Texan species, otherwise much resembling E. albidum. All our other species have linear stigmas, including the eastern E. albidum, E. purpurascens and E. Hartwegi of the Sierra Nevada, and a confused group of several imperfectly known species common in the mountains from Montana and Northern Colorado to the Pacific. These cannot be clearly defined until they have been carefully studied from living specimens. All are worthy of cultivation.

E. Hendersoni is a native of the mountains of South-western Oregon, where it was first collected in 1887 by Mr. L. F. Henderson, of Portland, and Mr. Thomas Howell, of Arthur, Oregon.—*Garden and Forest.*

Stove and Greenhouse.

THE LAPAGERIA.

It would be only waste of space to write much on the two most beautiful climbers that are flowering at the present season—Lapageria rosea and alba—as they are now seen in many greenhouses, and their culture, once considered difficult, is thoroughly mastered. Since the coloured plate of L. rosea appeared in The Garden of October 26, 1878, the culture of the Lapageria has extended on all sides. Its merits as a beautiful climber for the greenhouse have been fully recognised, and besides the type we have now other varieties of it, such as the noble Nash Court Lapageria, or L. rosea superba, which bears a profusion of heavy, deeply-coloured flowers of remarkable substance. In a batch of seedlings of L. rosea we obtain an interesting variation in colour. Some of the blooms are quite short and distinctly bell-shaped, others of greater length, and curiously mottled and spotted. It is not difficult to propagate either the red or the white-flowered Lapageria. In the case of the white variety, the best way is to layer the shoots, as this kind does not come true from seed, as has been often mentioned in The Garden. Both should be grown together, although we often find that only one has a place at all, the red variety; but this is a mistake, as the clear waxy white flowers of the beautiful L. alba are in excellent contrast with those of the other kind. The best way to show off the beauty of the Lapageria is as a climber. Sometimes we find it grown as a pot plant, and a miserable failure usually results from this treatment. It is essentially a climber, and delights in its native home to ramble over shrubs; therefore as natural a condition as possible should be chosen for it in English gardens. A well-drained border is a necessity, and slugs must be kept away from the tender rising shoots. Long tubular lamp-glasses can be used most advantageously to shield the young growth from these small marauders. The accompanying illustration shows the extreme elegance and informality of Lapageria rosea.



Wreath of Lapageria rosea.

SELECTING AND POTTING BULBS FOR FORCING.

In the selection of such bulbs as Hyacinths, Narcissi, &c., for forcing, mere size is not always a sure indication of their fitness or value. Weight in proportion to size is a much better test. The bulbs may have been grown to a large size by rich soil and the use of stimulants, but if not well ripened they will be sure to disappoint, and the large, soft bulbs are exceedingly difficult to mature; in fact, they seldom ripen well. If on taking up a bulb in the hand it seems heavy in proportion to its size, the growth is closely packed around the centre, and we may feel confident that a good spike of blossoms is waiting to push forth at the right season, if properly treated.

It is time to order in the first lot of forcing bulbs; indeed, the Roman Hyacinths ought to have been potted a fortnight or three weeks ago. The white Roman Hyacinths, though small, are exceedingly sweet, and by early potting may be had in blossom by the end of November, and if potted now they will be very handy for Christmas. Four or five bulbs may be placed in each 5-inch pot, and each bulb will generally throw up two or three spikes, and the pure white flowers are excellent for cutting.

The best compost for Hyacinths (and all other bulbs will do well in it) is good loam rather more than one-half, and the remainder made up of old mellow cow manure, leaf-mould, and sand, the whole to be thoroughly mixed and blended. Five-inch pots are large enough for single bulbs for early forcing; later on 6-inch pots may be used when very fine spikes are required. Sometimes several bulbs are planted together in larger pots to create masses for the conservatory or to grow flowers for cutting, but the best spikes are generally obtained where a single bulb has a pot of suitable size to itself. The pots must be clean, and if new, soak them for a couple of hours in water, but let them stand to get dry before being used. In potting Hyacinths, rub off all small offsets if any are showing on the sides of the bulbs. Drain the pots well, as the plants when in growth will require a good deal of water; fill the pot full of soil, place a little sand in the centre, and press the bulb down firmly, leaving the tops about an inch or so above the surface; the bulb fits into its right position better when potted in this way than if the soil is made firm beneath it before planting. After potting place on a coal ash bed in the open air, give a good soaking of water to settle the soil, and in the course of a day or two cover with ashes 6 inches deep and leave in the ash bed till the pots are pretty well filled with roots, which will be in about five or six weeks. When taken out for forcing it will be better not to take them into a warm house at first, nor yet into strong light, but to place them in a cool pit or house for a week or so, and then push them on in heat. There will be nothing lost by this preparatory treatment.

Single Hyacinths are best for glasses, and when started keep them in a cool, rather dark place for a month or six weeks to enable the roots to get well in advance of the top growth. In ordering Hyacinths for forcing, it is best to have a large proportion of single flowers, as they force better than the double-blossomed kinds.

Other bulbs which are adapted for forcing, and

which may be potted now, are Tulips of various kinds and Narcissi or Daffodils in variety. When merely required for cutting, the bulbs may be planted thickly in boxes, set in the open air, and covered with ashes or Cocoa fibre till the roots are well at work, and then moved into a gentle warmth, increasing the temperature later on. I have seen a lot of useful flowers produced by lifting the common Trumpet and other Daffodils from the garden, placing them in boxes, and bringing them on in heat. Those who have plenty of Daffodils in their gardens may utilise some of them in this way, planting them out again when ripened off. Half-a-dozen Tulip bulbs may be grown in a 5-inch pot, but three Daffodils will be enough for the same sized pot.

The Crocus and Snowdrop are very pretty in pots and vases, but they will not bear much heat. They may be potted now or shortly and placed in the ash-bed with the other bulbs, and afterwards brought on very gently in a cool house. They will come on well in the orchard house, or they may be plunged in ashes or Cocoa fibre up to the rim of the pots in a cold frame. The Siberian Squill (Scilla sibirica) forces easily, and if potted during October the bulbs will flower in January or February, and their blue flowers will be very attractive on the front shelf of the greenhouse or in a small vase on the drawing-room table. To be effective the bulbs must be planted thickly, but they may be purchased very cheaply. The Bermuda Lily (Lilium longifolium Harrisi) is the best Lily for forcing. Pot now in light, rich soil, covering the bulbs about 3 inches deep, place them in a cool house for a time, and when the roots have become active move to warmer house; 50° to 55° night temperature is quite high enough. The old-fashioned white Lily (Lilium candidum) succeeds well in pots, though it will not bear much forcing, and I have also tried several forms of the Martagon Lily, and when brought out in a greenhouse temperature they are very interesting for the conservatory. Other bulbs which should be potted now are the Tuberose and the Freesia. Pot the Tuberoses singly in 5-inch pots, and plunge in Cocoa fibre in a pit or house. They will require but little water till the growth appears above the fibre. Move into a warmer house as soon as the flower-spikes appear. The bulbs of Freesias are small, and should, to make an effective mass, be planted somewhat thickly, six to nine bulbs in a 5-inch pot. They may be placed with the Tuberoses till the growth appears; then moved to a warm greenhouse and kept well supplied with water. The Freesias are bound to become popular; the flowers are excellent for cutting, and with proper treatment the bulbs will go on flowering year after year. They also come at a season when such flowers are valuable, and are so easily raised from seeds, that the price of flowering bulbs ought soon to be as low as is now paid for Crocuses or Snowdrops.

E. H.

Gloxinia maculata.—This is very different from the ordinary cultivated forms of Gloxinia, as it pushes up a stout herbaceous stem, which reaches a height of from 2 feet to 1 yard. The leaves are heart-shaped, and clothe the entire stem, which is terminated by a number of delicate mauve-tinted blossoms about the size of those of an ordinary Gloxinia. Another feature is that it flowers at this season of the year and at a time when most of the commonly cultivated Gloxinias are on the wane. It is a plant of easy culture, the principal consideration being to give it a little assistance in the shape of manure water, or some substitute for it, during the growing season.—T.

Double-flowered Agapanthus.—The remark of "H. P." in The Garden of September 22 (p. 275) respecting the excellent open flowers of this plant reported by me as being so fine in the garden of M. Godefroy-Lebeuf, near Paris, has been commented upon to me personally by Mr. Williams, of Holloway, who says he introduced the plant to commerce, and pointed out to me a plant in which the flowers did not open in a satisfactory manner, as related by "H. P." The cause of this, I believe to be want of nourishment to the roots in the case of Mr. Williams' plant, which was in a pot very much too small for its size; indeed, I should imagine there was very little in the pot save the bare roots, but I do not know under what conditions "H. P." has his plants. In the case of M. Godefroy's specimens they were planted in an open bed, and the plants were in more luxuriant health than I ever remember to have seen the typical plant in this country. They were flowering luxuriantly, the large trusses of bloom being well above the foliage, and the individual flowers quite double and well expanded. I think it is too much the fashion to starve this fine old plant in this country. I think if "H. P.," Mr. Williams, and indeed nearly all amateurs and gardeners would treat it in a more liberal manner, both the single and the double-flowered varieties would well repay them.—W. H. G.

NERINE FOTHERGILLI.

This is a gorgeous bulbous plant, and one that requires but a small amount of care and attention, while the fact of its flowering at this season when so many summer-blooming plants are on the wane is an additional merit. Many people fail to flower it in a satisfactory manner, but year after year at Baron Schroeder's it is, during the autumn, one of the most conspicuous features. One great cause of failure in the cultivation of these plants is that many people dry them off after flowering; whereas they really make their growth during the winter and early spring, and require all the light they can have at that season, instead of being placed underneath the stage in the vain hope of inducing them to go to rest. Where the plants are in good condition, the beautiful bright rich vermilion-coloured flowers will be now at their best, while the glaucous foliage is also effective. Besides the rich colouring of the blooms, they appear overspread with a lustre like frosted gold, which is remarkably striking. The soil best suited for this Nerine is good, fibrous, rather heavy loam, with a little leaf-mould and a liberal admixture of silver sand. These plants dislike being disturbed at the roots, so that they should not be potted unless it is absolutely necessary. Thorough drainage is essential to their well-doing. In the case of plants that are now flowering, they should, when the blooms are over, be still kept in the greenhouse in as light a position as possible, where they may be allowed to stand till about next May, by which time they will be in quite a dormant condition. If they have been well exposed to the light the bulbs will be plump and hard. Then a very good plan is to turn them out of doors and stand them where they will be fully exposed to the sun, such as at the foot of a south wall or in a narrow border in front of a glass structure. Wherever they are put, care must be taken that worms do not enter the pots, for they will play great havoc with the plants, not only destroying the drainage, but also making the soil in such a state that it is absolutely necessary to repot, and this considerably lessens the chance of the bulbs flowering. If they are roasted up in a sunny spot and only watered about once a fortnight, they will by about the end of July commence to push up their flower-spikes, when they should be taken into the greenhouse or a cold frame, and those that are showing flower must be from that time watered when necessary. If the spikes are not visible the plants are better if kept dry for a little longer, and if watered too freely before the blooms are seen a large crop of leaves often results at the expense of the flower. The major variety of Nerine Fothergilli is the largest and most imposing of the genus, but all are very beautiful, and well worthy of a little special care and attention.

H. P.

Rivinas in fruit.—These plants make a very bright feature in the stove or intermediate house at this season by the profusion of their bright-coloured berries, which in R. humilis are bright red and in R. flava yellow. They are very easily cultivated, succeeding well under the same treatment as many other warm house plants, provided the soil is not too heavy. Grown in small pots for table decoration these Rivinas are very useful, and in the stove, if it be a large structure, they form an imposing specimen when several are grouped together in a large pan. They may also be allowed to ramble for a little distance if there is a suitable place for them. These Rivinas are easily increased by seeds and also from cuttings, which strike root in a short space of time.—T.

WORK IN PLANT HOUSES.

Greenhouse.—Cyclamens.—Old plants of Cyclamens that, after blooming, were stood out under the shade of a wall, as recommended for the summer, and that have since, after they began to make a new crop of leaves, been potted, should now be moved to a house or pit where they can be kept a little warm during cold weather as well as at night. Though there is not the necessity for keeping old roots so warm as there is with young plants that have not yet flowered, still to have the older ones in a good condition they require to be warmer all through the autumn and winter than in the case of the majority of greenhouse subjects. After they have had their season of rest, and have pushed up a fresh crop of leaves, they root fast, but until the young leaves have appeared they should not be potted, as if disturbed before they have made the progress named with their top-growth, the roots often fail to move at all, in which case the plants dwindle away. Young Cyclamens that were raised from seed sown early in the summer of last year will now be in the pots in which they are to flower, and their roots will have got well hold of the soil. In this case, they, as well as the old plants, may have a little weak manure water once a week. Plants raised from seed sown last autumn, if not already in the pots they are to bloom in, should be moved at once. Late-sown plants of this description will flower well towards spring, but to get them of the necessary strength they require to be in a temperature that will keep them moving all through the autumn and winter. Plants that have not yet bloomed should be kept where they will have a night temperature of 50°. A pit, or a low, narrow house, in a light situation, is the best place for Cyclamens during winter, and stand them well up to the roof, so that they will get all the light possible. See that they are quite free from aphides and red spider; the latter insect does not increase much after this time, but if the leaves are at all affected with it, it will live on through the winter and do much harm. In a temperature such as recommended aphides will increase rapidly, and if left undisturbed, they soon do irreparable injury to the leaves. It is necessary to keep a constant look out for these insects, as they confine themselves to the under side of the leaves.

Single-flowered Primulas.—The early-sown plants will now have filled the soil with roots and should have manure water frequently. The plants should shortly be moved into their winter quarters, for though there is not much danger yet of any frost that would be likely to injure them if in cold frames, still they will be better now with a drier atmosphere than a frame affords. A pit where a little heat can be given to dry up the damp in wet weather or the front stage of a greenhouse near the glass are the most suitable places for them through the autumn and winter. Any flower-stems that appear should be pinched out as soon as they are large enough. Plants that have been raised from later sowings and that are wanted to flower in spring should, if they have not already had their final shift, be at once potted. If they have been planted out in boxes with enough room, and have been well attended to, they will have made so much root growth as to require 6-inch pots. Some of the soil may be got away from them, but in doing this the roots should not be injured. Good free loam with plenty of vegetable matter in it, some sifted leaf-mould, rotten manure, and sand is a mixture that suits Primulas every way.

Double-flowered Primulas.—The larger the plants are the more bloom they will give. Large specimens require proportionately large pots. Any that are at all short of root room should be moved before the roots are much cramped, as if the plants suffer from this they

make slow progress afterwards. Give them soil of a like description to that recommended for the single kinds. Double-flowered Primulas should from this time through the winter be kept where they can have a little fire-heat. An intermediate temperature suits them best. They have less natural vigour in them than the single sorts, and to grow them well they need more warmth. In the absence of this they are subject to damp. Even when grown with all the light it is possible to give them they are liable to go off at the collar if kept too cool. With the requisite amount of warmth the plants yield double the quantity of flowers. From this time through the winter a temperature of 45° to 50° in the night is best for them.

Semi-double-flowered Primulas.—These, which now exist in several colours, are desirable sorts. They likewise do better with a little more warmth than is often given to the single sorts, as with a little extra heat the plants keep on growing much more freely and flower proportionately better. Any plants of this section that need more room may be moved now. In potting these and the double varieties it is well to get them down low enough, so that the soil comes well up to the base of the lower leaves. This does not, as used often to be supposed, cause the leaves to damp; it has the opposite effect in making them less subject to go off in this way. Primulas are not so much liable to the attacks of aphides as many things, but nevertheless the insects will live on them. When getting them into their winter quarters it is well to see that they are quite clean. Fumigation is the best remedy, but in carrying this out it is better not to apply the smoke too freely, but give two moderate applications rather than a single severe one.

Cinerarias.—The earliest raised plants that are wanted to begin flowering about the end of the year will now have so far filled the pots with roots, that they will be, in a measure, dependent for support on the manure water that is given them. With this they must be regularly supplied, as they are gross feeders, and when confined to the limited sized pots to which these and other quick-growing things are now generally restricted they suffer through insufficient nutriment at a time when they can least bear it. Successional plants that have been raised from later sown seed, or from suckers, should now have their last shift; 6-inch pots will be large enough, provided the soil is made sufficiently rich in the first instance, and that they are afterwards fed with manure water regularly before they have too far exhausted the material they are potted in. They are better in cold pits or frames for a time, as in these there is less difficulty in keeping the atmosphere in the moist state they so much like than there is in an ordinary plant house. If the material of which the bottom of the pit or frame is composed is kept constantly damp it will give off the necessary moisture to keep the air in right condition, so that the edges of the leaves will hang with pearly drops in the morning. This is just what they like; it not only helps the growth, but it also tends to keep down aphides. The plants should be examined at short intervals to see that they are free from these insects, which are difficult to deal with if allowed to get numerous, as when Cinerarias are well grown their foliage is generally too soft to bear fumigating except very slightly. It is much better when a limited number of plants is affected to dip them in tobacco water than to fumigate. After this time they will require little, if any shade; and now when the weather gets cooler and the air contains more moisture, more air may be given by tilting the lights up high. The plants should have enough room so that their leaves do not overlap each other, as if at all crowded they become weak.

Chrysanthemums.—Most of the varieties will now have made enough progress to require the buds thinning. The general stock of large-flowered kinds will need reducing more freely than is necessary with the earlier blooming sorts. This applies to the Japanese section as well as the more formal-shaped incurved flowers; where more are allowed to go on than the plants can support they are sure to be defective. A close look-out must now be kept on the weather, and on the first indication of frosty nights the plants should be either housed or got under shelter of some kind. A high framework covered with movable canvas will ward off a good deal of cold. But whatever means are taken to ensure the safety of the plants it should be prepared ready to hand, so that it can be used at a short notice. It is within the mark to say that Chrysanthemums are now much overdone in many gardens. Many growers propagate and grow on a far larger stock than they have house-room for when the plants come to be taken indoors, the result being that they are huddled together in a way that injures the foliage through its not getting enough light, and also interferes with their blooming, to say nothing of the numbers of other plants of a more permanent character that have to be crowded together in a way that does them much harm. The outcome of this is that whilst the Chrysanthemums are in flower there is an abundance of bloom with an absence of variety, and when the flowering season is past and they are cleared out, there is a scarcity of things to take their place. It is better to confine the cultivation of any particular plant within reasonable limits.

Mignonette.—A little more seed may yet be sown, the plants from which will come into bloom after the earliest are over. Sow in small pots, putting enough seeds in each to make sure of a crop. When the plants come up thin them out to three or four, which from this sowing will be better than reducing them to a single plant. The earliest sown should be thinned out, leaving only one, and when this is from 2 inches to 3 inches high, pinch out the point so as to cause it to branch out. Give plenty of air and keep the plants close to the glass. T. B.

Fuchsia Countess of Aberdeen.—When so many Fuchsias are put into commerce as new that differ but little if at all from plenty of others in cultivation, it is quite a relief to note one that is at least perfectly distinct, though it is certainly not so showy as many others, being, in fact, an almost pure white-flowered variety. I allude to Countess of Aberdeen which has only been sent out this year, and therefore is as yet little known. This has the foliage of those with white sepals, being indeed in leaf a good deal like a well-known variety, Lady Heytesbury, while the flowers, which are freely produced, are rather small, the tube being short and the sepals prettily reflexed. These last, which are almost white when first expanded, become afterwards of a pale rose colour, while the corolla is pure white. It is, in fact, the nearest approach to an entirely white-flowered Fuchsia that we have in cultivation; indeed, I have seen it described as pure white, which it certainly is not.—H. P.

Ipomæa rubro-cærulea.—As a climber for a stove or intermediate house this has much to recommend it; its cultural requirements are simple, and it may be depended upon to flower, added to which the colour of its blossoms is very distinct from that of any other subjects now in bloom. It is a free-growing Convolvulus-like climber; indeed, the blossoms bear a certain amount of resemblance to those of the well-known C. major, but their colour is an almost indescribable shade of pale blue, which changes before they drop to a reddish tint. Given good root room it will cover considerable space, and it is a first-rate plant for draping a roof, especially if there are rods or some similar support for it, as it will depend therefrom in graceful festoons, and thus display its bright-coloured blossoms to the greatest advantage. Though it attains a considerable size, this Ipomæa may be kept within quite a limited space, for I have sown seed of it in the spring, and when the plants have been large enough to pot off I have put two in a small pot (one on either side), and when these were filled with roots the next shift was into pots 6 inches in diameter. Some twiggy branches were then stuck into the pots and the plants allowed to ramble at will, the result being that they formed quite masses of foliage and flowered very freely. Grown in this way they could be shifted about, and were then available for purposes where those trained on the roof could not be used. Seed of this plant is easily obtained and germinates freely, while the principal care to be exercised in its culture is to keep the leaves free from red spider during the summer months, for they are liable to be attacked by this pest if the weather is hot and dry.—H. P.

Lantanas in flower.—Where a greenhouse has to be kept gay with flowers throughout the year a batch of Lantanas just coming into bloom is very attractive at this season, for many plants that have contributed their share to the embellishment of the structure for a considerable period are past their best. A group or two of Lantanas imparts an additional feature. They are of very easy culture, and if required to have them in bloom at this season the cuttings must be struck early in the spring and the plants kept in a free-growing condition afterwards. During the summer they will require a little protection from the full rays of the sun, as if too much exposed the foliage is apt to become infested with red spider, which will cause many of the leaves to turn yellow and drop. Generally speaking, the treatment required by Lantanas is about the same as that usually given to Fuchsias. If planted out during the summer they both grow and flower freely, but in lifting in the autumn many of the leaves fall, thus giving the plants rather a naked appearance, and proving that the better way is to grow them entirely in pots. Cuttings strike freely enough if taken anywhere during the growing season.—T.

Orchids.

W. H. Gower.

CATTLEYA CALUMMATA.

This hybrid Cattleya, raised in France by M. Alfred Bleu, is at once a beautiful and showy plant, and one that will hand its raiser's name down to posterity. When visiting his place in Paris a short time back, I was much surprised at the enormous quantity of hybrid seedlings he possessed, and had I had the pleasure to have found him at home, I in all probability would have received information worthy of recording in the pages of The Garden. There were no seedlings of his in flower at the time of my visit. The present Cattleya, however, is distributed in this country, and several plants of this variety were dispersed from Mr. Lee's sale during the present summer season, so that its beauties are likely to become more widely known. It is a hybrid between C. Aclandiæ and C. intermedia, resembling the first-named in its habit of growth and size of flower, and it requires about the same treatment as C. Aclandiæ for its successful management. As far as I can judge of this plant, it is one of the few hybrid Orchids which has not a vigorous constitution, and it requires careful handling to keep it healthy. It grows some 6 inches or more high, the bulbs bearing a pair of leaves which much resemble those of C. intermedia; the scape is usually two-flowered, each flower being from 4 inches to 4½ inches across; the ground colour of the sepals and petals white, slightly tinged with a purple hue, and profusely marked with oblong spots of magenta-purple; lip three-lobed, the side lobes reflexed, meeting over the column at the base, and these are of a soft rosy purple, the middle lobe large, flat, and emarginate, and wholly rich deep magenta. It is a superb small-growing plant, producing its showy flowers in the autumn, and well deserves the attention of all, whether amateurs or connoisseurs of Orchids.

Pilumna nobilis.—This white-flowered, very fragrant Orchid is now flowering, and should receive more attention from Orchid growers than has hitherto been accorded it. It is a native of Columbia, and thrives under quite cool treatment. The

scapes bear from three to four large flowers, which are pure white, saving a stain of orange-yellow in the throat. It is now flowering in many collections round London.

Cattleya aurea.—A very fine form of this beautiful Cattleya was flowering recently in Mr. Williams' nursery at Holloway. The sepals and petals are wholly deep primrose-yellow. The management of this beautiful type of autumn-flowering Cattleyas is evidently becoming better understood than formerly, and they are so thoroughly distinct that they form quite a feature in the Orchid houses at this season. Good exposure to the sun and not too much moisture at the roots appear to be their chief requirements.

Vanda Sanderiana.—This plant still remains very rare, and it appears to be very difficult to establish. It is really one of the most remarkable plants in the whole Orchid family, some varieties, however, being far in advance of others. One of the most superb forms I have ever seen was in Mr. Cobb's collection at Sydenham. The flowers were large, and the colours so intensely bright and sparkling as to quite astonish me. We surely cannot have anything more startling in the way of a Vanda than this superb species, but yet it is so different from all other Vandas, that it is only reasonable to suppose there are others of the same set. It appears to require strong heat and moisture.—W. H. G.

Cattleya Gaskelliana.—I cannot myself, neither do I think many of your readers will, endorse Mr. Iggulden's statement in The Garden of Sept. 15 (p. 247) in his notes upon August-flowering Orchids, in which he refers to this plant as "being a marked improvement upon the old C. labiata." I willingly acknowledge it to be an extremely useful plant, as it blooms at a most exceptional time, and continues to keep the Orchid houses gay during their dullest season. But amongst the numerous Cattleyas we now have, it produces more bad varieties than any other that I know, and the very best form of it that I have ever seen was far inferior to the old C. labiata, the plant upon which Lindley founded the genus. This Cattleya is exceedingly rare, and to this day eludes the vigilant eyes of all the collectors who search for it in Brazil. The more I see of this plant the more I feel persuaded I am correct in saying that C. Gaskelliana is only another name for the plant that used to be called the summer-flowering labiata or labiata pallida. In another portion of the same article Mr. Iggulden, alluding to the Golden Chain Orchid (Dendrochilum filiforme), says, "though not at all showy, it is yet worthy of general culture." I call this the most scant praise possible to give a plant which is usually looked upon as one of the most elegant and beautiful of the whole Orchid race when the specimens are of fair size.—W. H. G.

SHORT NOTES.—ORCHIDS.

Saccolabium gemmatum.—This is a slender-growing species, possessing a charm peculiarly its own, and is now in great beauty in the Kew collection. The spike is branched several times and the racemes are many flowered, the flowers being small and of a delicate mauve-purple and white.

Vandas.—Plants of this genus can always be found in flower at Holloway, and just at present two varieties are conspicuous, viz., tricolor insignis and Hrubyana, two very fine and handsome forms, which should receive the attention of lovers of these distichous-leaved Orchids, and their numbers are happily on the increase.

Cattleya gigas Sanderiana.—This variety is now flowering very profusely in Mr. Horsman's nursery at Marks Tey, thus showing what a superb plant this is for the autumn. It also further bears out my previous statements that it is not the very robust growers that flower the best. Mr. Horsman's plants are all bearing very large flowers on quite medium-sized bulbs.

Aerides quinquevulnerum.—This is amongst the best of this beautiful family of the odoratum type, the waxy white flowers being tipped and spotted with rosy purple and crimson. It is somewhat slow growing. I recently noted some good examples flowering in the Holloway nursery. It should be sought after by all desiring autumn-blooming Orchids.—W. H. G.

Oncidium macranthum Williamsianum.—From Mr. Cowley, gardener to Mr. Tautz, of Studley House, Shepherd's Bush, comes flowers of this rich variety. Not only are the whole flowers of a very rich yellow, but each petal is stained with a large blotch of rich Indian purple, which renders it distinct and very showy, adding materially to its beauty. Like the typical plant, it is a native of New Grenada, and requires the coolest of treatment.

Dendrobium bigibbum. — This beautiful species, I hear from residents near its native habitat, is becoming rare and difficult to collect; it therefore behoves those who possess it to hold it of some value, or it may become extinct. There is no doubt but colonisation drives out many valuable plants, and this is likely to be the case with this species, together with the assistance of the collectors for the European markets.—W. H. G.

Sobralia xantholeuca.—A flower of this handsome and rare plant was recently sent by Mr. Whillans from the gardens of Blenheim, the seat of the Duke of Marlborough. It is not the darkest form, but, as Mr. Whillans observed, some would prefer this. Its growth resembles that of the macrantha section, and it blooms when about 18 inches in height. The flowers are large, of a more or less deep shade of sulphur-yellow, the lip frilled, deeper yellow, but in the variety before us the lip is paler at the apex. Although exceedingly rare, there is a magnificent plant in the Baron Schrœder collection. I also noted a fine variety recently as being in bloom with the Comte de Germiny, at Gouville, in Normandy, and one or two others comprise the most of the known stock of this species. The introduction of such fine species must tend to make this genus again popular, for although the individual flowers are not long-lived, the succession is rapid and continues for months. A coloured illustration of this superb plant was given in The Garden for December 9, 1882.—W. H. G.

Aeranthus grandiflora.—A fine flower of this rare plant was recently received from the collection of Mr. Wischhusen, of Wood Green, and although it cannot lay claim to gaudy colours, the flowers are exceedingly curious and full of interest. The generic name is variously spelt, thus it is sometimes written Aeranthus and Aeranthes. This genus is said to obtain its chief distinction from Angræcum in the flower being jointed at the foot of the column. The leaves are arranged in a two-ranked manner; they are strap-shaped and unequally two-lobed at the apex, sheathing at the base, and, saving in not appearing to rise upon a stem, as in the majority of Angræcums, this Aeranthus is like those plants in habit. The scape is slender and bears numerous flowers, but only one is expanded upon each scape at the same time. These flowers remind one of those of Bolbophyllum Lobbi in shape. They measure upwards of 2 inches across and are very pellucid, colour yellowish white, the tail-like ends of the sepals and petals as well as the front portion of the lip being tawny yellow. It is a native of Madagascar, but very rare in cultivation, and it is many years since I saw it in flower.—W. H. G.

Phalænopsis amabilis.—In a small collection of Orchids I have several Phalænopsids, one of them being P. amabilis; the leaves are deep green, and measure from 10 inches to 15 inches in length, and from 3½ inches to 4 inches in width. The plant carried a flower-spike last April bearing a raceme of fifty-two flowers, each measuring 3¼ inches in diameter. During the summer months it made two good leaves, and now it has a flower-spike bearing a raceme of forty-six flowers (fully expanded), the flowers being as good as those produced last April. Last February, the compost in which it had formerly been placed became sour and the oaken (home made) basket badly decayed. I carefully took out the plant and gave its roots a thorough good syringing, and then placed it back in another oaken basket, which had been made some months previous, and placed it in a large tank of soft water, so as to get the pores well filled with moisture. The compost I used was good fibrous peat, a few lumps of charcoal about the size of a walnut, and worked in plenty of ballast burnt from yellow clay, and dressed over the surface with fresh Sphagnum which I keep growing. I give liberal supplies of soft water when the plant is in full growth, but rather sparing the other part of the year, especially through the short dull days, when it goes three or four weeks without water. The plant is growing in a stove, and is placed about 4 feet from the glass. I find a thin tiffany sufficient shading through the summer, but no shade is given in winter. The temperature of the stove is 70° to 75° by night, and 80° to 85° by day, through the summer; and 60° to 65° by night, and 70° to 75° by day, through the winter. I have enclosed one flower of the plant in question.—W. Coates, *Brentry House.*

*** A fine bloom of this lovely Phalænopsis.—Ed.

Garden Flora.

PLATE 669.

OLD GARDEN TULIPS.

(with coloured plate.*)

Carolus Clusius, who was one of the most noted of the plant-collecting rhizomatists of the 16th century, seems to have done a good deal towards making Tulips popular in the gardens of Belgium and Holland. Not only did he collect some of the showy kinds of Europe with his own hands, but he also corresponded with other bulb growers in Italy and elsewhere, and so, doubtless, received from them the native Tulips of that country. In his celebrated work, published in 1601 in folio, several species are figured and described, but at an earlier date Gerard, in his "Herbal" of 1597, tells us that these flowers, both of the early and late flowering sections, were pretty common in English gardens. Lobel, Parkinson, Rea—indeed, nearly all the early writers on gardens and garden flowers—mention Tulips with delight, and many are figured in the early florilegia, such as De Bry's, Besler's Hort. Eystettensis, and in Swertius' book. Clusius, however, may be regarded as one of the foster-fathers of Tulip culture in Holland. After many misadventures and vicissitudes he finally settled down at Leyden, the then great university town of the Netherlands, and from that day, even if not before, Leyden has been famous for its Tulips of many kinds. No bedding-out in our gardens can give the slightest idea of the colour-splendour of a Dutch Tulip farm in April, when the early blooming sorts, used here for forcing or spring bedding, are in bloom. There you may see solid masses of pure self-coloured kinds, varying from a few rods to two or three acres in extent. An acre of Vermilion Brilliant, or of Chrysolora, or of Artus, of Cottage Maid, of the Tournesols in variety, or of many other forms equally effective, is a sight not easily forgotten. Great care is taken by the best Dutch growers in selecting good Tulip grounds, for a soil in every way fitted for other bulbs, the Hyacinth, for example, will not suit Tulips nearly so well. As you leave the Hague and pass through the broad meadows in the direction of the capital, the eye catches the brilliant glints of the Tulips here and there, and in all lights and aspects they are very beautiful. But with these early-flowering varieties we have now nothing to do whatever, our plate representing late-blooming forms, by some botanists supposed to have been derived from Tulipa Gesneriana, a native of Florence and

* Drawn for The Garden by H. G. Moon, from flowers sent from the College Gardens, Dublin. Lithographed and printed by Guillaume Severeyns.



OLD GARDEN TULIPS

other parts of Italy. No matter whence these late-blooming, or florists' Tulips, as they are commonly called, were derived, they are all extremely graceful in leafage and general habit of growth; they are extremely variable in form and especially in colour, and to the lovers of hardy old-fashioned flowers they are peculiarly valuable on account of their hardihood and vigorous constitution. Some of the species—our own native wood Tulip (T. sylvestris), for example—are shy-flowering; even the gorgeous T. Greigi, introduced by Regel, although hardy, does not increase with facility. Again, on ordinary soils, unless taken up after blooming and replanted at considerable trouble and expense, the early flowering varieties soon die out in English gardens; but these old late-blooming varieties live on for years and increase rapidly, especially on light, well-drained soils. Here on our deep, light Dublin alluvium they thrive perfectly, and are very beautiful after the Daffodils fade in May or early in June. For some years past I have obtained bulbs from many sources, and now enjoy the sight of many different kinds every spring. Along with the varieties with white and yellow grounds we also grow T. Gesneriana, T. fulgens, and two very beautiful self yellow forms, for which we have no names.

Some of the beauty and grace of these old garden Tulips may be seen from the accompanying plate, which also shows how well these flowers bear carriage, since they made the journey from Dublin to London before their portraits were made. None of these old garden kinds are quite up to the florist's standard, perhaps, but when we consider that they live and thrive for years on most soils, and yield flowers by the armful for decorative uses, it will be seen how useful they are, or may be, to the gardener.

As I have said, the early-flowering dwarf Tulips require replanting every year, and I believe Mr. Walker so cultivated them on his bulb farm at Ham, where I last spring saw beds of Tulips, hundreds of yards in length, as healthy, as vigorous, and free-flowering as if in a Dutch garden. Mr. Walker cuts most of his flowers for market, and this at once relieves the bulb, and enables it to form and ripen up a better blooming centre for the following year. This is a point of some importance, and gardeners, who sometimes feel a little aggrieved when their flowers are required for decoration, may console themselves that the bulb is likely to be all the better for it, and to flower more strongly the following year.

I have said that these old late Tulips will thrive for years if left in the ground, but they increase faster, and I believe also flower more strongly if replanted every year. They may be taken up as soon as the leaves fade, and laid thinly on a mat in a cool shed to dry, after which the roots can be stored in boxes of dry sand until September, which is the best time to replant them. We replant at 4 inches deep, covering each bulb with coarse sand. The small bulbs may be placed in reserve beds or lines, and it will strengthen them if their flower-buds be removed as soon as they appear.

The technical names under which these Tulips now appear in catalogues are as "Fine mixed, all colours of bizarres, byblœmens, and roses," and they are very cheap to purchase by the hundred or the thousand. With them may be associated the so-called Parrot Tulips, which, while of the same habit of growth, bear enormously large flowers, with lobed, fringed, or laciniated petals. Under artificial light and in a warm room these Tulips expand their gashed petals, and remind one of some outlandish or tropical blossoms rather than as being simply Tulips from the open ground.

F. W. Burbidge.

Fruit Garden.

FRUIT NOTES FROM EASTNOR.

There is something characteristic about the Peaches at Eastnor. The vigour of the trees which is maintained in the oldest representatives, the large healthy foliage, and above all the size and colour of the fruit strike one as something unusual. Evidently the trees enjoy the calcareous loam of the neighbourhood, the growth being strong, without grossness, and I noticed shoots of this season's growth in the early houses 6 feet long, short-jointed and well ripened up to the points. The foliage is free from insect pests, and hangs down on the under sides of the trees like a thin canopy of green. Most of the fruits under glass had been gathered at the time of my visit, and the roots were undergoing their annual pruning. They were also being supplied with a little fresh compost, as this operation is necessary to keep the trees within bounds. Besides the regular Peach houses, there are several impromptu structures of various shapes and sizes, some of them containing but one tree. These houses have been made with old lights and boards and to accommodate some duplicate tree which has been removed from the other houses, and being too good to destroy, temporary protection has been afforded it. As the trees increased in size this has been replaced by a more substantial structure. Some of the finest Peaches and Nectarines are now picked from these houses. Although most of the houses were cleared of fruit, the trees outside were carrying some grand crops on the point of ripening. On account of the present unfavourable season they will not compare with the produce of last year, when the trees were loaded with highly coloured fruits of large size. Nevertheless, the appearance of the walls when I saw them demonstrated what can be done with the Peach outside by careful attention to every detail of culture, even in this, one of the worst of seasons.

The principal wall contains seven standard trees on 3-feet stems, each one regularly trained, and the fruit evenly disposed over the surface from the ground to the top of the wall. The largest tree, a Stirling Castle Peach, covers a space of 30 feet by 12 feet, on which I counted nine score of fruits. The next, Grosse Mignonne, extending 40 feet, and about 12 feet high, carried over 200 fruits. The other kinds growing on this wall are Alexandra Noblesse, Lord Napier, Prince of Wales, and Dymond.

In another part of the garden I noticed a fine tree of Royal George, crimson with fruit. Walburton Admirable, A Bec, and Barrington were also conspicuous as large trees, as they bore grand crops of fruit. As an instance of what can be accomplished with the assistance of a handy man, a low stone wall with a west aspect has been faced with boards, at the same time increasing the height with the same material, thus converting it into an admirable site for Peaches. By planting sorts which ripen early in the season, such as A Bec, Hale's Early, &c., Mr. Coleman has every confidence in being able to produce fruit nearly equal to that grown on a south aspect. Certainly the fine young trees which are fast covering the space allotted to them give every promise of fulfilling his expectations. This success with the Peach on outside walls is not secured without the exercise of considerable skill and attention on the part of the cultivator, as the position of the garden at Eastnor is anything but favourable to the culture of this fruit, as it is between hills and exposed to late spring frosts, also to a cold, damp atmosphere in autumn.

A good crop of Melons, when the plants are in luxuriant health, always calls for admiration, and such a house of plants may be seen at Eastnor. The plants, forty in number, were growing in pots plunged in a bed of leaves, and each carried a pair of fruits. Some difficulty was experienced in obtaining an even set during the dull, sunless weather, but with one or two exceptions the fruits were even and swelling freely. The fruits of the variety Golden Perfection were on the point of ripening. This old kind, when obtained true, is now one of the best, the fruit being of medium size, handsome in appearance, and of first-class flavour. Another smaller house was filled with Eastnor Castle, some of the original stock of this fine old Melon, which, in common with other old and good sorts, has become so mixed up with other varieties that it is seldom obtained in its true character. The fruit is above medium size, oblong, very hairy, and beautifully netted, and those who have tasted a well-ripened, luscious fruit of this variety do not easily forget its distinct flavour.

Of Grapes, the variety Black Morocco is seldom met with, but as seen growing here it is quite equal to the popular kinds of the present day in appearance, and far superior to many of them in flavour. It enjoys the temperature of the Muscat house, where no difficulty is experienced in setting its fruit, and the colour of its large, handsome bunches leaves nothing to be desired. Madresfield Court, in the same house, and planted in a raised border on the north side—the house being a three-quarter span—is seen here in its best condition, without a cracked berry, and the colour as black as jet. But, after all, there is nothing to compare with the Black Hamburgh, and the old Vine at Eastnor is still able to produce some of the best examples of this variety in the country. When looking at the grand bunches hanging on this old Vine, one cannot help noticing the superiority of the Black Hamburgh over other black Grapes. The size of the bunches is not extraordinary, but the berries are unusually large and covered with a dense bloom. The quality may well be pronounced first-class, being of that rich vinous flavour so much appreciated by all lovers of good Grapes.

On many Apple trees the fruit has required considerable thinning. I particularly noticed some handsome pyramid trees of Echlinville Seedling carrying very heavy crops of fine fruit. This variety very rarely misses a full crop, and is, moreover, a first-class Apple in other respects. Some large spreading trees of Blenheim Orange in one of the orchards are heavily laden with fruit, the branches being borne to the ground by its weight. This Apple is often objected to by planters on account of its not bearing until the trees have grown to a large size; but to those who can afford to wait no better kind can be invested in, provided the locality is suitable.

Hindlip. A. Barker.

Currants on north walls.—When looking round a small garden recently I was somewhat surprised to see an excellent crop of Red and White Currants on a north wall. This is nothing unusual in dry seasons, as I have preserved them thus until the first week in October, and even later, but considering the amount of rain we have had since the Currant season commenced, it is rather an uncommon occurrence. The fruit of course, it is needless to mention, was protected from the birds by means

of netting. Judging from the appearance of the fruit, and provided the weather remains fairly good, it is probable that it will keep good for some weeks. It may not be suitable for dessert, though for tarts, &c., it would be most useful and acceptable. When such is the case it is well worth paying attention to the matter by utilising portions of north walls for this purpose. At one large establishment in the north of England, walls upwards of 200 yards in length are used thus, and the amount of Currants, both Red and White, gathered therefrom is surprising. As regards size of berry and flavour, they far excel any gathered from the ordinary bushes. The trees of course are trained perpendicularly, or on the cordon system, as by this means a greater weight of fruit can be obtained than when trained on the fan or horizontal method. As soon as the fruit shows signs of ripening then old fishing nets are placed over the trees the entire length of the walls, and by this means a plentiful supply of Currants is obtainable until very late in the autumn. One point, however, is most essential, especially in wet seasons, and that is the thinning out of the clusters. Such a practice may appear absurd to many, though I have seen it carried out with the best results. Most people acquainted with the subject are probably aware that in wet seasons, the berries if crowded, such as Currants generally are when well grown, will rot wholesale, so much so that frequently the best part of the crop is thus lost; therefore, by judiciously thinning the clusters where necessary, this misfortune is avoided.—C. Collins.

Fine-foliaged Vines—Several of the North American Vines are among the most ornamental of rapid-growing climbers, and of these the Fox Grape (Vitis Labrusca) may be taken as a type. It is very vigorous in growth and has heart-shaped leaves. In autumn the decaying foliage sometimes changes to a bright crimson colour. Vines of this class are very ornamental when planted in such a way that their more vigorous branches can be trained into neighbouring trees, as once they take possession in this manner they grow away very rapidly, provided the roots are in a suitable soil. In planting climbers for such a purpose the mistake is often made of putting them too near the trunk of the tree that they are required to climb up, and consequently they are deprived of nearly all nourishment by the tree itself; whereas, if planted just beyond the radius of branches and encouraged to climb by the help of a friendly branch, they will grow much more rapidly. The cut-leaved variety of the common Grape is also another very ornamental climber, and to this may be added the Claret Vine (purpurea), which from early autumn until the leaves fall forms such an imposing feature. The form of V. heterophylla, known as humulifolia, has, probably owing to the sunless summer, not borne any fruit this season.—T.

Apple Stirling Castle.—This is the variety that all who are interested in Apple culture should cultivate. At Gunnersbury Park there are on the Doucin stock a few trees of it about 9 feet high and as much through, the branches of which are literally breaking down with the weight of fruit upon them, and such fruit, too, for, numerous as they are, they are large, handsome, and even in size. Mr. Roberts has had to support the trees all round, and he is enthusiastic in his praise of this Apple as a reliable bearer and of the highest quality. Mr. George Bunyard states that it bears too freely to support itself as a standard, and therefore it is best to plant it in the bush form. Amateur fruit cultivators who have small gardens should plant a few trees of this variety on the French Paradise stock and a few on the free Doucin stock, and they will not have occasion to regret that they followed this advice. Echlinville Seedling on the same kind of tree is also very fine, but the crop is not so numerous as in the case of Stirling Castle. Other fine October Apples are Lane's Prince Albert, Cox's Pomona, Emperor Alexander, Golden Spire, Lord Grosvenor, Duchess of Oldenburg in a late season, and The Queen (Saltmarsh), very fine indeed. With such a list of prime varieties growers can afford to weed out some of the inferior ones. Planters who know what they are about no longer commit the mistake of planting a larger number of varieties of Apples, as their fathers did.—R. D.

SOME NEWER APPLES.

Whilst we may make our selections of acknowledged or standard kinds of Apples, the cry is of new ones, "Still they come." There is no more of finality about Apples than there is about anything else that is existent; and although but two or three fresh kinds may be put into commerce yearly, yet at that pace a revolution in sorts as well as in selections may be worked in a quarter of a century. The best place in which to study the qualities of new Apples is in a nursery where there is good culture and a quantity of any one kind is grown. Still farther, if we see not merely one tree, but a hundred, producing fine fruits at an early stage, and these fruits of excellent quality, we have good reason for assuming that a reliable early fruiting, or at least permanently prolific, kind is before us. Examples of this sort are all the more noteworthy when seen during a comparatively sparse Apple season, and may well lead to the inference that at least in the direction of productiveness raisers of Apples are making progress. Now the trade will divide their Apples under the headings of dessert and kitchen, or cooking. Whatever may be said to the contrary, it does seem as if some such division was essential for the instruction of those who do not know Apples well. Probably the majority of those who do know them would, on hearing of any new variety, inquire whether it were for dessert or kitchen use. It is very obvious, also, that whilst we have some Apples which are equally good for either purpose, there are others arising from size or some other quality which may not be so placed, but are found to be valuable either for the dessert, and especially early in the season, or for cooking especially late in the season. However valuable Lords Suffield or Grosvenor may be for cooking, we could hardly place them on the dessert table, except when baked; whilst Yellow Ingestrie or Kerry Pippin would be of little value in the kitchen. Now of acknowledged dessert kinds, two handsome, early, and very prolific new ones are Beauty of Bath (Cooling) and Lady Sudeley (Bunyard). The latter produces perhaps the larger fruit, both are richly coloured, and in addition to being valuable garden varieties are certain to become popular in the market. Successional to these, for it is ready in October, is Okers, a Swedish variety, the fruit resembling those of the Dartmouth Crab, but finer, richly coloured, and of excellent flavour. This promises to make a high class dessert Apple. Not very common yet are Mr. Gladstone and Colonel Vaughan, though now some time in commerce. The first-named is an early September Apple, and the latter is at its best about the end of the month. Both are wonderfully rich coloured and very free croppers, and both when in fruit repay cultivation in the rich colouring they give in gardens apart from dessert or market value. For colour production solely it will be difficult to excel Mr. Gladstone, Duchess Favourite, Worcester Pearmain, Colonel Vaughan, Scarlet Nonpareil, and Baumann's Reinette, the latter a German Apple of fine form, rich colour, and excellent flavour. The Canadian Wealthy is another handsome, rich coloured Apple, flesh soft and very pleasant eating. It is also a capital cropper. Amongst later and really fine keeping Apples, Tyler's Kernel, not so large, but closely resembling conical samples of the Blenheim Pippin, is of first-rate quality, quite of the Blenheim flavour, and crops early, and Hormead's Pearmain, a very handsome, free-bearing kind, the fruits of good size, rounded, and also of the best quality. The list thus given serves to show that the table section of Apples is a growing one.

Turning to the larger cooking varieties, a capital market variety and a great improvement on the old Manks Codlin is Graham's Royal Jubilee, a distinct and very prolific Apple. A really grand Apple is Bismarck, introduced from Australia, the fruits roundish, conical, richly coloured, and carrying a dense bloom. This is a wonderful cropper; indeed, it is something of an Apple wonder and sure to become a very popular variety. Laxton's Schoolmaster is an early and a prolific fruiter, the fruits fine and handsome. Sandringham and Saltmarsh's Queen are two very fine cooking Apples, and both very admirable croppers; indeed, in respect of cropping qualities, most of the new Apples seem to be specially marked. A grand Apple is Grenadier, really a robust Lord Suffield, and producing firmer fruits. Lords Grosvenor and Derby are none too common yet, but both are great croppers, the fruits being very fine, whilst, perhaps, one of the very finest fruiters in both senses is Pott's Seedling, an Apple which should be planted largely in the form of bush trees for market work. Lane's Prince Albert is now becoming well known, but whilst a great cropper and good keeper yet will not make standard trees, as it is an awkward grower. Pomona is a fine and solid-fleshed Codlin, well suited for northern growth; and a first-rate Apple is Histon Favourite, with fruits not unlike those of Stirling Castle, but keeping remarkably well. In this section Gascoigne's Scarlet Seedling, in addition to being a wonderful cropper, gives rich colour; and yet another rich-coloured Apple which crops freely and keeps well is Tibbett's Incomparable. These comprise but some of the newer or less known cooking Apples, and show that the field of selection is constantly widening. A. D.

PEACH TREES IN DORDOGNE IN 1888.

As a result of a winter which was one of the most irregular as regards temperature, passing, as may be remembered, alternately and without intermediate stages from rain to severe frost and from severe frost to snow, our outdoor Peach trees presented a most dilapidated appearance when vegetation commenced. The cellular disorganisation, brought on by the frosts, and especially by the continuance of snow on the branches, was so complete that some of these trees, which were from twelve to fifteen years old, did not exhibit the least sign of life in spring. I am aware that in this mortality some distinguished arboriculturists have only seen the effects of the leaf-disease (*la cloque*), which is caused by an insect named Taphrina deformans; but having traced the progress of this malady, which is very general and widely spread in our districts, I cannot assent to that opinion, for the following reasons: We know that the Peach genus, properly so called, is (speaking pomologically) composed of five very distinct groups, which may be thus tabulated:—

1. The freestone Peaches, known also as "females."
2. The clingstone Peaches, more frequently called "males" in the south.
3. Nectarines, both freestone and clingstone.
4. Freestone and clingstone Peaches which have the flesh of a vinous-purple colour.
5. Lastly, the American freestone and clingstone Peaches, a group which we have now to reckon with.

Now, following the order of these groups, I have proved that the Peaches of the first group are much more sensitive of cold than those of the other groups, and notably so in the varieties named Pourprée hâtive, Belle de Vitry, Belle-bausse, Belle de Douay, Grosse Mignonne hâtive, Reine des Vergers, Téton de Vénus, Belle Conquête, Bon Ouvrier, &c.; while our yellow-fleshed Madeleine, the Royale hâtive de Bordeaux, and our Peach Vigène (the last two varieties also yellow-fleshed), which are, no doubt, more localised, have suffered much less.

The group of the clingstone or male Peaches, which is partly composed of the varieties named Pavie de Pomponne, Pavie blanc, Pavie rouge, Pavie royal, Pavie jaune, Persèque or Mirlicoton, Pavie précoce, de la Saint Martin, &c., may here be considered the most capable of resisting frost, snow, and all kinds of bad weather, as trees of the varieties which I have named appear to have hardly felt any of the effects of these atmospheric changes.

In the group of the Nectarines, the varieties named Brugnon jaune femelle, Brugnon rouge femelle, and Brugnon blanc femelle have been more sorely tried and more severely frost-stricken in their

organism than the clingstone varieties; still not so much so as to endanger their existence. This group may, therefore, be considered sufficiently hardy. But it is not so with the group of the vinous-purple-fleshed Peaches, which has suffered severely, especially the freestone varieties.

If we pass now to the group properly called American, the fact must be recognised that, while the variety named Amsden's is the hardiest of the group, not a single tree of this variety in my collection having suffered,* it is not so with the varieties named Baron Dufour, Saint Assicle, Early Victoria, and Précoce argentée, which suffered rather severely; while Précoce de Halle and Early Rivers appeared to be none the worse.

From the foregoing, it may be seen that the mortality amongst Peach trees, being in proportion to the greater or less robustness of constitution possessed by this or that group, cannot be justly attributed to any other cause than the effects of frost. The leaf-disease already mentioned could not have contributed to this mortality, as its ravages are confined to the herbaceous parts of the Peach tree. All our Peach trees, however, were dead as a door-nail before there was a sign of leaf-growth. In my opinion the information which arboriculturists possess on the causes and effects of this leaf-disease is only vague and uncertain.—*Revue Horticole.*

FRUITS UNDER GLASS.

Pines.

September having proved the finest month in the whole year, Pines in all stages have greatly improved, and now bid fair to mature a very satisfactory growth. Late fruiters, at one time almost hopeless, have made wonderful progress, and should this brilliant weather continue a few weeks longer, Cayennes and Rothschilds will not be so far behind as we anticipated. If got together at the proper time, and replunged in a sweet bottom-heat of 80° to 85°, with their crowns almost touching the glass, timely attention to shutting up, with sun-heat and plenty of atmospheric moisture, whilst swelling the pips to a good size, will ensure a high tropical temperature for a few hours at least, and dry fire-heat for the present will be unnecessary. Aim at a night temperature of 70°, give air at 76°, run up to 85°, and close in time for the mercury to touch 90°. Discontinue overhead syringing, as this practice increases the size of the crowns, but moisten the surface of the bed and the walls with clear diluted liquid or soot-water; fill the evaporating pans with the same, and pass a little into the axils of the lower leaves to prevent the stem-roots from suffering. Watering, as a matter of course, will be less frequent, especially where the bed is composed of moist fermenting leaves, but clear liquid in a diluted form and in plenty must be given when the plants require it. If the most forward

Queens intended for early starting have been placed in their resting quarters, care must be taken that the bottom-heat does not sink too fast, otherwise a sudden check may injure the roots, when deformed fruit will most certainly follow. A gradual decline from 85° in August to 75° by the end of October, with an occasional watering with weak guano water, should let them down without producing an injurious check or destroying a single root, but lower than this they should not go, as fine shows depend upon the number of healthy roots which survive the winter. The second batch which will make a growth before they start may be kept somewhat warmer and moister for the present; in fact, the house being light and the plants close to the glass, it is better to keep the roots steadily progressing than to run the slightest risk in the opposite direction. Some of the plants may not start quite so early, but stocks being limited, this gradual succession in most places will be found advantageous.

Successions still growing freely in recently renovated beds must have liberal ventilation through the early part of fine days, but they will stand a sharp heat after the house or pit is closed, always provided the walls and other surfaces are liberally moistened, and rest is secured by a chink of air through the night. Dry fire-heat is the greatest bane through the winter months, especially when it is under as well as above the surface of the bed; hence the advisability of keeping the plunging material moist and provising a covering of some kind, be it never so thin, for preventing the escape of warm vapour. If blinds on rollers can be used, frigi domo will be found an excellent non-conductor, or, lacking the convenience for fixing the rollers, sheets of oiled canvas made to fit the pits, with short strings for securing them through the night, will answer nearly, if not quite as well. In frosty weather, when blinds or rollers give some trouble, oiled sheets are best, as they can be drawn off at daylight and folded up when thawed and pliable.

Young stock.—If suckers in manure pits and frames have not been been moved, no time should be lost in getting them transferred to light span-roofed pits, through which flow and return pipes pass, no matter how far distant from the boiler. A sharp bottom-heat from fermenting material alone answers every purpose in summer; indeed the best of plants are manufactured in these compact structures, but the time comes when irregular ventilation on the one hand, and an excess of moisture on the other, result in a soft, elongated condition from which they never recover. Light being such an important element in every compartment, it will be necessary to keep the glass scrupulously clean by frequent washing, the walls sweet and free from vegetation by the use of quicklime, and the kerbs clear of plants likely to produce shade, or, worse still, to stock the legitimate occupants with troublesome insects. If stools from which late Pines have been cut contain good suckers, or small ones even of choice varieties have not yet been disposed of, they may be divested of all their leaves and plunged close together in a warm pit, where they will take care of themselves through the winter.

Melons.

The brilliant weather which has for some time prevailed having been all that can be wished for their growth, the latest crops are now swelling and ripening fast, and the foliage, the best of all tests of quality, is excellent. An abundance of heat by day is one of the primary factors in the production of high-class fruit, but heat alone will not suffice, unless atmospheric moisture and a free circulation of fresh air are properly apportioned to that heat and the amount of light which the plants receive. We have at the present time three sets of Melons in various stages carrying fruit from the size of swans' eggs to ripening which have not received one drop of water through the syringe, and yet the foliage is fresh, leathery, and quite free from spider. The beds and walls have been regularly damped, the evaporating pans filled with diluted liquid, and water in abundance has been given to the roots without wetting the stems. This treatment has suited them admirably, but it is not a new departure brought about by dull, cold weather, as we treated them precisely the same last year when the sun was roasting up external vegetation, and the result, spiderless foliage, was equally satisfactory. Melons naturally revel in copious supplies of good warm liquid, but the past two seasons, especially that of 1887, have proved to my satisfaction that scores of growers come to grief through incessant syringing combined with faulty or fitful ventilation. It is now perhaps too late to make or mar late crops of fruit, but those who have not succeeded to their heart's content will yet do well to lay the syringe aside, at least so far as the foliage is concerned, and trust entirely to root watering round the rims of the pots and the extremities of the hills or ridges. Melons, like Grapes, subject to cracking should never feel the want of water until the fruit has attained full size, but once this stage is reached this element may be discontinued altogether or given in small quantities to prevent the foliage from flagging. Early on bright fine mornings is the best time to water, and, if at hand, some dry mulching may be placed over the surface to prevent evaporation. Another important point in the management of late Melons is timely manipulation of the laterals, which, by the way, should be pinched out the moment they are seen, first to prevent bleeding and canker, and second to admit of a free circulation of any warm air when solar influences are favourable. Every old leaf from base to summit must be carefully preserved, as the removal of one of these by knife or accident often opens the door to canker. The best remedy for this is dry quicklime and sulphur in equal parts, but prevention being better than cure, a free circulation of air warmed by passage under or between the hot-water pipes should be constantly passing over the surface of the bed. The temperature, it is needless to say, must be tropical, say 68° to 70° by night, 80° by day with air, and 90° after closing with sun heat. On cold nights and dull days these figures may not be touched, but if possible the mean of 80° should be approached, if only for a short time, once within the twenty-four hours. Plants in manure pits and frames must be kept as dry and warm as possible by frequent additions of fermenting material to the linings, by good covering through the night, and timely manipulation with the finger and thumb.

Cucumbers.

If fruit is in request, the most forward plants may now be allowed to set and carry a very light crop, but otherwise all shows must be removed for the present. If a flush of fruit in November and December can be avoided, the removal of the male as well as the female blossoms will tend considerably to the vigour of the plants and their fertility, when Cucumbers are more valuable after Christmas. If bottom-heat is obtained from hot-water pipes and fermenting material combined, the latter should be frequently turned and renovated with fresh supplies from the store; the pipes will then play a secondary or supplementary part, and dryness at the roots, often so baneful, will be avoided. Young plants from later sowings intended to succeed late Melons must be shifted on to prevent them becoming pot-bound, or, better still, they may be transferred at once to their fruiting pots, plunged for a time and finally arranged when the house is quite ready for them. A clean start being more than half the battle, Cucumbers should not follow Melons until the pits have been emptied and every part of the house has been thoroughly cleansed or scalded and the walls limewashed. Where the pits in modern Cucumber houses are not more than 18 inches in depth, about the same in width, and efficiently heated, many growers prefer planting out, but in all cases where there is not full command of bottom fire heat, or the pits are wide and deep, the pot system answers best, as each pot can be placed on a solid pedestal formed of dry bricks or 12-inch drain pipes, and the fermenting material can be turned and renovated at pleasure. Other advantages are a solid foundation, which precludes the possibility of sinking and strangling after the vines are tied to the trellis, as so often happens when the pots are plunged in decaying material; the freedom with which the roots can be fed with diluted liquid; and last, but not least, the maintenance of a continuous vapour both beneath the crocks when strong fire heat, often so baneful, is imperative. The best, or at any rate a suitable compost for winter plants is light rich turf, not too spongy, lime rubble in a rough state or charcoal, and a dash of bone-dust. Manure should not be used, as it forces a gross growth of vine and foliage which cannot be maintained throughout the winter. With a compost of this kind we fill our pots two-thirds full, turn out the young plants before they become pot-bound, and add from the reserve little and often as the roots rise to the surface.

The orchard house.—As nearly, if not quite, the whole of the Peach and Nectarine trees will now be clear of fruit no time should be lost in getting them repotted. Old trees occupying pots of the full regulation size, after being thoroughly watered, may be turned out and reduced to an extent that will admit of their return to others, certainly not larger and possibly a shade smaller. If in good condition and thoroughly pot-bound, it is a good plan to place the balls in tubs of tepid water until the crocks and some of the inert soil fall away, when the roots

* Amsden's Peaches, which are all clingstones, did not ripen at Bergerac this year earlier than between the 16th and 30th of July.—Ed. *R. H.*

can be disentangled and shortened back without receiving the slightest injury. The pots, meantime, should be well washed and dried, and carefully crocked with clean dry crocks preliminary to repotting in fresh compost. Trees in bad condition in like manner may be thoroughly divested of nearly all the old soil, well root-pruned, and put back into much smaller pots, with the view to potting on when the new compost, which acts like magic, becomes quite full of new rootlets. Having disposed of root-bound and unsatisfactory trees, last year's maidens in 9-inch pots must be taken in hand, divested of all old crocks, and transferred to others 3 inches larger. The most suitable staple is sound calcareous loam, strong enough to grow good Strawberries or Roses. Manure, unless it is very poor, need not be used, but rough lime rubble, burnt earth, charcoal, and crushed bones, one or all, may be added as correctives. If this is prepared a few days in advance and placed where it can become fairly dry and warm, the potting stick may be plied until it is thoroughly solid, otherwise water will pass the old balls, which will become dry and disaster will follow. When all the trees have been overhauled, root-action will be facilitated by returning them to the house for a week or two, possibly longer, when they may be turned out of doors should their space be required for more important occupants. I do not, however, recommend full exposure, especially after a summer like the past, so long as the main leaves hang and the house is kept moderately moist and cool enough to prevent the buds from getting too forward. When early and midseason trees, potted a month or two ago, show signs of losing their leaves, these, together with Pears and Plums, should be placed in a dry, sheltered, and yet open situation out of doors, where autumn rains or careful watering will assist the roots without forcing the flower buds forward. Should the autumn prove wet, the trees may remain fully exposed until there is danger of the pots being injured by frost. The dry-weather prophets, on the other hand, proving correct, labour will be saved and a moist condition of the soil will be secured by packing at once with Fern or long litter. If well crocked and properly potted in sound compost too firm to hold water in suspension, no amount of rain will harm the trees, but once allow them to become dry, bud-dropping will surely follow, when these instructions will be made the scapegoat. Successful pot culture is bound up in the most careful attention to a great number of minor details, but nothing will compensate for loose potting, followed by a tardy or inadequate supply of water.

Young trees, of which all growers require a few every year, should now be selected and carefully lifted for potting. If not too far away, the person most interested should pay a visit to the nursery, choose for himself, and see that the trees are properly lifted. If cash is a secondary consideration, trees of all kinds established in pots may be had ready for forcing, but carriage being a heavy item, my advice to amateurs is to buy maidens and train them in the way they should go upon their own premises. In the selection of young trees for potting or growing on in the home nursery, those which have not been transplanted the preceding autumn and have made gross, unripe shoots should be passed by for others, possibly much smaller, but with firm short-jointed shoots and well furnished quite down to the union. Clean bright stocks, free from canker or blemish and keeping pace with the scion, are to be preferred, but propagation having been advanced to a fine art, these are now met with in all well-managed nurseries. Peaches and Nectarines should be potted up and placed in a cold house at once, where they can be dewed over with the syringe to prevent the unripened points and leaves from flagging. Plums, Pears, and Cherries, on the other hand, especially maidens, will do equally well in the open-air nursery, where close pinching and annual lifting for a year or two will convert them into free-flowering pyramids and bushes.

So much for the choice of trees; now for the selection of varieties. Of these, unfortunately for the bewildered amateur, we have far too many, but so long as he persists in growing large collections, nurserymen, much against their will, are bound to issue fat lists. If I were starting an extensive orchard house at the present time, I would confine myself to a dozen varieties, or less, of the different fruits, and duplicate them, more or less, according to their merits and their season of ripening.

Peaches.—I would have Condor, Hale's Early, A Bec, Alexandra Noblesse, Stirling Castle, Bellegarde, Royal George, Dymond, Violette Hâtive, Grosse Mignonne, Prince of Wales, Barrington.

Nectarines. — Lord Napier, Advance, Stanwick Elruge, Pine-apple, Pitmaston Orange, Elruge, Violette Hâtive, Humboldt, Victoria.

Plums.—Green Gage, Transparent Gage, Jefferson's, Denniston's Superb, Kirke's, Golden Drop.

Pears.—Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Superfin, Louise Bonne of Jersey, Doyenné du Comice, Marie Louise, Thompson's, Glou Morceau, Winter Nelis, Josephine de Malines, Easter Beurré, Bergamot d'Esperen.

Cherries.—Early Rivers, Belle d'Orleans, Black Circassian, May Duke, Governor Wood, Bigarreau Napoleon.

Figs.—Osborn's Early Prolific, White Marseilles, Brown Turkey, Negro Largo. W. C.

The cold storage of fruit.—As the experiments continue, it may not be without interest to briefly report progress. At the last meeting of the committee, held on the 13th ult., Mr. John Lee presiding, examples previously placed in the chill room were examined. The temperature of this room ranges about 35°. Figs, quite ripe when placed in the store on August 30, had kept surprisingly well; the dark-coloured fruits appeared quite unaltered, but two of the lighter coloured were spoilt. Plums from Chiswick, stored at the same time, were as good as ever. Of a dozen outdoor Peaches, eight were in good condition, two fair, and two spoiled. Peaches and Nectarines grown under glass at Sawbridgeworth, also Oullin's Golden Plums, placed in store at the same time (August 30) were in fine condition. Peaches from Messrs. Cheal & Sons, stored on August 31, were in good condition, but a Melon with them was quite spoiled. Bradshaw Plums from Chiswick, placed in store at the same time, were unaltered, but Tomatoes, except a few yellow fruits, were spoiled. This is the second failure with Tomatoes, and they do not appear to be able to endure the cold. Many of the Cherries—a bad sample stored wet on August 8—were still sound, and it was thought that those which failed were crushed or injured at the outset. It is the opinion of the committee that for keeping purposes the fruit must be free from blemish. Some of the Cherries (red) in the freezing room (temperature 21°) were quite hard, others (black) being yielding to the touch, but frozen inside. Some Cherries taken from the chill room a fortnight ago and steadily thawed were good and well-flavoured the following day after a cool sojourn of twenty-three days, and there are doubtless others that have been in the chamber forty days equally good. Can northern friends oblige by posting a few Gooseberries and Currants to Mr. D. Tallerman, Cold Storage Company, Leadenhall Market, 79½, Gracechurch Street, London? They will be gladly accepted and fairly tried. They should not be over-ripe, and packed to arrive without being bruised if possible. Peaches are best enclosed in tissue paper before being packed in boxes with wadding. All fruit is best stored in closed boxes, as if for transit, as when exposed, Cherries at least lose their bright fresh colour, and it would probably be the same with other fruits. — J. Wright.

SHORT NOTES.—FRUIT.

Two Apples that find great favour at Leonardslee are Lady Henniker and Tower of Glamis. Mr. Ford says that both of them crop well and annually.

Peaches Red Magdalen and Malta are grown at Leonardslee, and Mr. Ford says they are two of the best in cultivation.

Morello Cherries on north and west walls at Leonardslee are very fine. Late in the season they are found most useful for dessert, and they usually last until the end of November.

Apples for limestone soil.—Will you kindly give me the names of two or three of the best Apples for table and cooking suitable for a rich limestone soil, and a climate which is more genial than that of the midland counties of England and not so mild as that of Devonshire?—W. L. M.

Big bad Peaches.—Mr. Ford, of Leonardslee, relegates Sea Eagle and Lord Palmerston Peaches to the above-named class. Both kinds are handsome in appearance, but Mr. Ford will not say another word in their favour. Sea Eagle often looks well on the exhibition table, and so much are things judged solely from appearance, that it is generally awarded the first prize, which is a great mistake, as one might as well eat a Turnip.

Trees and Shrubs.

W. GOLDRING.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Syringa (Lilac).—A garden without Lilacs would not be English. Every garden, large or small, must have Lilac, and being so familiar to everyone, it is only for us to point out a few of the best of the many varieties that now exist. Most of the common kinds of Lilac rank under



Lilac Charles X.

three species, viz., the common Lilac (S. vulgaris), the Chinese (S. chinensis), and the Persian (S. persica). Of the first two there are several sorts, and among the white varieties the best are those named Marie Legrange, very fine, Alba grandiflora, Alba magna, and Alba virginalis. If one white is selected, Marie Legrange should be the one; of the coloured sorts the finest is Souvenir de L. Spath, with massive clusters of very large and richly coloured flowers. Charles the Tenth, commonly forced into early bloom when its flowers come white, is a first-rate sort, and others good in colour are Alphonse Lavallée, Louis Van Houtte, Rubra de Marley, Le Gaulois, and Aline Mocquery. There is also a race of double sorts recently come into cultivation, the chief of these being Lemoinei, Ranunculiflora, Renoncule, Hyacinthiflora plena, and Rubella plena. The double forms have always denser flower clusters, and, as a rule, last longer in perfection than the single varieties. The varieties named cærulea (blue), violacea

(violet), and purpurea (purple) are old sorts now becoming supplanted by the new.

An indispensable Lilac is the small growing Persian (S. persica), as it is so distinct from the others, and being so dwarf and erect in growth is well suited for planting on the outskirts of a group of Lilacs or shrubbery. The small flower clusters are pale lilac or nearly white, and there is a pretty variety with deeply cut leaves (laciniata) that must not be overlooked.

The Rouen or Chinese Lilac (S. chinensis), known also as S. dubia and rothomagensis, is intermediate between the common and the Persian, and, like the Persian, is a most desirable shrub. The large growing S. Emodi from the Himalayas is only suitable for large shrubberies, it being coarse in growth and not remarkable for its flowers, which are pale purple, and produced after those of the common Lilac are past. There is also a variegated form of it. The Hungarian Lilac (S. Josikæa) is a pretty shrub, and worth consideration, as it is quite different from the others. It reaches to a height of nearly 6 feet, and bears erect spikes of small pale mauve flowers. The new S. japonica, known also as S. amurensis and Ligustrina amurensis, is likely to prove a valuable hardy flowering



The Tamarisk (Tamarix gallica).

shrub. It produces in summer large and dense clusters of creamy white flowers, somewhat resembling those of the Japanese Privet. Though a native of Japan, it appears to be quite hardy, and suitable for English gardens.

A deep, loamy soil suits the Lilacs best, though there is scarcely a kind of soil in which they will not grow. They must have an open, airy situation and ample room in order to develop themselves and flower freely. Attention should also be given to pruning, and especially to removing the root suckers as they appear.

Tamarix.—A very graceful shrub is the common Tamarisk (T. gallica) with its feather-like growth and clouds of pinkish bloom in late summer. It is a sea-shore shrub, but, like the Sea Buckthorn, thrives to perfection in inland places. It is a capital shrub for planting on a dry sandy bank where few other tall shrubs would grow; in fact, it thrives anywhere and under almost any conditions of soil and exposure. It should be planted when small, as then the plants have a better chance in poor soil to get a strong roothold, and in very windy places it is well to give a little artificial shelter to the young plants at the outset. It grows fast, and reaches from 6 feet to even 10 feet in height. There are other species in cultivation, such as T. parviflora, Pallasi, indica, and tetrandra, but they are practically the same, all having the same Heath-like aspect, but none are so desirable as the common French Tamarisk.

Tecoma.—The few hardy species of this genus are so generally known under the name of Bignonia that they have been described under that genus at page 348 in the last volume.



Flowers and foliage of Yellow-wood (Virgilia lutea).

Tilia (Lime).—The Limes, beautiful and sweet as they are in bloom, hardly come under the term flowering trees, yet they should be always planted and encouraged where space allows. Besides the common kind, T. europæa, there is the small-growing species, T. parvifolia, specially suitable for small gardens. T. euchlora,



Flowers of the common Lime.

T. dasystyla, and T. petiolaris are also conspicuous and very sweet when in bloom.

Ulex (Furze).—The native Furze, common as it is in most counties, is so beautiful and so well adapted for clothing dry banks and the like, that it must be included in every selection of fine flowering shrubs. In places where it grows wild plentifully the double variety would be well worth planting, being much more gorgeous when in bloom and lasting a much longer time. There is also a neat-growing dwarf kind named U. nanus which deserves consideration, as it flowers at midsummer when its commoner relative is past. This is also a native, and in places where it flourishes it makes a dense prickly bush a couple of feet high. The Irish Furze (U. strictus) is an uncommon variety of U. europæus that is sometimes met with in botanical collections. As all the kinds of Furze are difficult to transplant when large, the best plan is to get small plants of the double and dwarf kinds and to sow seed of the common single sort. In most nurseries the stock of double Furze is in pots, so that the plants may be had and planted at any time. There are few finer sights than a bank of double Furze in full bloom, and it fortunately may be had in every garden. Vigorous pruning when the bushes become straggling is all the attention needed.

Vaccinium (Whortleberry).—In peat-soil gardens a few of the best kinds of Vaccinium may be planted for ornament, though none come in the first rank of flowering shrubs. The most desirable are V. corymbosum, the Blue Berry of the North American swamps, a rather large growing shrub, that bears a profusion of small pinkish flowers in dense clusters. The Pennsylvanian Blue Berry (V. pennsylvanicum) is specially desirable, because of the brilliant tints its decaying foliage assumes in autumn. Usually about October the bushes of it are glowing masses of scarlet and crimson. It is not remarkable for flower nor berry, but for autumn tint it is invaluable. It is not a common plant, but may be bought at the best tree nurseries. V. canadense, V. erythrinum, V. nitidum, V. ovatum, and our native V. Vitis-idæa, V. Myrtillus, and V. uliginosum may be added in gardens where a naturally suitable soil exists, as all would tend to give variety and add interest to a plantation of peat-loving shrubs.

Virgilia lutea, the Yellow-wood of North America, hardly comes under our list of flowering trees, as it cannot be called a satisfactory flowering tree. Its beauty is rather that of early autumn, when its leafage, always elegant during summer, turns to a rich golden-yellow hue, remaining bright for days and weeks even until cut off by frosts. The flowers are white,

Pea-shaped, in loose clusters, and are rarely conspicuous. It is an excellent lawn tree, of medium size and symmetrical growth.

Hibiscus syriacus.—This is among the latest of our hardy shrubs to bloom, and this circumstance, combined with the beauty of some of the varieties, should, one would think, cause it to become very popular; but such is not the case, for it is quite an uncommon thing to meet with a few good specimens, though the typical kind was introduced into this country from Syria as long ago as Parkinson's time. It is not very particular in its requirements, but at the same time the soil in which it is planted must not be wet, neither must it be shallow and dried up during the summer, otherwise the greater part of the foliage will turn yellow and drop. The conditions under which the different varieties succeed best are an open, but not too exposed a position, and good, deep rich soil of a sandy rather than a heavy nature. There are a great number of varieties of the Syrian Hibiscus, varying in colour from pure white to purple, and with both single and double flowers. Perhaps the showiest of all is Celeste, which has single blossoms of a beautiful shade of blue, but albus, white, with an inner zone of red at the base of the petals, is also very showy. The pure white variety without the red centre is totus albus. In variegatus the ground colour of the flower is purple mottled with a lighter hue, while one variety has the foliage very regularly variegated.—T.

The red Pyracantha.—I am much interested in a number of trees of this Thorn growing against a wall in a garden at Ealing. There are probably a dozen trees in all, and they have each covered a good space of a lofty wall, and have been growing in this spot for twelve or fifteen years at least. A few of the plants neither blossom nor bear berries, others bloom freely and are laden with berries in winter. Can you account for the lack of flowering on the part of some of them, for they are quite large enough to do so, and it seems as if they failed to answer the main purpose in the economy of Nature for which they are intended? I think it is possible they represent a batch of seedling varieties, for the berries of those that fructify vary in colour, some being quite red when fully ripe, and some of quite a pale coral tint. The trees are on a west aspect, and light and air alike fall upon and circulate freely about them; neither difference in position nor treatment can be cited to account for the failure of some to discharge their proper functions. Can you suggest a theory that will account for the non-flowering of some of the trees?—R. D.

SHORT NOTES.—TREES AND SHRUBS.

Cedar of Lebanon on chalky soil —Will a Cedar of Lebanon do well in a chalky soil? I am thinking of planting one near the top of a steep turf slope, but there is only about 6 inches between that and the chalk. Of course the ground could be prepared for it, but it would be a matter of time and expense. The tree would also need, I suppose, constant feeding.—D'Arcy W. Reeve.

Colchic Laurel fruiting.—This Laurel is fruiting freely this season, and it is very effective in the shrubbery when loaded with long bunches of fruit, which are almost the size of small Damsons and of the colour of Morello Cherries when perfectly ripe. Unfortunately, they do not hang long upon the trees, as the birds soon make a clearance.—S.

Moving a large tree.—Would some of your readers kindly inform me what would be the best and safest way to take down a large bush tree under the following circumstances? It stands 2 feet from the side of a house, with a wall 3 feet from it at both ends, and in front the wall is 5 feet 6 inches high, and the tree is 2 feet 6 inches in diameter at 5 feet from the ground. The wall cannot be taken down, so the tree will have to be lifted across it. What would be the best way to get it across.—Beech.

Coryopteris mastacanthus.—Among the few shrubs that are in flower must be included this Chinese kind, which forms a much-branched bush, clothed with hoary foliage, and bearing its flowers in dense clusters on the points of the shoots. They are of a very pleasing shade of violet-purple, and remain in beauty for a considerable period. It is not a thoroughly hardy shrub throughout England, but will flourish in the southern counties. Its propagation is effected by cuttings of the half ripened shoots put in a frame during the summer months.—T.

The Fringe Tree (Chionanthus virginica).—In the list of shrubs suitable for forcing on page 274, I neglected to mention this native of North America, which is, when in a thriving condition, a very beautiful object in early summer, by reason of its long drooping clusters of fringe-like blossoms. But for some reason it is rarely met with in a flourishing state. The cause of this is probably unsuitable soil, for it needs a moist and at the same time not waterlogged spot, and succeeds best where somewhat sheltered. I am not aware of its having been forced under glass till last spring. Messrs. Veitch exhibited some beautifully flowered specimens of it in this condition, which were so much admired, that it will no doubt be sought after for this purpose.—H. P.

Olearia Haasti.—Not only is this a good town plant, but it is also useful for the sea-side. I have had it myself in a town garden, have seen it in London gardens, and seen it planted only a short distance above high-water mark on the south coast; but the finest examples I have noted of this species are in the shrubbery borders in the gardens at Wilton House, Southampton, where it grows freely and flowers profusely every year. Indeed, they present the appearance of being covered with snow when seen at a distance. I have frequently seen the plant grown in the greenhouse, where it never proves satisfactory, and I have invariably advised its removal to the shrubbery, and immediate improvement has taken place. It is a plant which should find favour with planters. There are also several other species equally beautiful which never appear to be thought of by planters.—W. H. G.

Fuchsia microphylla.—Not only is this a curiosity from its small flowers, but it also forms a very ornamental little plant, for the miniature blossoms are borne in the greatest profusion. A small bush of it about 18 inches high and laden with myriads of tiny drooping flowers will attract considerable attention. There are two distinct small-leaved Fuchsias between which a good deal of confusion exists, viz., F. microphylla and F. thymæfolia, and of these two the best for growing in pots is F. microphylla, while for training up pillars F. thymæfolia is to be preferred, as it is of much more vigorous growth than the other. Both, however, are so distinct from the ordinary run of Fuchsias that it is at first difficult for an outsider to recognise them all as members of the same genus. Besides these many other species of Fuchsia are worthy of far more attention than is usually bestowed upon them.—T.

AMERICAN NOTES.

A crop of Apricots.—The Pacific *Rural Press* gives 18,721 lbs. as the crop marketed by R. C. Kells, of Sutter County, obtained from sixty-seven trees.

For the Harvard Botanic Gardens, lately presided over by W. A. Manda as head gardener, Professor Goodale has secured the services of Robert Cammeron, a Kew graduate and lately in the employ of H. H. Hunewell at his beautiful place in Wellesley.

Just as soon as we have got politics settled, business reformed, and human nature elevated, I am determined to form a society for the reformation of botanical names. Botany has been the Noah's Ark of pedants. One might as well hang a dictionary around a child's neck by way of ornament as to impose on flowers such outrageous and outlandish names.—Henry Ward Beecher.

The Asparagus beetle.—One of the wickedest little creatures imported from Europe is the Asparagus beetle (Crioceris asparagi), as it is known to the entomological fraternity. It has crossed the Potomac in its southern invasion, and the past season has bothered the growers in North-eastern Virginia.

Remedy for Rose aphis.—Experiments with a weak solution of creolin upon Rose aphides and leaf-tying larvæ (Tortrix) proved quite successful, without any apparent injury to the plants. Rose bushes syringed with creolin solution remained for some time after free from insects of any kind, so far as I could observe. More continued use of creolin must be made, but it seems to me likely that in this disinfectant we may have a valuable help for garden or greenhouse.—A. R. Grote, in *Canadian Entomologist*.

Elæagnus longipes.—While not strictly hardy with us, this peculiar species is worthy of general planting for ornament and possibly for its handsome and peculiar fruit. Our plants, received from Professor Sargent only two years ago, are now well loaded with perfectly ripened fruit. In the east it is said to be used in the culinary art. Will some reader tell how, as it seems to have the astringency of a green Persimmon?

California fruit and labour.—The Peach and Nectarine crops in Redlands are enormous, and the ground is covered with rotting fruit, which cannot be handled. A man took a load to San Bernardino the other day to a dryer or cannery, and was offered half a cent a pound. He drove it home. The price had been 1 cent, which he would have taken. All the spare men, women, and children in Redlands work in the dryeries, with 200 or 300 Chinamen, and yet they cannot handle the fruit.

Fay Currant.—I wish to speak a good word for this new candidate for public favour. Our young plants are now loaded with perfectly ripened fruit of very large size and quality better than the Cherry Currant. The points in its favour for western culture are: (1) The perfection of its foliage. It held its leaves during the heat and drought of the summer of 1887 better than anything on our grounds, except the Long-bunched Holland, the Victoria, and the Pear-shaped Currant of Russia. (2) The size of the fruit and the perfection of its bunches during these seasons, when the Cherry hardly makes a show of fruiting.

Benthamia japonica.— This plant, which bloomed for the first time in this country during the latter part of June of this year, was sent from Japan to the Parsons nursery at Flushing by Mr. Thomas Hogg in 1875. It is of the Dogwood type, about 8 feet in height and symmetrical in shape. It bears in profusion flowers with a green centre surrounded by four pure white satiny petals about 1½ inches in length and sharply pointed. Showy when in bloom, rich in foliage, and perfectly hardy, it promises to be one of the most valuable of the recent introductions in ornamental shrubs.

End of the Hovey collection.—On July 9 all the plants of the extensive collection of Azaleas, Camellias, Cacti, Agaves, Palms, and many other rare plants, collected by that pioneer of plant lovers, the late C. M. Hovey, of Cambridge, Mass., were sold at public auction by order of the administrator. This notable sale brought together a company of some 300 buyers. The famous collection of Camellias, containing all the sorts originated by Mr. Hovey, were largely bought by F. L. Temple, of Cambridge, who took also all the Cacti and Agaves and this class of plants generally. This is the final close of the once leading nursery of America. In their prime they did a good work, and their remarkable founder, by his enthusiastic labours in the plant world, fanned the flame of our young horticulture into a steady fire, and the awakened love of the people will never let it die out.

Purple-leaved Myrobalan Plum.—Messrs. D. and H. Brown, of Brandt, Ohio, send some fruits from trees in nursery rows—the first fruit, so far as we are aware, raised in this country, though it fruited a year or two since in France. The fruit is exactly that of the ordinary Myrobalan Plum, though rather darker in colour, as one might expect from its purple-leaved character. The variety known as the Miser or Cherry Plum is larger, but no better than this in quality. Buyers of this beautiful dark-leaved, ornamental tree will have to remember that it is going through the lists under a lot of names, of which Prunus Pissardi, or Pissardi Plum, purple-leaved Plum, Persian Plum, and purple-leaved Myrobalan Plum are most frequently used. Though the fruit is not equal in quality to that of the best garden Plums, it is very good and quite as

useful as the ordinary Cherry Plum, and this will give the variety an additional value in some quarters. —*American Garden.*

KITCHEN GARDEN.

AUTUMN TREATMENT OF ASPARAGUS.

VERY rarely is Asparagus so plentiful and good as it was during the past season. Not only was it most abundant and superior in quality in all cases where extra pains are taken with its culture, but even the most neglected or least cared for beds were unusually productive. This ought to be proof positive that such universal success was due not so much to artificial as to natural causes. Some one or more seasons must have been highly conducive to the well-being of Asparagus. Was it the previous dry and hot summer, the following comparatively dry autumn, the very variable, yet not very wet winter, or the very late spring that had such a good effect, or were all collectively most beneficial to Asparagus? I am disposed to think that we have to attribute much of this phenomenal success to the heat experienced during the summer of 1887, and the comparative low rainfall, both in the autumn and winter following, while the lateness of the spring favoured a stronger because later growth. If I am right in my surmises, then I am also justified in holding the opinion previously formed and repeatedly expressed, that any system of culture which favours the retention of much moisture in the soil to the exclusion of heat is not to be recommended for Asparagus. The formation of very deep and rich beds, frequent mulchings with heavy and only partially decayed manure, the latter being generally applied in the autumn, and the frequent loosening of the surface soil are details insisted upon by all, or nearly all, who profess to be authorities in the matter, but are they always, if observed, quite correct? I maintain they are not. What may answer well in one instance may be altogether wrong in another, so much depending upon circumstances, more especially as regards the nature of the subsoil and the position of the garden. Where the soil is naturally of a retentive nature, the aim ought to be to change the character of this as much as possible at the outset, and subsequently to treat the beds in such a manner as will keep them comparatively dry and warm during the autumn and winter months. Very light soils resting, perhaps, on a gravelly subsoil are more certain to be well drained, but they may not be retentive enough, and, unless differently treated, may easily become too poor and dry for Asparagus. Some soils there are which may be described as neither light nor heavy, and which will simply grow Asparagus anyhow, or with no more trouble than is expended on fruit bushes, and with these it is hardly possible to make a mistake.

At the present time there is no necessity to discuss the formation of the beds, the autumn treatment of those well established being my theme. After the top-growth has ripened or changed to a yellow colour, all this should be cut over at about 5 inches above the ground, a good height of stump being necessary in many cases to mark the exact locality of the clumps. At the same time the surface of the beds ought to be lightly hoed over, and all rubbish cleared off and burnt with the Asparagus tops. The question now arises, Shall the beds be well mulched with manure at once, or not till next spring? Most writers advise the application of the manure now, no exceptions being made in any way. Where the soil is light and naturally well drained, and the beds formed on the old-fashioned plan—that is to say, rather narrow, raised well above the level of the surrounding soil, and thickly occupied by strong clumps—then the practice may be correct enough. In this case, 2 inches or 3 inches of soil is carefully forked from the surface and laid in the alleys between, this being returned after about 3 inches of good solid manure has been spread over the bed. This dressing of manure gradually enriches the beds, without perhaps unduly cooling them; but treat raised beds formed with heavier soil and not so well drained, or the majority of beds on the level, in a similar manner, and the chances are they will become far too cold and wet during the winter, this, as I have tried to prove, having a most prejudicial effect upon the contents. The very act of forking over the beds after they are cleared of rubbish does harm, as when the surface is comparatively undisturbed very much less moisture finds its way through, and the soil is much warmer in consequence. A bed with a loosened surface is the first to become saturated, and much too cold to suit the Asparagus roots, and a heavy dressing of rich manure only further aggravates the evil. Keep the roots alive, and every clump of good strength will produce abundance of fine succulent shoots in due course. Since we have discontinued mulching the beds (all of which, I ought to add, are on the level) in autumn, the Asparagus has been gradually improving, and I may safely say the quarter devoted to its culture is the most profitable in the garden. Every spring the whole of the ground is mulched either with the best short manure procurable, or else with leaf-soil and a liberal addition of artificial manure of some kind. This season a capital top-growth has been made, and a recent examination has disclosed the fact that the roots are healthy and strong, and no matter how severe the winter may be, I have every confidence no harm will happen to them. W. IGGULDEN.

Wireworm in Carrots. — In many places I have known the greatest difficulty experienced in producing anything like a respectable crop of Carrots; in fact, in more than one case I have found it utterly impossible to grow them. The seed would germinate as usual, and the plants look healthy up to the time of thinning, when the whole would suddenly collapse. This disappointment I experienced for years, until, entirely disheartened, I gave up attempting to grow them for some time. A friend of mine was similarly situated, and could never succeed in bringing a crop to maturity. This year, however, has fortunately proved an exception, for he has now one of the best crops possible to see. His success he attributes to the free use of wood ashes and sea sand. A mixture of this was sown in the drills with the seed with exceptionally good results, as not a grub has so far made its appearance, and the roots are fine and clean. Another thing which he considered beneficial was a good dusting of soot applied in showery weather just before the crop was thinned. This he found beneficial in helping to keep the Onion maggot away. It was tried and with the same good results as on the Carrot bed.—C. COLLINS.

Tomatoes at Chiswick.—In the otherwise excellent notice of the big house of Tomatoes at Chiswick, by "B. C. R.," it is very odd that his conclusions should have been so very different to my own in regard to the height of some of the varieties growing there. He mentions Ham Green Favourite as being "shorter in growth than the Perfection types," and Horsford's Prelude as being of compact growth, and much dwarfer than Excelsior. Now it so happened that by a mistake in planting out a plant of this Horsford's Prelude got into the rows of Perfection near the centre walk, and all through the summer it was standing fully 18 inches above all the rest. Because of its tallness also the stock of it was planted out in one of the side borders and had the benefit of being trained up the wires under the roof to a considerable height. For the same reason Ham Green Favourite, also an exceptionally tall grower, was planted out in one of the side borders, that, too, being trained up under the roof. It is very possible that when "B. C. R." visited the house these tall growers had been shortened back, as hopes of maturing fruit at the extremities may have been found useless; in fact, when I last visited the house I learned then that the progress in ripening the late fruits was so slow as to lead to the fear that many would not finish, and I then suggested that shortening back, to enable all possible sun and air to get to what fruits were swelling, might be advisable. Since then we have had some bright sunny weather and Tomatoes under glass have been greatly helped. "B. C. R." refers approvingly to Golden Queen Tomato as a fine yellow variety. This was raised here some four years ago by crossing Stamfordian with Hathaway's Excelsior, and again the best of the progeny with Carter's Green Gage, hence the product Golden Queen and Red King. Prince of Orange sported from the former, and is, I think, the finer variety, and most certainly has the richest orange-yellow colour. With respect to this fine house of Tomatoes at Chiswick, which has worthily attracted so much attention, it would be of exceeding interest later to learn what was its produce in fruit. I venture to estimate it at the lowest at 2000 lbs. weight.—A. D.

Lifting and storing Potatoes.—Although the majority of early varieties of Potatoes may already be lifted and stored safely for the winter, it is also likely that the bulk of the main crop may still be in the ground. During the past week I have seen many tons of tubers lifted from fields and market gardens simply because the disease was spreading with such rapidity that one field in two days was a black mass. This naturally was very disheartening to the grower, who immediately gave orders to lift the crop. The tubers, which proved plentiful and of fair quality, were instantly placed on the market and sold at a great sacrifice; indeed, they did not realise one half the amount they would have done some months later. Thus it is doubtful whether it is wise to lift unripe tubers when the tops are diseased and sell them at a sacrifice, or allow them to remain in the ground and take their chance until ripe. One thing is certain, that even though one-third of the crop be thus destroyed, the remaining portion would realise the amount (if judiciously managed) the full crop of unripe tubers did. But, some might say, what about the trouble and expense of storing? Well, even with this, my opinion is that the Potato crop is the most remunerative when the tubers are stored and placed upon the market at a time when good prices are being obtained. Last winter more than 60,000 bushels of tubers were shipped from one British port alone for New York, and these after being lifted, stored, and consigned a distance of some 5000 miles netted more profit to the growers than those sold early in the season a few miles from home. At the same time there is a great risk to run, but without speculation we cannot expect large profits.—C. COLLINS.

SHORT NOTES.—KITCHEN.

Potato Improved Ashleaf.—One of the best Potatoes for the table that we have this year is Improved Ashleaf. Half a peck of this sort was planted on a south border, from which I took up the other day twelve pecks, all fine sound Potatoes.—F. DODDS, *Herringswell House, Mildenhall.*

A good Brussels Sprout.—In the kitchen garden at Coolhurst may be seen a very good Sprout, which, growing by the side of the London and Aigburth kinds, proves to be much better than either of those two. The four long rows made an even and uniform plot, and the plants were sprouting freely. Mr. Kemp says he has grown it for sixteen years, the seed being obtained from Craighill, in Forfarshire, where the sort originated. Judging from its superiority at Coolhurst, it certainly deserves to be better known and more largely grown.

Pea Ne Plus Ultra.—This old favourite has again held its own as one of the best kinds for producing a crop of late Peas. In my opinion it will be a long time before any new kind is found superior to it in all points. The flavour has this season been particularly

good, while the individual Peas have swollen to an extra large size. The wet summer caused the haulm to grow taller than usual, but as our stakes happened to be of extra length no harm was done. The fine warm dry weather during the present month has produced such a capital crop of highly-flavoured Peas that our stock of this variety will be extended next year in spite of so many additions to the list of new Peas.—S.

Bean Seville Longpod.—Owing to the continuous wet and cold weather the crop of Beans upon this variety at the proper time was very poor, scarcely amounting to a single dish upon a row 60 feet long. The plants grew tall, and having no supports they fell down on both sides of the row. Just at that time the land not being required for other purposes, the plants were allowed to stand. After a time it was seen that a number of young shoots were springing up from the base of each plant; these in time produced a capital crop of tender Beans, which were much appreciated during the beginning of the present month.—S.

KITCHEN GARDEN NOTES.

Kidney Beans in Pots.

Where there is a constant demand for these and proper facilities for growing them, a batch of plants in pots must now be raised to succeed those growing in frames and pits. During the dull winter months they require plenty of heat and light, and under the most favourable conditions seldom crop heavily. The front walls of pits in Pine stoves, as well as shelves in these and other forcing houses are the most suitable positions for growing kidney Beans, and a batch should consist of from thirty to fifty pots, according to the requirements of the establishment. The 9-inch pot is a suitable size, and these should be properly drained and rather firmly filled with good loamy soil, into which the seed should be sown direct, in preference to raising in small pots and shifting into larger sizes. Nor is it of any avail to leave space for top-dressings, as the roots rarely take possession of the fresh soil added after the plants are well established. About a dozen good seeds should be placed in each pot, and the seedlings reduced to nine in number, this not being too many, seeing that the plants rarely branch strongly when hard forced. If grown near the hot-water pipes they must be syringed every morning in order to check the spread of red spider, and when strongly rooted they will require more water and liquid manure occasionally. A few Birch sprays or light stakes and bands of raffia will keep the plants from falling about, and on no account should they be crowded in any way. A fresh or successional batch should be sown at intervals of from a fortnight to three weeks, and when the seeds come up too slowly or irregularly, they will be found to germinate quickly and evenly if the pots are set on the hot-water pipes, taking care, however, to remove them from these before the seedlings become very leggy. Ne Plus Ultra is the best variety for pot culture, and new, well-ripened seeds will always form the best plants.

Mustard and Cress.

In but few private places is this popular salading grown to such perfection as it is in the London markets. Either it is too short and gritty or too old and strongly flavoured when sent to the house. What is wanted is quickly grown Mustard and Cress, with long and well-balanced stems, the Cress both improving the appearance and quality of a salad, and is of tempting appearance when served separate from any other salading. Many succeed very well at the outset of the forcing season, or while quite fresh soil is placed in the boxes, the failure dating from the time the surface only is renewed. Instead of merely skimming off the old roots and as little soil with them as possible, the whole of the soil in the boxes should be changed every time fresh seed is sown. Old Mushroom bed manure is the best material for filling the boxes or bed in which the seed is sown, and, failing this, fairly rich fine loamy soil should be used, the material in either case being made firm, and well watered before sowing the seed. It is also advisable to have separate boxes for Mustard and Cress, as the former usually germinates the most quickly, and is the first fit for removal to a cooler house. The seed should be sown very thickly, the surface being quite covered with it, being then pressed into the soil with a flat piece of board, but not covered with mould of any kind, or the salad will be gritty. Set the boxes in gentle heat and closely cover with mats or brown paper, keeping this on till the stems are about 2 inches long, when light is necessary to ensure the leaves being green. Before the salad is far advanced transfer the boxes to a cooler house, where it will keep fresh and good for three or four days. Fresh sowings should be made every week, and still oftener when it keeps badly. At no time ought the soil to become dry, but the water must be applied gently, especially when the seed is commencing to germinate. It is worthy of note that the bulk of the salad sold as Mustard is in reality obtained from Rape seed, this being found more mildly flavoured and not so rough to the palate as Mustard. Private gardeners ought also to sow Rape in preference to Mustard, any ordinary seedsman keeping plenty of the former in stock.

Storing Seed Potatoes.

It not unfrequently happens that the earliest Potatoes are lifted and stored at a rather busy time, and, as a consequence, they are thrown into heaps in a shed, airy cellar, or cool room, there to remain till time can be spared to attend to them. This is really a risky proceeding, as it is surprising how quickly the Ashleafs especially will form sprouts, and be nearly or quite spoilt for planting. They ought to be sorted over before they are stored in any way, and as many of the medium sized tubers of good form reserved for planting as possible. These should, from the first, be thinly spread out in a light, cool position, and on the first favourable opportunity be again sorted over, and all that are sound closely packed, sprouting ends uppermost, in shallow boxes, trays, or flat baskets. The Jersey method of storing Ashleaf Potatoes in quantity has for several years been successfully adopted in this district, and this cannot well be improved upon. What is first needed are a number of fairly light, yet strong boxes made of ordinary white deal. These may be 2 feet long and 1 foot wide, the sides and ends being 2 inches high and 3-8ths of an inch thick. Four posts, 6 inches high and 1 inch square, are needed, with light end rails attached, another light rail, or handle, let into and connecting these across the box. The bottoms to be made in three pieces, 3-8ths of an inch thick, with spaces left between to admit light and air. Each box to hold one layer of Potatoes, and all can then be packed, one on the other, from the floor to the ceiling, a surprising number of boxes and a fine lot of tubers being thus stored in comparatively little space. If none but sound seed are stored there will be no necessity to touch them till the boxes are carried to the ground intended to be planted. The least that can be done is to store the sets in a single layer in trays or baskets, and these must be blocked up well above each other, or otherwise the tubers in the lowermost will sprout long before they ought to do. If kept in deep boxes, or baskets, or in masses, a thicket of sprouts and roots quickly results. Kept either thickly or thinly in a very dry room, premature shrivelling is the sure consequence, while a moist bottom induces an early growth. They ought, therefore, to receive as much light and air as possible, taking care, however, to carefully protect from severe frosts.

Potato Scotch Champion.

Not nearly enough of this variety is grown in private gardens where the soil is of a heavy nature and not generally considered suited to Potato culture. A wet season really suits it better than a hot and dry one, such as was experienced last year, and to a lesser extent in the two years previous. We were fortunate in lifting a large breadth quite free from disease, of fairly good size and not nearly so ugly as usual. A few of these were accidentally sent to the dining-room, the result being that no other variety will be tolerated while the Champions last. Other varieties there are (I could name a dozen) on trial, or which have been grown in fairly large quantities, that are less wasteful and cook well, but the quality compares unfavourably with that of the Champions. The latter, with one exception, is most floury, contains more nutritious matter, and is therefore more satisfying than any we have tried since the best Ashleafs were finished.

Potato Laxton's Reward.

This has now been grown two seasons, and fully comes up to what we were led to expect by the raiser. It is the result of a cross between Scotch Champion and Magnum Bonum, and is a decided improvement on the former. This season it has produced a fairly heavy crop quite free from disease, and the tubers are as handsome and shallow-eyed as could be wished. It is a yellow-fleshed variety, the quality and flavour being first-class. Wherever Laxton's Reward has been given a fair trial, and found to be satisfactory in every way, plenty of seed tubers ought to be saved and stored for next season. Seeing that both Scotch Champion and Magnum Bonum do well with us, a variety combining the good qualities of both will in all probability supersede them, and we shall have one variety less to store in a separate heap.

W. I. M.

PROPAGATING.

Freesias from seeds.—The different kinds of Freesias are increased from seeds much more readily than most bulbous plants, or rather I should say that they attain a flowering size in much less time than the majority of them. From seeds sown in early spring and kept in a warm structure plants may be obtained that will flower during the summer, so that in their case at the most not more than six months will elapse between the time of sowing and the appearance of the blossoms. A very good compost in which to sow the seed consists of equal parts of loam, well-decayed leaf-mould, and silver sand, while the pot or pan intended for the purpose must be thoroughly well drained, for in all stages of growth good drainage is absolutely necessary to the welfare of the Freesias. In about a fortnight the young plants will make their appearance above ground, and when large enough to handle they must be pricked off, a good plan being to put four or five in a small pot, as they can then be shifted on when necessary without further disturbance of the roots. Having some seed to spare last year, I sowed it in a border in the front of a greenhouse exposed only to the south, and not only did many plants come up, but several of them flowered before winter. The only bulb I know that blooms in such a short space of time from seed as the Freesia is the pretty bright-coloured Anomatheca cruenta.

Hibiscus syriacus.—Like the majority of the plants in the Order to which it belongs, this beautiful autumn-flowering shrub is by no means difficult to increase, for it may be propagated either by cuttings, seeds, or by grafting. The cuttings may consist of two kinds, either the young growing shoots in the summer or the matured wood at the present time. In the case of the first-named, care must be taken that the cuttings are allowed to flag but little before insertion, and also that they are protected by a frame kept close and well shaded till they are rooted. Cuttings formed of the older wood may, on the other hand, be taken at the present time and inserted firmly in the open ground, the principal consideration being to see that good, clean, well-ripened shoots are chosen for the purpose, and that they are put in firmly. The cuttings should be from 9 inches to a foot in length, of which two-thirds must be buried in the soil. Another mode of increase is to graft the shoots on to pieces of the root, choosing for the purpose those with a few fibres attached to them. This operation is best carried out in the spring, when a union is soon effected if they are kept close till that takes place. Though it cannot be depended upon to perpetuate any particular variety, this Hibiscus may be readily raised from seeds, which will often ripen in considerable numbers, especially if the plants are favourably situated. The better way is to keep the seed till the spring and sow it in

boxes or pans, which must be sheltered by a frame till the young plants make their appearance.

Calceolarias.—Though cuttings of most bedding plants that are intended for next season's display should be put in during the month of August, an exception must be made in the case of the Calceolarias, which need not be inserted till the end of September or even later, provided there has not been sufficient frost to injure the cuttings. It matters little whether the cuttings are put in pots, pans, or boxes, either of which are very handy, provided there are a number of varieties, but where required in quantity, by far the better plan is to take an ordinary garden frame, and having put about 6 inches of suitable soil in the bottom and pressed it down firmly, the cuttings may be inserted therein. If a good watering is given at that time very little more will be required throughout the winter. A very suitable soil for the Calceolaria cuttings is two parts of loam to one of leaf-mould and sand, the whole being sifted through a sieve with a quarter of an inch mesh. After the cuttings are watered the lights should be left off till the superabundant moisture is dried from the foliage, when, though they require to be kept close till rooted, it is an advantage to give air occasionally in order to prevent decay setting in. Of course at this season of the year there will be no necessity to shade from the sun's rays, as full exposure to the sun will assist the formation of roots. When struck plenty of air must be given at all favourable opportunities.

Ivies of weak growth, among which must be included the golden-leaved form of the Tree Ivy and many of the variegated kinds, may be induced to make much more rapid progress if grafted on some vigorous stock, such as the Irish Ivy, than they will on their own roots. The best stocks are furnished by young, vigorous plants in small pots, and the operation may be carried out at almost any time, though the early autumn and spring are best. It matters little what method of grafting is employed, but the ordinary form of veneer has this advantage over cleft-grafting, viz, the stock need not be cut quite down till a union is complete. The grafting should be done as near to the ground as possible, and the plants kept in a close shaded frame till the scions commence to grow, when it will be found that a union is effected. Suckers from the stocks must be guarded against in the case of all grafted plants. T.

Societies and Exhibitions.

FLOWER SHOW AT LAUSANNE.

It may probably interest some of your many readers to have a short account of the extensive show—lasting six days — that took place at Lausanne recently. Favoured by most splendid weather, bright, cloudless skies, and with enough air to keep the heat from feeling oppressive, this important fête was a great success. It was held in a portion of the public garden, specially enclosed, adjoining the new Tribunal Fédéral, or Parliament House of Lausanne, on an eminence from which the view of Lake Léman, the Jura and Savoy Mountains on the one side, and the picturesque and ancient buildings of Lausanne on the other, was simply superb. All the arrangements were made in a way that reflected much credit on the committee. Electric light was used for the illumination of the exhibition, and communication by electricity was made between all parts of the grounds and the executive, which shows how advanced such things are in this country.

The exhibits were arranged either in beds, neatly edged with Grass, in the open air, or under open sheds which were prettily decorated with Moss and Evergreens. There was much ingenuity displayed in the bouquets and floral designs, which were varied and novel to the English eye. Lyres, crowns, crosses, anchors, cushions, as well as marvellous mosaic devices met one's notice in many directions, showing the result of much thought and labour. The Begonia family was well represented, but by pot plants alone, which were grown to a good size, and the flowers were well coloured, but not in advance of the good strains to be found in our English nurseries, nor shown with the same care, labels, in many cases, being either wanting or illegible.

The fruit section was particularly fine and varied, Apples ranging from the strange Api Noir, a black fruit of most peculiar character, to huge specimens of red and yellow tints. Pears were indeed magnificent, as the fruits were well grown and fully ripe. The profusion of both these fruits this year caused much care and anxiety to owners of orchards, where, if the trees are not carefully propped, the branches are quickly brought to the ground from the weight of the plentiful crop. It must be remarked that, with very few exceptions, all the exhibitors were in the trade, and also that sales of surplus stock were conducted during the course of the show. There was a large and interesting exhibit from the gardens of Mons. Molin, of Lyons, which added to the attractiveness of the exhibition.

J. H. Poë.

THE BRITISH FRUIT GROWERS' ASSOCIATION.

On September 8 last, at the conclusion of the conference of fruit growers in the Crystal Palace, Mr. J. Cheal proposed a resolution to the following effect—namely, "That it is desirable an association of fruit growers should be formed for the promotion of profitable fruit cultivation, and to improve the methods of distribution. The executive committee of the conference being requested to prepare a report on the subject, to be submitted to the next meeting at the Crystal Palace, on October 11 this year." In pursuance of this resolution the executive committee met at 5 p m. on Thursday, September 27, at Anderton's Hotel, Fleet Street, Mr. T. Francis Rivers in the chair, twelve members being present. The chairman referred to the favourable notices accorded by the daily and horticultural press to the conference at the Crystal Palace, and it was mentioned that over sixty reports and articles referring to it had been published. A draft of the association was then read, considered at some length, and finally adopted. The adjourned conference will be resumed at 2 p.m. on Thursday, October 11, at the Crystal Palace. The following is the draft adopted at the above meeting, and all desirous of joining the association should communicate with the hon. secretaries, Mr. Lewis Castle, Hotham House, Merton, Surrey, or Mr. William Earley, Ilford, Essex. The title will be, "The British Fruit Growers' Association."

Objects.—To promote the profitable culture and the improvement of fruit in the United Kingdom, and to facilitate the distribution to consumers.

Methods.—It is proposed to effect these objects by the means of meetings and conferences in the metropolis and the provinces; the collection from all districts of reliable information bearing on the subjects, its dissemination through the daily and horticultural press; by the publication of annual reports with such others of a special character as the funds of the association may permit; and by securing the adherence of local societies to the object of the association.

Membership.—A subscription of not less than 5s. annually shall entitle any person duly elected to membership of the association, including admission to all conferences and general meetings, one copy of each publication issued by the association, and such farther privileges as may be subsequently determined. First subscriptions to be paid at the date of joining, and subsequently annually on January 1.

Officers.—The officers of the association shall comprise a president, vice-presidents, a treasurer, and two honorary secretaries.

Committees.—The business of the association shall be conducted by the officers, a general committee of forty members, an executive committee of fifteen members, five to form a quorum, and special subcommittees to be elected by the latter, the officers being *ex officio* members of all committees.

Election of members, officers, and committees.—Proposed members of the association to be nominated by two members and elected at any meeting. The officers to be elected annually. Ten members of the general committee to retire annually, but to be eligible for re-election; the retiring members in first two years to be decided by ballot, and subsequently in the order of election. Nominees for the committee to be proposed and seconded by two members of the association at the annual general meeting. All elections to be effected by open voting. The executive committee to be elected by the general committee from amongst themselves after the general business at the annual meeting.

Meetings.—The annual general meeting shall be held in December of each year to receive the report of the general committee, for the election of officers, committees, and the transaction of any other important business. The general committee shall hold at least two meetings, and the executive committee shall meet as often as necessary, in each year. The executive committee to decide the dates and places for all meetings and conferences.

National Apple and Pear Conference at Chiswick, October 16 to 20, 1888.—A meeting of the executive committee was held in the Royal Horticultural Society's gardens at Chiswick on September 27. Present—The Rev. W. Wilks in the chair; Messrs. Bunyard, Cheal, Herbst, Walker, Hibberd, Dean, Hudson, Turner, Rivers, W. Paul, and J. Smith. Papers to be read at the conference were promised by Messrs. G. Bunyard, J. Cheal, J. Douglas, E. Tonks, S. Hibberd, J. Fraser, W. Wildsmith, E. J. Baillie, M. Dunn, McDonald, Tallerman, T. F. Rivers, Saunders, Bear, and W. Paul. Great interest was manifested in the proceedings, promises of support being received from the leading growers. It was agreed that the conference be held in the conservatory on Wednesday and Thursday, Oct. 17 and 18, the first day (Oct. 16) being devoted to the examination of the fruit, the general committee meeting at 3 p.m. for the formal opening of the proceedings. It was agreed that no prizes be awarded, but cards of commendation for special merit will be given by the committee. It was decided that the various papers be put in type, previous to the conference, for the more convenient use of the committee and press. The gardens will be open to the public at 1 p.m. on Oct. 16. Notices of intention to exhibit should be sent to Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, not later than Wednesday, Oct. 10.

The death of Mr. F. A. Dickson, of Chester, occurred on Thursday, September 27. Mr. Dickson, who at the time of his death was in his sixty-third year, was chosen Mayor of Chester in 1870.

BOOK RECEIVED.

"Bulletin of Miscellaneous Information," Royal Gardens, Kew.

Skeletonising the winter Cherry.—Will you or any of your readers kindly inform me through The Garden how I could skeletonise the winter Cherry (Physalis)?—E. T.

G. S. S.—The thrips should be washed off, repeating the operation. Many of the cool house Orchids are much injured by fumigation. You do not say what your plants are, but I should imagine they are either in too high a temperature or that the atmosphere is too dry.—W.

Names of plants.—*R. Lawley.*—Populus Bolleana.—*W. Nelson.*—A. Filix-fœmina Fieldiæ var.—*W. S. B.*—1, Pteris species, not fertile; 2, probably Asplenium, specimen infertile; 3, Polystichum proliferum; 4, Woodsia polystichoides.—*A. Parry.*—Acropera Batemani.—*W. Robinson.*—Specimen shrivelled.—*Orchids in box.*—Specimen quite insufficient, and also smashed.—*F. J. T.*—Abutilon vexillarium; 2, next week; Dahlia of no value.—*E. C. M., Lochaber.*—The crimson flower is that of Agrostemma coronaria fl.-pl., the other silvery leaved plant is Cineraria maritima. Kindly send another specimen of the other kind.

Names of fruit.—*H. J.*—Pear Conseiller de la Cour; 1, Apple London Pippin; 2, Northern Greening; others too small to be recognisable.—*W. Beswick.*—1, Doyenné Boussoch; 2, Thompson's; 5, Flemish Beauty; 6, Jersey Gratioli.—*T. A. Woodroffe.*—1, Marie Louise; 2, Seckle; 3, not known; 4, Beurré Diel.—*G. C. R. Durrow.*—Fig Brown Turkey.—*H. E.* and *E. Parker.*—Kindly send again, as all the labels had become detached.—*J. J. C.*—Your Apple Delaware is the same as Trumpington.—*G. W. E.*—1, Nectarine Violette Hâtive; 2, Stanwick; 3, quite unripe.

WOODS & FORESTS.

NOTCHING AND PITTING.

Under this head "R.," in The Garden, Sept. 22 (p. 288), says :—

Now that the planting season is near at hand, I think it would be of service to other young foresters besides myself if some of your experienced writers on practical forestry would give us their opinion as to the comparative advantages of notching and pitting plants, and under what circumstances can each system be best adopted; also an idea of the average cost.

This is a most important subject, as much depends upon the original outlay of capital, the proper selection of plants for the different classes of soils and situations, and the mode of planting the trees to obtain a reasonable amount of success. Heather moorland, as a general rule, is best adapted for the growth of Larch, Pine, and Spruce Fir, and may be planted in a very efficient manner by the cross-notch system. In planting in this way, I have found it to be an advantage to the young plants when the surface of the ground was covered with a crop of Heath to a depth of some 6 inches or 8 inches, as it afforded shelter until the trees were established, while at the same time the open stems of the Heath plants admitted a free circulation of air which prevented damping off. Two years' seedling plants (or two-year seedlings) one year transplanted may be employed here with success, and the cost should not exceed from 30s. to 40s. per acre. In inland districts of the country at high elevations exposed to severe frosts of long standing, two years' seedling plants twice transplanted had better be used, as they always have more roots, and the wood of the stem is much firmer than that of the former, thus enabling the plants to stand the rigour of the climate with impunity. In forming new plantations on such ground, patches of ground are sometimes found here and there where the subsoil is of a hard nature. When such is the case, the ground should be loosened with a tramp-pick at the spots where the trees are to be planted; and although this will entail a little extra expense at the time, yet the superior growth of the trees in after years will afford full compensation for the trouble and expense thus incurred. In cases where the surface of the ground is covered with a rank grassy vegetation as well as Ferns, the roots of which exhaust the soil and are inimical to the growth of young trees, I have found it to be an advantage to prepare the spots for the plants by stripping off the surface herbage with a spade and digging over the spot, to render the ground soft and pliable for the roots of the plants. When the ground is matted with roots of Ferns or Brambles, these should be carefully picked from the soil in the course of digging the spots. As this is a cheaper method of preparing the ground for the reception of the plants than that of making pits, and as I have found it to be very efficient for young coniferous trees, I can with confidence recommend it. The extra cost of preparing these spots will depend in a great measure upon the texture of the soil and subsoil, as well as the rate of wages in the locality; but, as a general rule, I have found it to be rather less than the cost of digging full-sized pits for hardwooded trees. In cases where the surface herbage is naturally of a rank growth, it is advisable to use rather larger-sized plants than those recommended for Heather moor ground, but the planter will be able to settle this on the spot and act accordingly. In places where the surface herbage is not too rank and the ground favourable, two-year-old seedling plants may be used, and inserted with the hand-iron in a very efficient manner, and as an expert person accustomed to the work can plant about 3000 plants per day in favourable weather, the cost in this case is considerably reduced from that already quoted.

As a general rule, I have found the expense of planting an imperial acre by this mode to vary from 3s. to 5s., according to the texture of the soil and number of plants used. If we add the price of plants, which varies considerably according to supply and demand, cost of draining, where necessary, and fencing, we then have the cost in full per acre. In using two-year-old seedling plants the planter should be careful to select such as have been allowed plenty of space in the seed-bed, as they are always stouter and more stocky than such as have been crowded, and this is a point of much importance in order to attain success on exposed ground. Where Scotch Fir plants are to be used the planter should only plant such as have been raised from seed of the true Highland Pine, as the foreign variety of this tree is inferior both in hardiness and quality of timber.

Pit-planting is practised principally for transplanted hard-wooded trees, and the cost of making the pits depends in a great measure upon the size of the trees to be employed and the texture of the soil in which they are to be planted. In cases where the soil was of a loose, open texture I have had pits 18 inches in diameter at the surface and one spade deep opened at the rate of 1s. per 100, while in other cases where the subsoil was of a hard, impervious nature and required to be broken up and pulverised with a pick, the cost ranged from 1s 3d. to 1s. 4d. and 1s. 6d. per 100. In all cases where the subsoil is of a hard character, the ground, more especially where the subsoil consists of stiff tenacious clay, should not only be well broken up, but likewise allowed to lie exposed to the influence of the weather a few months previous to being planted. This class of soil can be planted with the best prospects of success by digging the pits in autumn and inserting the plants in spring.

Peat or Moss land occupies a large area both in Great Britain and Ireland, and its origin and chemical composition are so different from those of all other soils, that its preparation, in order to render it suitable for the growth of trees, is more intricate than that of ordinary soil and perhaps less understood. In round numbers, average dry land contains about 5 per cent. of combustible matter and 95 per cent. of mineral matter, while in Moss land these numbers are about reversed; consequently, in order to improve its texture and the better to balance these constituents, I have found a dressing of clay to be very beneficial. Premising that the Moss ground has been thoroughly drained, the pits for the trees should be opened in autumn, and a shovelful of clay left at each pit and allowed to lie exposed on the surface till spring, when it should then be mixed with the Moss at the time of planting the trees. When the clay is left upon the ground I have had the pits opened and a shovelful of clay left at each hole at the rate of 1s. per 100. In the course of draining some Moss lands it sometimes occurs that a quantity of clay can be got from the bottom of some of the drains, and when this is the case it should always be utilised for the use of the trees at the time of planting. Moss is generally divided into two classes, black and red; the former is in a more advanced state of decomposition than the latter, and may be planted with a mixture of Larch and Scotch Fir. Red Moss, again, is of a lighter, ranker texture than the former, and is best suited for a crop of Scotch Fir and Birch for a first crop. Larch may be introduced in after years when the Moss is in a more perfect state of decay.

J. B. Webster.

Planting trees.—The inducements to improve property by tree-planting are so many and so powerful, that to the greater part of those who possess the means but little need be said to urge them to the employing of those means. Occasions enough will offer for showing how quickly the profits come. But still there are some persons who possess such means, who are well assured of the ultimate gain, but who are, nevertheless, discouraged by the thought that they shall not live to see the actual pecuniary product of their undertaking, and who, according to the idea of that dismal moralist, Dr. Johnson, begin to think of dying when they are exhorted to plant a tree.

Beech charcoal.—The value of Beech continues to increase. While never esteemed of great importance among the numerous American hardwoods, it holds a high place in foreign countries. It is reckoned in Germany as next to Oak in value, and about on a par with Scotch Pine. It is preferred there for wagons, woodenware, &c. It makes thoroughly odourless butter-tubs. Beech is also an excellent charcoal wood. Thousands of tons of Beech charcoal are consumed in European distilleries annually, and distillers' charcoal needs to be a very superior article. Charcoal from Beech is also a superior fuel for iron smelting.

The Shell-bark Hickory.—Apart from its value as one of the most distinct and handsome of hardy deciduous trees, the Shell-bark Hickory (Carya alba) is of considerable importance from a purely economic standpoint. It is a large and handsome tree, furnishing most valuable wood and the principal Hickory nut of the North American markets. In a wild state it is found, according to Professor C. S. Sargent's "Catalogue of the Forest Trees of the Northern United States," in Canada, York County, Maine to the upper districts of Georgia and Northern Alabama, west to Eastern Nebraska, Kansas, and Arkansas. The wood is very heavy, strong, tenacious, elastic; furnishing the most valuable fire-wood of the Atlantic forests; extensively employed in the manufacture of agricultural implements, carriages, baskets, &c.; its specific gravity ·838. The tree attains a height of 50 feet to 70 feet, with a trunk 2 feet to 5 feet in diameter. As a striking object in the park or pleasure ground, the Shell-bark Hickory—or as it is sometimes called the Shag-bark, on account of the shaggy bark of the trunk, which exfoliates in rough plates or strips—is well worth the attention of the landscape gardener; whilst, with a view to planting for profit, it would be well for foresters to obtain seeds or young plants.

The Weymouth Pine naturalised.—When calling at Coate's Castle, Pulborough, a few days ago we were informed that the Weymouth Pine (Pinus Strobus) was naturalising itself. The soil is light and sandy. Several trees planted on the estate have not only grown well, but from the cones ripe seeds have been produced, which have fallen and germinated, so that seedlings are springing up in many places.

"The Garden" Monthly Parts.—*This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price* 1s. 6d.; *post free,* 1s. 9d.

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"The Garden Annual and Directory" for 1889 *will contain a Complete List of Gentlemen's Seats, their Names and Gardeners; List of the Nursery Trade, with a new List of the American Trade. All changes of address, with applications for advertising spaces, to be sent at once to the Editor of the "Garden Annual," Mr. James Flood 37, Southampton Street Strand, London.*

No. 882. SATURDAY, Oct. 13, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

CLIMBING ROSES ON MICHAELMAS DAY.

VALUABLE as is the quality of perpetual blooming in Roses of any class, it is especially desirable in the case of climbers. Roses grown in beds, if not of a perpetual character, need not occupy the most conspicuous positions in the garden, or, at any rate, attention may be distracted from them when they are flowerless by other plants in blossom in their neighbourhood. But climbers must, from their nature, be always in evidence; they are generally grown on the house itself, where they are daily and hourly in view, and they are hardly less prominent objects when grown upon other walls or trained up pillars. Always conspicuously placed, therefore, their barrenness, if they do not bloom in autumn, is peculiarly noticeable, and as, if they are grown against the house, it is impossible to avoid seeing them, it is important that the majority of the varieties employed should be free autumnals.

With a view to ascertaining some of the most reliable sorts for the purpose, careful note was made on Michaelmas Day of climbing Roses flowering at that time with sufficient freedom to attract immediate attention; and taking Roses of all classes on walls or pillars, upwards of a score of names were quickly entered.

First on the list, and most prominent in all positions, comes Bouquet d'Or, undoubtedly the most beautiful of all the Gloire de Dijon family. It excels the parent in its handsome foliage, the leaves being far better retained in the autumn than those of Gloire de Dijon, and though it may not be quite so free early in the summer, it blooms profusely throughout September, and its flowers are always far more refined and beautiful both in form and colour than those of Jacotot's Glory.

Almost equally conspicuous—more so, perhaps, in the number of the flowers, though hardly so handsome in foliage—was Reine Marie Henriette, still the best all-round red climbing Rose. Unlike the Dijon family, the colour of this Rose is paler in the autumn than in June or July, but it is still very attractive, and the flowers are of great depth and beauty of form. These two Roses—Bouquet d'Or and Reine Marie Henriette—are quite the most beautiful and reliable autumnal climbers, in their respective colours at any rate, if not altogether, and ought to be planted by everybody.

Madame Berard is an invaluable variety—a handsome plant, very free, and though lacking the richness of colour of some of its race, has handsome fawn flowers with pleasing yellow shades, deeper in autumn. Melanie Soupert is to all intents and purposes synonymous, although some growers try to make out that the flowers are paler and higher centred than those of Madame Berard; but the difference is very difficult, if not impossible, to discover. The pale yellow flowers of Emilie Dupuy, also abundant and very pretty, are in colour not unlike those of Belle Lyonnaise, which is likewise full of bloom; but Emilie Dupuy is a good deal the hardier of the two, and consequently generally the more valuable as a climber.

Gloire de Dijon, the founder of the family, though surpassed by some of its offspring in freedom of bloom in autumn, is still indispensable, and will always continue to produce flowers later in the year than almost any other variety. In the cooler weather at the end of the season the shades of yellow and orange at the base of the flower become far deeper and richer; although planters would do well to bear in mind that this finer colouring may to a great extent be obtained even in summer by growing the Rose on a wall with a northerly aspect.

Maréchal Niel, facing south-east, was found to be carrying a considerable number of richly-coloured blossoms of fair size and form; and the well-known orange buds of William Allen Richardson were making many bright spots in the masses of deep green glossy foliage which is one of the most valuable characteristics of this deservedly popular Rose.

Ophirie, hardly so abundantly represented as usual after so much sunless weather, during which the plants had made an immense, but somewhat woody growth, was, nevertheless, very charming, and the full trusses of its coppery red buds and flowers are always welcome. This variety is one of the best of all autumnal Roses to train on a pillar, as the growth is very dense and the handsome foliage most persistent.

A new variety sent out by Nabonnand under the name of l'Ideal with buds of a most striking colour, sometimes recalling the tints of Ophirie and sometimes those of Ma Capucine, was also very beautiful and flowering with great freedom. It is a welcome addition to the bud Roses, with the further advantage of being a climber. The same raiser's hybrid Noisette, Marie Lavallée, attracted immediate attention to its beautiful semi-double flowers with their white petals margined with clear pure rose colour, and another Noisette appearing in the list is the now rarely seen America—raised by Page and sent out from Washington about thirty years ago. It is a strong grower, whose flowers in the early summer are nearly white, with a salmon shade at the base, but at that time generally lacking in finish; whereas in autumn the blooms are not only more numerous, but are of good form with a high-pointed centre, and of a uniform pale fawn colour.

Another valuable red climber is Lacharme's Max Singer. It is not often that a raiser understates the value of his seedling, but in the case of this hybrid multiflora there must have been some decided misapprehension. When Max Singer was sent out, it was described in the lists as bearing solitary flowers and not perpetual, but it turns out, on the contrary, that the bright cherry-red flowers are produced in considerable trusses, and the plants, which were among the earliest to bloom about the middle of June, have been ever since and are still full of flowers, so that the plant takes a good place among red autumnal climbers.

The coral-red Tea Comtesse Riza du Parc is very free at all times, and was keeping Michaelmas with a gay display of bloom. This Rose may be grown to a considerable height against a wall, and the flowers in autumn are far more constant in form than in early summer. On a neighbouring wall Marie Leonida was producing immense trusses of its beautiful double white flowers, and Marie Van Houtte was, as usual, a mass of bloom.

Other Roses that were conspicuous climbing on pillars were Glory of Cheshunt, a telling crimson Hybrid Perpetual of Charles Lefebvre race, but less full and more perpetual than the type; the very free and vigorous red Bourbon, Mme. Isaac Pereire; climbing Captain Christy, a most valuable free, vigorous, light Rose of first-rate quality—perhaps the best of all these climbing sports—and some of the Musks.

These Musk Roses are somewhat unduly neglected; they are immensely vigorous and make good climbers anywhere; though their flowers are small, they are produced in immense trusses and are deliciously fragrant, and they are thorough autumnals. Two good varieties are Rivers, a pale pink and white, and Princesse de Nassau, a white flower, shaded with buff-yellow at the base, both well worth a trial where they can be afforded considerable space.

Of course there are a good many Roses of which an occasional bloom or two will be found late in the season; but care has been taken to note above only those varieties that were flowering with considerable freedom at the time, and although all those enumerated are good, probably the names occur pretty nearly in order of merit.

THE MACARTNEY ROSE.

THE Rose from "Stoke Rochford" is the Macartney Rose (Rosa bracteata). This beautiful species was brought to England in 1795 by Lord Macartney, who discovered it during his embassy to China, its native country. It is a thousand pities that it is not more generally cultivated, as it makes a most striking plant when grown against a wall with a sunny aspect. The effect of the magnificent pure white gold-centred flowers, often 5 inches in diameter, standing out in bold relief against the glossy evergreen foliage, is hardly to be surpassed in the Rose garden, and yet how rarely is it seen. The plant has almost every possible recommendation, except that it is not quite hardy enough to stand a cold winter in the open uninjured, but grown against a wall with a southerly exposure it flourishes exceedingly; whilst it is a thorough autumnal, and the flowers have a delicious Magnolia-like perfume.

There are two double-flowered varieties; the old double Macartney, which should be avoided as a flowering plant, since the flowers never open, not merely in an unfavourable locality or climate, but because of the peculiar formation of the petals, which are bent down over the top of the bud, so that their expansion is impossible; and Marie Leonida, a very pretty white Rose, quite double and of fair size, with, in the expanded flowers, a distinctive characteristic in the prominence of the bright red anthers above the central petals. The origin of this variety does not appear to have been recorded, though it was generally cultivated fifty years ago; but it is as perpetual as the species, throwing up fine trusses of bloom throughout the autumn until stopped by frost, and making a very handsome plant grown against a low wall.

Species and varieties alike thrive admirably budded on Brier seedling or cutting stocks, the quickest and most satisfactory method of propagation, though in the case of the species the budder must be good at sharpening a knife, the edge of which is continually being taken off by the almost woolly bark in cutting out the buds.

It is surprising that there should not have arisen more varieties of a Rose possessing so many essential qualities as the Macartney, which, in addition to being thoroughly perpetual, produces flowers of such great size and fragrance, grows so freely, and has such beautiful evergreen foliage. No doubt there is great difficulty in getting seed to ripen out of doors in this country, but it might have been thought that in these days, when so much artificial crossing takes place under glass, that raisers would have thought it worth while to make the experiment of employing the Macartney Rose, if only on the chance of obtaining its magnificent foliage. Perhaps Mr. Bennett will take it in hand, and add to his already splendid laurels by giving us a race

of evergreen perpetual Roses. But in the meantime everyone who can spare a place on a sunny wall should grow Rosa bracteata as possessing the most valuable characteristics and as being one of the most beautiful of all the species. T. W. G.

ROSA HARDYI.

In reference to "W. G.'s" note (pp. 53-4), on this charming Rose, it may be remarked that the only essential point in the cultivation of what might almost be called the horticultural representative of Rosa berberidifolia is to see that it is not destroyed by a too severe winter. The variety is nearly hardy, but not quite so, and though a plant in the open exposed to 20° of frost last winter was unhurt, another in a somewhat draughty situation on the rockery was a good deal injured. If, however, the plant be protected with a good handful of Bracken and, better still, have also the soil drawn up round it, exactly as dwarf plants of the Tea-scented Roses are protected on heavy land, it will not suffer in an ordinary winter. Even during the somewhat severe winter of 1886–7 plants so protected survived. Budded on seedling Brier stocks, Rosa Hardyi flowers with the utmost freedom, either as a maiden or as a cut-back, and it is worth noting that when established plants have been killed or much damaged by the cold, dormant buds and even started plants have remained uninjured, and have flowered profusely the following summer. The plant requires no pruning, every growth carrying bloom, and it will flourish on any moderately well drained soil, if not too heavy and cold, either on its own roots or on seedling Brier stocks, the worked plants generally making the larger specimens.

It is a mistake, however, to suppose that it requires a moist season. Rosa berberidifolia is a hot-country plant, and its offspring, though raised in Paris, inherits the family *penchant* for sunshine, and has rarely been seen in greater and longer-continued beauty in this country than during the broiling summer of 1887. This year the plants flowered freely enough, as they always do; but in the wet or dull, chilly weather the flowers lacked the roundness and the richness of colour which characterised them in the hot sunshine of the previous year, and the petals were wanting in breadth, and in some cases crumpled as if they were hugging themselves together for warmth.

There is no doubt about this Rose being a perfect gem with its Cistus-like flowers; the crimson blotch at the base of each yellow petal gives it a unique appearance (always excepting the species which, it is hoped, may soon be in our gardens again), and renders it well worthy of careful cultivation.

A simple and certain way of obtaining a display of bloom of Rosa Hardyi is to plant a few seedling Brier stocks in not too heavy soil, and to bud them where they can stand. As maidens, the scions will be a mass of flowers, which will be reproduced annually until the plants get exposed, unprotected, to a frost of some 25°. T. W. G.

SHORT NOTES.—ROSES.

Rosa pomifera is fruiting freely on the Kew rockery. A small plant in a sheltered nook is quite aglow with the scarlet heps. It is a native of Europe and Southern Asia.

Rose America.—Do you know the enclosed old Noisette America, a vigorous climber, not of very good quality early in the summer, but fine in autumn? I am so sorry not to have sent you blooms before they were dirtied by the frost.—T. W. G.

*** A pretty Rose in October, white, with shade of flesh colour and slightly fragrant.—Ed.

Roses for button-holes.—In answer to "T. J. C.'s" inquiry, on p. 314, for the names of the best varieties of Roses for button-holes, the following may be enumerated: Madame Chedane Guinoisseau, perhaps the best of all, very free clear yellow; Ma Capucine, beautiful rosy orange: Amazone, rich pure yellow; Comtesse de Frigneuse, canary-yellow; Isabella Sprunt, yellow, very free; Luciole, very distinct long bud of varying tints of mingled bronzy rose and yellow; Madame Charles, rich apricot; Madame Falcot, apricot; Madame Lambard, very free rose colour, yellow base; Sunset, tawny saffron-yellow, very free, and may be had soon after Christmas; Narcisse, very free, pale yellow; Camoens, the brightest rose colour, with a yellow base; Anna Olivier, which should be allowed to carry as many flowers as possible that the buds may not be too large—nearly white, with a deep bronzy rose, sometimes almost orange, base; and Perle d'Or (polyantha), apricot. The buds of this last are very small, but very abundant and perfect in form and colour, and there are few smarter button-holes than can be made with three of its miniature buds deftly arranged together.

NOTES OF THE WEEK.

Flowers of double white Colchicum come from Mr. W. B. Hartland, of Cork. This is one of the most beautiful of the Meadow Saffrons.

Lily of the Valley is fruiting abundantly this season, and we are reminded of the great showiness of the scarlet fruits by a boxful sent by Messrs. R. Veitch, of Exeter.

Apple Summer Nonpareil (of Kent).—I send you some samples of this, by some known as Spice. It is a rather neglected fruit, and deserves to be better known, as the flavour is remarkably sweet. The variety is now fit for table.—George Bunyard, *Maidstone.*

Stuartia pentagyna.—In the beautiful garden at Coolhurst, where so many choice flowering shrubs find a home, this Stuartia is now flowering profusely. A bush about 9 feet high was perfectly studded with large white flowers. The latter are exceedingly pretty, the cupped petals being cut into a fringe on their edges, and the yellow stamens form a neat cushion in the centre of the flower.

A wall of Magnolias.—A striking feature at Warnham Court is a wall 80 yards long entirely covered with Magnolia grandiflora. The wall was built to shut off the kitchen garden from the pleasure grounds, and it is on this side that the Magnolias have been planted. The shoots are judiciously thinned, and there is a splendid display of flowers annually. On one portion, about a foot square, we counted seven fully expanded flowers, besides which there were several of the long pointed buds.

Blue Rock Bindweed (Convolvulus mauritanicus) is very beautiful in late summer and autumn. It is perfectly hardy, but prefers a sunny, raised, or somewhat dry position. The slender thread-like stems trail along the ground, and the blue-white-throated flowers are freely produced. We recently saw it in a Sussex garden, and the slender shoots climbed over great stones in a charming manner. It is a lovely plant for a nook in the rockery, and it would look well with its shoots hanging over a rocky ledge.

Missouri Evening Primrose (Œnothera missouriensis).—This is a handsome prostrate species that we recently noted doing remarkably well in a hot, dry, raised border in a garden near Horsham. There was a long row in the border and the shoots crept over the ground, the plants making a broad belt nearly 2 feet wide. We saw them on a bright day when hundreds of flowers were fully expanded, many of them being 5 inches and 6 inches in diameter. The colour of the flowers is a soft pleasing yellow veined with orange.

Cyrtanthus sanguineus.—In the "Illustrated Dictionary of Gardening" this plant is said to have been introduced from the Cape in 1860. It is a very handsome species, figured in the *Botanical Magazine*, t. 5218. Mr. Bull flowered it in 1873, and in The Garden, Vol. XVIII. (p. 291), Mr. Hovey asks for cultural advice, both he and Mr. F. Miles having failed to grow it satisfactorily. It was formerly known as Gastronema sanguinea in gardens, and Sir Trevor Lawrence flowered a hybrid between this plant and the Vallota in 1885, the seeds having been sown in 1883 (The Garden, Vol. XXVIII., p. 233). The flowers most resembled those of the Vallota, but were of a paler colour. It was named Gastronema hybrida, and a second variety of the same cross which flowered in 1886 was also certificated as Cyrtanthus hybridus roseus. The new Anoiganthus is Cyrtanthus breviflorus of Harvey ("Genera Plantarum"). I hope these few facts may interest "E. H. W.," who writes at page 313.—F. W. B.

A useful Sunflower.—In the gardens at Horsham Park we recently noted a row of Sunflowers, the colour of the flowers being canary-yellow. We were informed that the seeds were sent from America. The colour of the flowers is soft and pleasing, and some were almost of a creamy tint. A Sunflower sent by Messrs. Veitch, of Exeter, to a recent meeting of the Royal Horticultural Society, and certificated under the name of Primrose Dame, appears to be identical with this kind at Horsham.

Phalænopsis cornu-cervi.—This distinct Butterfly Orchid is flowering at Kew in the East India house, and though not particularly showy, it is very handsome when a large specimen full of health and bloom is seen. The plant at Kew is placed in a cylinder, partially filled with crocks and charcoal, through which the long tapering roots can run and receive a due amount of moisture. The leaves are of a bright green colour, about 8 inches long, and abundant, whilst the flowers are of quiet colouring, the sepals and petals being spotted with dull red over a greenish ground; the column and lip yellow. There are certainly more beautiful Phalænopsids than this Moulmein Orchid, but it is worth growing for its distinctness.

The double-flowered Bramble is now a perfect mound of blossom. It would be a useful and beautiful thing to plant where a coarse, rough growth is required. We recently saw it in a roadside garden in Sussex. It had taken possession of a large bush of Box, 9 feet high, and the long shoots, wreathed in blossom, grew out at the sides and clustered on the top, making a beautiful picture. In the park at Warnham Court, a few days ago, we saw at a distance something which appeared like a snowdrift, and on going nearer found it was this double Bramble fringing a great mass of trees and shrubs.

Ismène calathinum.—This exceedingly beautiful Brazilian bulb, so seldom met with, except in botanical collections, is worthy of much attention from gardeners, the large, fragrant white flowers being as lovely as those of any of its tribe. As in Pancratiums, the flower has a long tube, narrow sepals, and a widely open cup of membranous texture. Their delicious fragrance scents the house at Kew, where it is now in bloom. It is a very old garden plant, yet one that it not easily obtainable from nurseries. According to the new style of naming plants it is Hymenocallis calathinum, but it should be asked for under its older name.

The severity of the weather.—On Wednesday morning, Oct. 3, we had 10° of frost here, and as much as 13° was registered in some parts of this district. Coming as it did after a wet day on Tuesday when everything was saturated with moisture, very severe damage naturally followed. Most growers of Chrysanthemums have suffered considerably, very few having housed the whole of their collection, and in some cases not a plant had been put in. I have seen some collections entirely ruined, not a single plant having escaped, the foliage being blackened similar to that of Dahlias; such a thing I have never known before so early in October. Where the buds were well advanced and the plants standing in a sheltered position the damage is not so great, but those that are young or just taken will on examination be found in most cases to be of no use, as at that stage they are in a very tender condition. I have always advocated housing the plants by the end of the first week in October in this part of the country, and have never known any great damage done before that time. Owing to the wet, cold, sunless summer the plants made very sappy growth, and in consequence were more susceptible to injury by frost than they would have been had the wood been better matured.—Edwin Beckett, *The Gardens, Aldenham House, Elstree.*

Early Chrysanthemums have flowered well this season, but, unfortunately, were cut off in their fullest beauty. The great encouragement now given to this section is having its results in the new additions we are gaining.

THE HOLWOOD OAKS.

Both historically and for the many old and remarkable trees it contains, this pleasantly-situated estate, one of the Kentish properties of Earl Derby, is of particular interest, and as several of the latter, including the Oak, Lebanon Cedar, and Cluster Pine (Pinus Pinaster), occur in large numbers and are of unusual dimensions, I have thought that the recording of the most notable of these, particularly the Oaks, may serve the double purpose of being instructive to lovers of such, and also a record in future years by way of reference and comparison.

Generally speaking, the soil may be divided into three distinct classes—chalk, gravel, and clay, the first two forming the main ingredients of the hilly grounds, while the valleys and flat districts are almost wholly composed of the latter or a stiff, dampish loam. In some instances the chalk crops through the surface, notably to the south of Holwood House; while in others it is overlaid with a small quantity of clay or loam, this varying in depth from a few inches to several feet. On the chalk alone, or where but little soil occurs, few trees, save perhaps the Beech and one or two others, succeed in a satisfactory manner, and this may also be said of the gravel or sand; but where the clay, gravel, and chalk mix in due proportions an extremely fertile loam is produced, and in which the majority of our forest trees grow with great rapidity and attain to large dimensions.

Amongst Oak trees remarkable for their size and beauty of appearance, those growing to the west of Holwood House are certainly of particular interest, their hollow trunks of usually huge proportions and venerable, though contorted, appearance, generally imparting to them an air of imposing grandeur that is somewhat difficult to describe, and at the same time pointing out that these are the remnants of one of the ancient forests with which the county at some remote period abounded.

The Wilberforce Oak (here illustrated) is growing close to the public path that leads through the park on the north-western side of Holwood, and this is supposed to be the tree under which Pitt and Wilberforce were seated when the latter first made known his intention of bringing forward a bill for the abolition of slavery. The following note in reference to this is extracted from Mr. Wilberforce's diary of the year 1788:—

At length, I well remember, after a conversation with Mr. Pitt in the open air at the root of an old tree at Holwood, just above the steep descent into the vale of Keston, I resolved to give notice on a fit occasion in the House of Commons of my intention to bring forward the abolition of the slave trade.



The Wilberforce Oak at Holwood Park, one of Earl Derby's Kentish seats. Engraved for The Garden.

A stone seat bearing the above inscription was erected in 1862 by Earl Stanhope, by permission of Lord Cranworth, close to this historic tree. At 3 feet and 5 feet from the ground the stem of this Oak girths 18 feet 1 inch and 18 feet 3 inches respectively, the total height being 42 feet, and the spread of branches 51 feet in diameter. At 6½ feet from the ground this giant Oak divides into two (formerly four, two having been broken off) massive limbs, the girth of each at point of junction being 11 feet 4 inches and 10 feet 3 inches respectively. The centre is hollow, and forms an open space 4½ feet in diameter, while the buttressed roots extend on the lower side particularly for 11 feet in length above ground, thus affording a pleasant seat for the weary traveller or hard-worked parliamentary agent. This tree, judging from its present healthy appearance, will, should no accident befall it, last for many years to come, the outer shell being quite sound and well covered with bark. To preserve this historic Oak from injury by wind, as also to prevent damage at the hands of too ardent admirers of the great statesman, it has recently been encircled by an unclimbable iron fence, while bands have been placed around the largest and heaviest limbs, and these connected by light iron rods, thus, I hope, minimising the risk of their being wrenched asunder even during the most severe storm.

Pitt's Oak.—This fine tree occupies a very conspicuous position on a circular mound, a portion of the old Roman encampment, about 20 yards north-west from the garden wall at Holwood. This is the tree under which it was the Premier's habit to sit and read when the Holwood property was in his own possession. At a yard from the ground level the stem girths 20 feet 1 inch, and at 8 feet it divides into four massive limbs, the two largest of which girth 9 feet 6 inches, and 9 feet 4 inches at 2 feet from point of juncture with the main stem. The branch-spread is wide in proportion to the tree's height, covering as it does a space of 57 feet in diameter, while the total height is only 36 feet. The stem is hollow from 4 feet upwards to the point where the branches begin to ramify, but the tree is otherwise in a very healthy condition, as is clearly demonstrated by the rich abundance of glaucous green foliage, as well as by the numerous strong shoots that are annually emitted by the stem and larger branches. Both this and the Wilberforce Oak are the variety known as Quercus Robur pedunculata. With what ardour Mr. Pitt applied himself to planting will be seen in a letter addressed from Downing Street to his mother, dated November 13, 1786, in which he says: "To-morrow I hope to get to Holwood, where I am impatient to look at my work. I must carry there, however, only my passion for planting, and leave that of cutting entirely to Burton." It is said that when night drew on the work of planting was not interrupted, but artificial light was brought, and the work was frequently completed by lantern light.

Another still larger Oak tree is growing close to the duck pond, and within about 200 yards of the Wilberforce tree. At a yard from the ground the stem has a girth of 21 feet 11 inches, and the sheer height is 45 feet. Three large roots, or rather portions of the stem, extend outwards on the eastern side for 11 feet in length, and growing, as they are, close together, form in conjunction a solid mass 12 feet in width, and which projects above ground for, in most parts, fully 18 inches. The centre of this gigantic specimen is also hollow; while, as is usual with these old Oaks, the stem at 8 feet from the ground divides into numerous large limbs, and at this part it is buttressed to an enormous extent. Scores of Oaks similar to these might be noted as growing in the grounds at Holwood, but space and time will not permit of my recording more at present.

The Cork Oak (Quercus Suber).—Seldom, indeed, is it that larger or more healthy-looking specimens of this curious, interesting, and perhaps half hardy tree are to be seen than those at Holwood. Two of the largest occupy rather conspicuous positions on the lawn to the south of Holwood House, one of which is 44 feet in height, the stem girth at 2 feet from the ground being 7 feet 5 inches, and the greatest spread of branches 42 feet in diameter. The other is 28 feet in height, girths at 3 feet and 5 feet, 6 feet 4 inches and 6 feet respectively, and has a branch-spread

covering a space of 33 feet in diameter. Both trees are highly ornamental, the well-rounded and densely-branched heads being objects of particular interest. The peculiar corky bark is another distinct and interesting feature of these fine trees, the cork in some instances being 3½ inches thick, deeply furrowed, and of an enticing, light creamy brown colour.

The Evergreen Oak (Quercus Ilex) is another tree that would seem to be peculiarly well suited for the soil and climate of Kent, this part in particular; indeed, it is not too much to say that neither in Scotland, Wales, nor Ireland have I noticed such a healthy hue pervading the foliage as is noticeable in the Holwood specimens. To the south-west of Holwood House are numerous fine trees, one of which girths 11 feet 10 inches at 2 feet from the ground, after which it ramifies into eight large stems, which form a well-rounded and perfectly symmetrical head of fully 50 feet in diameter. Growing at no great distance from this tree is another of the same kind, whose height is 49 feet, and with a stem perfectly straight and well formed, and containing 69 feet of wood. On numerous occasions have I pointed out the value of this Oak for shelter-giving purposes, and for this object, in combination with its ornamental qualities, its use at Holwood is very apparent.

Holwood Park, Kent. A. D. Webster.

Flower Garden.

FLOWERS AFTER THE FROST.

The keen frost of the 3rd inst. has spoiled the Dahlias, Gladioli, and many other tender garden plants, but has shown up the splendid capabilities of hardy flowers that remain fresh and fair even after the icy breath of winter has passed over them. I went into a garden the morning after a frost of 8°, and found it as gay and beautiful as in summer, except that there were evidences of destruction in the blackened Dahlias and Nasturtiums, and the mournful aspect of the Pelargoniums. None of the subjects mentioned below were touched, and in the warm sun of an October day were delightful. From this we must not be thought antagonistic to bedding plants of all kinds, but it does seem strange that such things as Michaelmas Daisies, though cheap and beautiful, are yet so uncommon. We may perhaps seem to be playing upon a well-worn string. Hardy flowers have been sufficiently written of, some may say, but not until we see gardens full of beauty in October as well as in June, July, and August shall we consider a thorough reformation has been brought about. Near the place of which I speak there was a garden which, although offering every facility for growing hardy flowers, scarcely had one, and after a withering unlooked for frost of 8° its condition may be better imagined than described. Of things that will stand frost unharmed are the

Michaelmas Daisies, and we have now such an admirable selection, that there need be no sameness by growing even a dozen varieties. Considering that there are about 200 kinds or more, it needs a little care in choosing the best, especially as the majority of them can be considered weeds of the truest type—wild, ungraceful, and of rapid growth. One of the earliest is linarifolius, a charming Aster, in full flower in September, and continuing in beauty the first half of October. It is dwarf, and has immense heads of narrow-petalled, lovely blue flowers, distinct from, but not more inviting than those of hybridus nanus, whose delicately clouded, starry purplish-lilac flowers spread out in large panicles with bewitching grace. This was sent out by Van Houtte, and is scarcer than the other two. A. Amellus is one of the first to begin the Michaelmas Daisy season, and this has smaller, more starry flowers than the more beautiful variety A. bessarabicus, and they appear somewhat later. It is worth noting that the flowers of the Amellus group are very sweet-scented, and some may like to include other forms, but they approach the type very closely, and in a garden of ordinary size are not wanted. Acris is a mound of bloom; its faintly tinted lilac flowers are exceptionally beautiful in the mass. Chapmanni is exceedingly lovely, its informality being one of its greatest charms, but the large blue flowers are also strikingly beautiful in October. Shorti is most desirable, also the distinct wiry-stemmed and feathery horizontalis, which is only just now commencing to bloom. We can also add the late-flowering grandiflorus, the lovely pale blue almost white-flowered pulcherrimus, longifolius, the dwarf, bushy, white-flowered Tradescanti, and the late turbinellus. Lævis makes a telling border plant, as its flowers are deep blue and freely produced, and herein is one of the chief charms of the Michaelmas Daisy. From the tall-growing A. Novæ-Angliæ, or its variety roseus or Novi-Belgii, to the tufted dumosus, there is a great distinction of habit, so that we can have them at the back of the border or in the front. A. cæruleus grandiflorus, raised by Swartz, is a variety we should know more of. It is very free and the flowers are of a beautiful blue. It grows to a height of 3 feet. I saw most of these in the fullest perfection the other day in the Broxbourne Nursery of the Messrs. Paul and Son, where there was also a magnificent show of

Autumn Crocuses, and Mr. Paul told me that, notwithstanding the brilliancy of C. speciosum in the autumn, when there is supposed to be little in bloom, he could hardly find a sale for it. The large patches of it were rich in purplish blue, relieved by the golden orange anthers, and on the rockery in clumps here and there remind us of spring, when generally we have a surfeit of yellow and blue varieties. C. zonatus, nudiflorus, pulchellus, medius, deep purple, are also in flower now, and yet seldom seen. It is hard to account for tastes and the predilection shown for certain things, while others are ignored.

Cyclamen hederæfolium and its varieties withstand frost well, also the glorious Senecio pulcher, a flower as hardy as the wild Rose, and extremely beautiful. A large bed of it at Broxbourne was the finest we have seen of this magnificent Groundsel. Of the beauty of Colchicums we need not write, but frost harms the tender flowers very little, and so they come in our category. Delphiniums in this garden were fairly fresh, but the Japanese Anemones drooped their heads; the frost had proved too much for them. A free, graceful, and wonderfully showy, yet not coarse, perennial Sunflower is Helianthus giganteus, and a mass of it at Broxbourne was the finest clump we have seen. Then there were the Rudbeckias quite gay with bloom, also the white-flowered Chrysanthemum latifolium, perennial Phloxes, Lilium auratum, Pyrethrums, early Chrysanthemums, the beautiful Polemonium Richardsoni, that seems always in bloom, and Tritoma Burchelli; but T. nobilis appeared touched, although its noble spikes of brilliantly coloured flowers were still beautiful. We might enumerate many more flowers that are frost-proof to a great extent, but we have mentioned sufficient to show what a number we have for the autumn garden. We generally expect a nipping frost early in October that, as in this season, cuts off the tender flowers when they are at their best, and it is then that those who have no Michaelmas Daisies or any other hardy flowers to fall back upon have cause to lament. We cannot sympathise with them when there are so many beautiful hardy flowers that will keep the garden gay throughout October and, if the season is at all pleasant, far into November.

The African Lily is one of the flowers of the week in many West Sussex gardens, where it is quite hardy. At South Lodge, Horsham, in a moist situation by the rockery it nestles against the rocks. At Leonardslee there is a circular bed filled with it, and the white variety has been added, which was flowering as freely as the old blue kind. This bed is on a sunny slope, and the conservatory drain has been conducted to it, so that the soil is kept fairly moist. A few branches are placed over this bed in winter. At Wimblehurst large specimens in tubs had from twenty to thirty spikes of flower. In the soft grey light of an autumn day no plant looks so well as the Agapanthus.

Sarracenias and Darlingtonias at Horsham.—In Mr. Godman's beautiful garden of hardy flowers at South Lodge, Horsham, the above-named things are hardy and are perfectly naturalised in a swampy place. In a low spot in the garden there is a Grass bog, and here we saw Sarracenia purpurea luxuriating in the Grass and Sphagnum Moss and spreading into large tufts nearly 2 feet across. It looked more natural, and was stronger than we have ever seen it in a pot or pan. Darlingtonia californica was quite as healthy, though not so large. No protection is given in winter, and, judging from present appearances, this little spot will soon be a miniature North American swamp.

The Corn Marigold (Chrysanthemum segetum).—I think that among all the so-called yellow Marguerites this takes a high place. I recently saw some large plants in the flower garden at The Priory, Warwick, and was struck with its effectiveness in the borders and its usefulness for cutting from. This is a plant that for many years was regarded as a weed in cultivated grounds and cornfields, where it is very abundant, but it is now raised to the rank of a garden flower, sent out as a novelty, and largely employed for decorating. Chrysanthemum segetum is a British plant, and the Corn Marigold of our fields. It is said that its specific name is derived from *seges*, a cornfield, its usual place of growth. Its popular name Corn Marigold similarly alludes to its place of growth and to the form and colour of its flowers. Goldens, another of the common names, similarly refers to that colour, and yellow Ox-eye does the same, and to a fancied resemblance of the flower's shape to that of the eye of an ox. In Kent it is called yellow Bottle, and in Norfolk, Buddle, both being common corrupt pronunciations of Botolph, the flowers beginning to open about that saint's day, June 17. It is the Gules, Goole, Guills, or yellow Gowans of Scotland.—R D.

Hardiness of the sweet-scented Verbena.—Many people are under the impression that this plant will not live in the open air during the winter, but more than one case has come under my notice where it proved perfectly hardy. At Howick Hall, on the coast of Northumberland, there was, and probably may still be, several fine beds of it, which, from what I could learn, were planted some sixty or seventy years ago. These annually produced shoots as thick as an ordinary walking stick, and long enough to make fishing-rods. In a favourable summer they attained a height of from 8 feet to 10 feet. To many this may appear incredible, but the correctness of it I can vouch for, though had I not seen them myself I might have been somewhat doubtful about it. To prove the thickness of the shoots, I have used many of them myself for staking herbaceous plants. The plants were treated in a similar manner to the hardy Fuchsias, several beds of which grew side by side with the former. The Verbenas, however, were completely covered with leaves, to the thickness of about 2 feet, from the end of October or early in November. This, of course, protected them in a great measure from severe frosts. In the spring, when all danger of

severe frosts was passed, the leaves were removed and the shoots cut down to within 2 inches or 3 inches of the ground. About the middle of May the beds were thickly studded with young shoots, and although I have seen them a trifle injured by frosts at the end of that month, they would, as stated above, attain to an extraordinary size before the end of the season. This was the only instance in the north of England where this Verbena could be established in the open air that has ever come under my notice, though I know of several places on the south coast where it luxuriates in the open border. But if it can be thus established in the most northern county, why not in many more places? —C. Collins.

DIFFERENCE BETWEEN CARNATIONS AND PICOTEES.

Can any reader of The Garden oblige me by telling the characteristic distinctions between Carnations, Picotees, Cloves, Pinks, and other denominations of the great family of Dianthus?—L. T.

*** Gardeners and amateurs are frequently at a loss to distinguish between the above, but careful readers of The Garden ought to know their particular and peculiar characteristics.

Carnations, Cloves, and Picotees differ from each other in colour only, and have all been produced from Dianthus caryophyllus. The Carnation is generally placed first in order of merit, and the florist's Carnation is divided into six sections, viz., scarlet bizarres, crimson bizarres, pink and purple bizarres. The above have two colours in flakes or stripes on a white ground. Purple flakes, scarlet flakes, and rose flakes. These have flakes and stripes of the three colours named on a white ground.

Cloves and self Carnations are rather mixed, because a Clove is a self-coloured Carnation with a pronounced Clove scent. The very old garden favourite the crimson Clove has usually been termed a Clove merely, and other self forms, whether they were Clove-scented or not, were termed Cloves; whereas they should be termed selfs merely.

The Picotee is a form of the Carnation with the flower white or yellow, and marked at the margin merely, and the florists have classed them as light, medium, or heavy edged. There are also three colours, and for the purposes of exhibition they are classed as follows:—

Heavy red-edged, light red-edged; heavy purple-edged, light purple-edged; heavy rose or scarlet-edged, light rose or scarlet-edged. The yellow ground varieties are as yet not numerous enough to be divided into classes according to their colours. A Picotee of the highest quality has no bars, spots, or marks of any kind on the white ground, but no yellow ground varieties have been raised to this point of excellence.

The Pink.—This is altogether a different plant from the Carnation. It claims a distinct parentage and is probably descended from Dianthus plumarius. Pinks are divided for garden purposes into border or forcing, and show or laced varieties. They are all good garden plants. The border varieties are usually white or coloured selfs, or pink, coloured with darker centres. The show Pinks have a pure white ground, with a lacing of rose-purple or various shades of these colours, maroon, red, &c. They are all more slender in growth than the Carnation, and produce their flowers under the same conditions a month earlier.—J. Douglas.

Borage in the flower garden.—There are many things grown in gardens for the sake of their bloom not so well worthy of a place therein as the common Borage. Large plants in full bloom have an attractive appearance, and the bright blue tint of the flowers is not very common. It flourishes in the poorest and driest of soils, and might be usefully employed in those portions of the pleasure grounds where something that will come up annually without the trouble of sowing is required. Once Borage perfects a crop of seed, the soil is stocked for years.—J. C. B.

Iceland Poppies.—It is no wonder that these have so rapidly grown in favour. Their bright colours make them very striking, and the moderate size of their blooms renders them very suitable for cutting. The variety called miniatum is one of the most brilliant flowers we have, and in a mass must have a fine effect. Unlike many hardy flowers, these Poppies do not demand any careful preparation of the soil. No matter how poor it may be, they are quite at home. As to propagation, they come from seed as freely as any other Poppy, and a small packet of seed will give more plants than the owner of a small garden will care to find room for.—Byfleet.

THE IVY-LEAVED SOWBREAD.

(C. hederæfolium.)

This beautiful hardy bulb is at its best now, and it is surprising what little use is made of a flower that blooms in the autumn and offers no special difficulty in culture. Where there are rockeries or rooteries no trouble will be experienced in finding nooks and corners for C. hederæfolium and its numerous varieties, which are exactly fitted for association with the autumn Crocuses, of which C. speciosus is one of the best known. Plant them in the wild garden amongst the Grass, if this is not too ragged, and under the shade of trees, naturally and without a desire to create colour effect. C. hederæfolium is figured in the *Botanical Magazine* (t. 1001) as C. repandum, but this is quite distinct from the more common hederæfolium, although the two are often sent out as the same, and also as neapolitanum, whilst there are other synonyms. Græcum, sometimes classed as a species, is merely a variety of hederæfolium, as may be seen when the two are grown side by side. The forms of this last-named Sowbread were flowering exceeding well the other day at Broxbourne where this class of plants is made a speciality. Dotted about here and there in clumps on the rockery we could discern the usefulness of this alpine flower, that is found in Central and Southern Europe, more particularly Italy, Greece, Switzerland, and also on the northern coast of Africa. In the southern counties of England it has in a few gardens been almost naturalised in the copses, and such gardening shows true art and beauty. C. hederæfolium commences to bloom in August or September, and keeps on through the autumn, in mild seasons sometimes until Christmas, especially in warm winters, and where the Cyclamens receive the protection of knolls, clumps of trees, and rocks. It is astonishing the great variation there is in the leaves of hardy Cyclamens. In a batch of seedlings the diversity in the leafage was most marked. Some had sagittate leaves, others cordate, and running through many phases of leaf variation. The typical hederæfolium has leaves of various markings, and which appear generally after the flowers, which are of different shades of red, with a purplish base. Græcum is later in blooming, and has darker flowers, while the leaves are beautifully variegated, reminding one more of those of the persicum type; they, unlike those of the typical form, appear with the flowers. At Broxbourne there are some forms worth special distinction; one is named roseum album, and the flower is white with a pink base, exceedingly pretty; quite unlike the form robustum, which has a larger leaf than that of persicem, broad, deep green, mottled with a lighter shade, and it also has a longer stem than the type, while the flowers are rose-coloured. A form with a grey leaf was most marked, as the colour was green, mottled with silvery grey, and different from the usual run, notwithstanding we find oval, sagittate, and Ivy-shaped foliage. The white variety of hederæfolium is very chaste amongst the pink and other colours. Thus it is seen how surprisingly hederæfolium varies, but this variation instead of detracting from, only adds to its value.

The way to propagate hardy Cyclamens is by seed, which may be sown in shallow pans thinly and placed in a frame, or the plants may be allowed to sow themselves. When large enough the small bulbs may be pricked out, and after about three years' growth they will commence to bloom. At Broxbourne there are some immense bulbs having a great spread of foliage, and some of these veterans have reached the age of twelve and fourteen years. When in that condition their beauty, when both flowers and leaves are in full perfection, can be well imagined. The soil to choose is a matter of importance, and it is, perhaps, in a great measure from growing the bulbs on in an ordinary staple that so many have failed to thoroughly establish them in their gardens. The best soil is a mixture of well decayed leaf-mould and limestone *débris*—no manure at all. Given this, and a position favourable to them, they will, if left alone, soon develop. It is important not to dig amongst the bulbs. It is this kind of treatment that kills the hardy Cyclamen and many another alpine gem.

A choice flower bed.—I lately saw a pretty autumn effect made by planting an oval-shaped bed with good bushy plants of Aster Amellus bessarabicus in the centre, around it being freely flowered bushes of Chrysanthemums Mignon, nanum, and Mme. Jolivart. The pale blue of the Aster contrasted well with the yellow blooms of Mignon, the creamy white of nanum, and the blush ones of Mme. Jolivart.—E. M.

Dwarf single Dahlias.—In the London Road Nursery of Messrs. Sutton and Sons at Reading is growing a batch of new single Dahlias of quite a dwarf character. The plants do not grow more than 2 feet 6 inches high, flowers included, while some are not more than 1 foot high. The batch embraces many shades of colour, which will no doubt be augmented shortly. This type of single Dahlia will prove most useful for bedding, as the varieties possess the characteristics needed—profusion of bloom upon dwarf plants. —E. M.

Helianthus multiflorus grandiplenus.—The double perennial Sunflower described under this name by "Soleil d'Or" (p. 294) is a very distinct form of H. multiflorus pl., and far more effective than the type, the large florets being folded after the manner of a Cactus Dahlia, and giving to this flower a richness and boldness which are not found in the ordinary form of Helianthus. The formation of the blooms, richer shade of colour and dark flower stems all bear out the statement that it is a distinct plant, which, when more known, cannot fail to be appreciated as its good qualities so well deserve.—J. T. Poë, *Riverston*.

Dahlias at Heckfield.—The Cactus varieties, Cochineal, rich dark crimson; Lady E. Dyke, bright yellow; and Sensation, a new free-flowering variety with deep purple blooms and of a tall habit of growth, are at Heckfield considered the best in this section. Single sorts noteworthy are Sunbeam, a finely-formed yellow variety; Mary Anderson, red, of good shape; Mauve Queen, Clytie, and Duchess of Westminster, still one of the best. These two sections of Dahlias show off to advantage alongside the hedge of Cupressus Lawsoniana in the kitchen garden.—M.

Lavatera rosea and alba.—These free-flowering annuals have been very showy this season, the recent wet season having produced much growth on the plants, while the bright weather experienced during September allowed the plants to freely develop a profusion of handsome coloured blooms. Particularly effective is the rose-coloured variety this season. In some instances the plants have grown to a height of 5 feet. These subjects are used with capital effect in the stone baskets on the terrace at Heckfield. This season, where mixed as they are with single and Cactus Dahlias, summer-flowering Chrysanthemums, and miniature Sunflowers, a capital effect is produced. —M.

Wet *v.* dry seasons.—No two summers could be more dissimilar than the one just passed through and that of last year. Whilst last year we looked in vain during July and August for refreshing rain, and watering occupied half the time, this season rain has been so heavy as to almost wash crops out of the ground. One lesson taught is, that we should not rely upon any particular class of plant to ornament our gardens in the summer time. Last year, tender things, especially zonal Pelargoniums, made a fine show, but they were a miserable failure this summer, and have only at its close given some reward for the labour expended on them. But, on the contrary, hardy flowers have bloomed well, and their period of beauty was lengthened by the dull weather. I need not remind your readers how different they were from last season when many kinds were dried up before they could become effective. Even such drought-resisting things as

Carnations suffered terribly from the dry weather. It is, therefore, evident that those who wish to make sure of having an enjoyable garden in the summer, must not rely exclusively upon either tender or hardy flowers, but judiciously combine the culture of both.—J. C. B.

AUTUMN-FLOWERING CROCUSES.

Amongst the few flowers that are now enlivening our flower gardens are the autumn-flowering Crocuses. Although not very imposing at first sight, they are, when judiciously planted in groups, most effective, and worthy of more attention than they usually receive. For general effectiveness they are by no means inferior to the spring-flowering species, but whilst the latter are found in nearly every garden the autumn-flowering species are but rarely seen. There are many places where they might be utilised with advantage, such as on rockeries, around the margins of shrubberies, the flower border, or for naturalising on grassy plots by the side of walks, &c. Here they are very effective and seen to more advantage than when growing amongst other plants. Although in no way fastidious as to soil, they thrive best in a light sandy loam, and will well repay any extra attention, such as planting them in a prepared soil. There are several species, one of the best being C. Boryanus, sometimes known as Bory's Silver Crocus, probably from the silvery whiteness of its blooms. It, however, varies very much, being in some places and soils pure white; whilst in others the petals are creamy white, with an orange-yellow throat. One of the commonest of the autumn-flowering Crocuses is C. nudiflorus. This species is particularly adapted for planting on grassy plots where its bright purple blooms are during the dreary autumn months seen to advantage. It will thrive in moist soils if not too wet. C. sativus is another pretty variety well worth attention. The flowers, which are usually produced in abundance where liberal treatment is given, are of a fine violet hue. Another useful and showy species is C. speciosus, which produces a large bluish flower striped with deep purple. There are also several more varieties worthy of more extended culture, such as C. pulchellus, &c.

C. Collins.

SHORT NOTES.—FLOWER.

Venidium hirsutum is conspicuous now for its brilliant yellow Marigold-like flowers. A plant at Kew is the gayest thing in the hardy garden.

Arenaria bifolia, a mossy creeping herb, was flowering freely at Broxbourne the morning after a frost of 8°. Its small white flowers stud the rich green growth.

Lythrum alatum is one of the hardy plants that remain beautiful in spite of cold. A plant at Kew was in full bloom after a succession of frosts. Its slender stems are studded with the cheerful purple-lilac flowers.

Tufted Pansy Archie Grant, the finest, perhaps, of all the self violet-purple-coloured varieties, was still flowering freely in the Epsom nursery of Mr. Morse, even after a succession of severe frosts.

The purple Cone Flower (Echinacea purpurea) is a capital free-blooming border plant at this time of the year, and the flowers are of a pleasing shade of purple. It grows about 3 feet high, and is well worthy of a place in the herbaceous border.

Linaria triornithophora is a very showy annual, commencing to bloom early in July and continuing until the middle of October. A few degrees of frost do not appear to interfere with its freedom of flowering. The colours being so variable, render the plant attractive.—M.

New bedding Lobelia Die Shone Darmstaderin.—This was sent to me by Wilhelm Pfitzer, and is of a free-growing and compactly tufted habit of growth, with medium-sized flowers of a rich deep shade of blue. It continues to bloom profusely up to the very end of the bedding season. —W. E. Gumbleton, *Belgrove, Queenstown, Ireland.*

Mina lobata.—This half-hardy climbing annual is capital for training up a south wall. The flower-buds are at first bright red, changing to orange-yellow and fading to a creamy white when expanded. It deserves more extended cultivation.

The Virginian Poke-weed (Phytolacca decandra) is a plant not often seen, but at this time of the year it is worth a place in the herbaceous borders. Its flowers are not showy, but the dark red berries, produced somewhat like Indian Corn, are very effective. A plant 4 feet high, with its top part covered with the berries yet black, is attractive.

Pompon Dahlias Sensation and Golden Gem.—These two varieties rank amongst the best in their respective colours for supplying blooms for cutting, as they flower profusely and are of compact growth. The colour of Sensation is pale sulphur, while that of Golden Gem is pale yellow.

NOTES ON THE LILY SEASON.

To the Editor of The Garden.

Sir,—As the Lily season is now drawing to a close, I send you a note of what it has been with us. The early blooming Lilies were very good; we never before had such fine Lilium Browni and L. Hansoni. L. Szovitzianum, L. tenuifolium, and some L. longiflorum bloomed well. L candidum simplex in a few situations were good, but in most the leaves were attacked, became brown, and the plants made no growth. L. Humboldti in sheltered situations were fine, but exposed on the hill went off suddenly in a few cold, wet days, and all the buds became brown and spoilt. L. pardalinum and L. californicum, where moderately sheltered, were fine. L. auratum, in exposed situations in full sun, were good, and much less affected by the wet weather than most of those which were sheltered from wind. It seems that with our two largest beds of these, the one exposed on the hill side is finest in cold, damp years, and the other, sheltered in the wood, in dry, hot years. The varieties rubro-vittatum, platypetalum or platyphyllum, and macranthum have had some very fine flowers, but most had one or two damaged by the drip, or bruised by the unusually heavy rain to which they were exposed. The finest growths we had were in beds in a wood at Weybridge; here the ordinary L. auratum had several stems from 9 feet to 10½ feet high and perfect blooms which showed finely among the trees; but even here, where bad weather has not till this year injured them, a good many were damaged. L. Martagon dalmaticum in most situations were good. L. tigrinum splendens flore-pleno and Fortunei bloomed well, but L. tigrinum jucundum had its buds injured, as were also those of L. Batemanniæ. L. Leichtlini and L. Parryi were damaged, and had no good flowers. L. polyphyllum was not strong; our finest plant was damaged by the stem being cut to the ground for exhibition last year. L. giganteum bloomed well, L. cordifolium moderately. L. superbum was very fine in some situations, but very bad in others. L. neilgherrense has grown well, but will be too late to flower satisfactorily. The season was such a late one, that I feared the varieties of L. speciosum (lancifolium) could not bloom before the frost came upon them; but the recent hot sun has brought them on fast; those exposed on the hills had their buds damaged by the heavy rain, but in most of the sheltered situations they were little injured, in some not at all, and are now blooming well. L. Krameri bloomed well; we had one of the very high-coloured varieties. L. columbianum and L. avenaceum were good.

George F. Wilson.

Cactus Dahlias.—These have been very fine with me this season; in fact, better than ever. The best white on the place is A. W. Tait, of which I send you a few blooms. During August and through the greater part of September, Constance produced but a very few blooms, and such were all malformed and semi-double. Mrs. Pierce acted in like manner, but now that the nights are getting longer, and no frost in my place yet, both are much better, giving a fair supply of shapely, well-formed flowers. Mrs. Hawkins is very beautiful, and has grown to immense proportions, the plants being 4 feet through and 6 feet in height, and blooms not so hidden as heretofore. This variety, like the old scarlet Cactus Dahlia, requires a lot of thinning, so that the sun can pass right through the growth of foliage, and in good soil must have an 8-foot centre stake to start with, allowing more than a foot to firm it in the soil. King of the Cactuses has been also very fine, but the best plant in the lot is Dennis's Imperial, or what we in Ireland used to call the old Pompadour fifty years since, and some time since the discarded Annie Harvey, of Tottenham. It is the finest and most effective plant I have had since July, and certainly the most free-flowering of all the tribe. I send you some blooms for observation.—W. B. Hartland, *Temple Hill, Cork.*

FLOWER GARDEN NOTES.

Shrubbery banks.—The wet, cool summer has not been an unmixed evil, even as far as our gardens are concerned, as shrub and tree growth have been simply marvellous, and the benefit will not end with the present year, the soaking has been so thorough. The effect of it is strikingly visible on a piece of rough rockwork, or, as I prefer to call it, a shrubbery bank, that we have here, and which is clothed in promiscuous fashion with spiral and bush-formed shrubs, the undergrowth to which is St. John's-wort (Hypericum), Cotoneaster, Periwinkle (Vinca) green and variegated, and Irish and common English Heaths. The standard plants are various kinds of Retinospora and Cupressus. For variety of coloured foliage this arrangement is equal to many sub-tropical bedding arrangements, and did space permit, of course, the variety could be greatly increased. I strongly advocate this mode of planting for steep banks that must otherwise be turf and therefore difficult to mow. The plan is also suitable for the forming of screens to shut out the view of offices, sheds, &c, and will be found to be a much cheaper screen than an ordinary brick or stone wall. Any old boulders or brickbats can be used for forming the foundations and holding up the soil till the roots of the plants have got a firm grip of it, there then need be no fear of a collapse. As the planting time is at hand, all such corners that would be improved by the forming of such a screen should be decided on forthwith, that the planting may be completed before the winter. We have a piece of such work in prospect, and hope to begin it immediately.

Arundo conspicua *versus* Pampas Grass.—Both these are now very fine; their Sedge or Reed-like appearance makes them very suitable for planting on the banks of streams and lakes; in fact, I could never yet bring myself to plant one anywhere else. They are very picturesque on the banks of the lakes here, and except in the depths of winter when they get slightly browned by frost, they always look trim and neat, and in that direction associate well with closely cut turf and good gravel walks. Of the two I give the preference to Arundo, both for gracefulness and its long season of flowering. Its plumes have now been in perfection nearly three months and the Pampas plumes a fortnight. The latter are more massive and of service for house decoration, but this last point is of little consequence compared with the decoration of the landscape, and I therefore give first place to Arundo. Both are worthy of a position, but those about to plant on the banks of lakes, streams, &c., will do well to use the Arundo largely. Stiff holding loam is the soil the plants do best in. We procured clay to intermix with our light loam, and in this mixture the plants do well. They are most impatient of removal, or in fact of being disturbed at the root at all. This experience we have bought dearly, and therefore feel competent to warn others not to transplant. To increase stock, seed-sowing is best, and the next best way is to take offsets from any plants that may have thrown up growths a little removed from the principal stool.

Flower gardens and frost.—On the morning of the 3rd inst. the mercury descended in a self-registering thermometer to 25°, or 7° of frost. Results: Dahlias, Coleus, Alternantheras, Solanums, Castor-oils, Wigandias, &c., all destroyed. Too cruel this, after such a short-lived summer, and to come so suddenly made matters worse. It was no wonder that for a day or so we vowed that there should be an end to using tender plants in the

flower garden. It is easy to make such a vow, but difficult to perform it—except in part—and, as far as I am concerned, I shall do that part by continuing the reduction of tender bedders in every possible way; much has been done. No more ground can be occupied by herbaceous perennials, and so we shall hope to obtain consent to have beds of Roses, Clematis, and so on, where previously so called "carpet bedding" (we have none of that here) held sway. The beds that have been thus summarily robbed of their beauty cannot—here at any rate—be left in that state, and after clearing away dead plants, small shrubs, hardy Heaths, Wallflowers, Hyacinths, Tulips, &c., are being planted in their place, and as it cannot be expected that these will cover the ground for a long time to come, we do the next best thing, and that is, cover the soil between the shrubs and plants and over the bulbs with Cocoa fibre refuse, and thus get both neatness and root-protection at a nominal cost. A dozen sacks of fibre can be had for about six shillings.

BEDDING PLANTS THAT ARE STILL GOOD.—The sudden frost has revealed the fact that some plants are hardier than we are wont to credit them. All bedding succulents that we use are uninjured, with the exception of Echeveria metallica and the variegated tree Sempervivum. Echeveria secunda, E. secunda glauca, E. farinosa, the variegated and green Agaves, and Yuccas do not seem a bit the worse. Marguerites of all kinds are flowering as freely as if there had been no cold. Herbaceous Lobelias and Abutilons are unscathed. Fuchsias are a very little touched, and also variegated Pelargoniums, but the stronger growers are still in good flower. Verbenas, Calceolarias, summer-flowering Chrysanthemums, and tufted Pansies are, as a matter of course, still flowering. The only plants that we use as sub-tropicals that are still good are Hemps, Tobacco, Grevilleas, Acacia lophantha, New Zealand Flax, Melianthus major, and Blue Gum (Eucalyptus globulus). The hardiness of the plants enumerated bespeaks for them increased favour, and, therefore, increased use another year, and provision of stock should accordingly be made either by taking cuttings or lifting the plants before a sharper frost destroys them.

GENERAL WORK.—The propagation of Calceolarias, Violas, Pansies, Gnaphaliums, and Leucophytons. All of them do best in cold frames. We never use pots or boxes for any, but simply insert them firmly in light sandy soil, keep them nicely moist and the lights rather close till struck, and then give air freely when the weather is favourable. Mat-covering all that is needed except in long-continued frost; then Bracken, straw, or litter should be put on the mats. Cutting pots and boxes of Pelargoniums and other soft-wooded bedders should now be housed. The tender kinds should be given the warmest places in the houses and as near the light as possible. Coleus and Alternantheras require a strong heat to keep them successfully through the winter; on shelves in Cucumber or Pine pits is the position they enjoy. All kinds of tender plants in the beds that it is intended to save should be lifted at once; some will do good duty as winter flowers for cutting and room decoration. Among these are the smaller plants of Marguerite, tuberous Begonia Princess Beatrice, Heliotropes, and Abutilons. They require a little heat to start them into fresh growth, but afterwards an intermediate house suits them well. The flower-stems of Hollyhock should now be cut down to within a foot of the ground. Cuttings are usually produced in abundance from the base, and if these are taken off with a heel and put in a slight hot-bed, they will quickly root and make good flowering plants for next year. The old plants will winter best if lifted and planted in a frost-proof frame. No artificial heat should be given, as it starts the plants into activity too soon, and the subsequent growth is weakly and becomes an easy prey to parasites—otherwise called "the disease." Dahlias label and cut down, and the first sunny day lift and expose the roots to the sun; then heel them in in Cocoa fibre refuse in any dry place that is cool and frost-proof. Cannas will winter well under exactly similar circumstances. W. W.

STOVE AND GREENHOUSE.

SCHUBERTIA GRANDIFLORA.

THIS climber of the Argentine Republic has been written of several times in THE GARDEN, and the coloured plate of it published in the number for July 30, 1887, conveys a truthful and excellent idea of this graceful and distinct member of the Asclepiadeæ order. It is there fully described and a history with cultural directions given, so it will be only necessary to briefly refer to it. The accompanying illustration shows the character of the blossoms, which



Schubertia grandiflora.

are of funnel shape, more of an ivory white than pure white, and with a fragrance that is at once characteristic and distinct. It is peculiarly aromatic and nutty, not sickly like that of the Stephanotis and Tuberose; and we seem here to have a dangerous rival to the Stephanotis, beautiful as this climber is, as it is just as free in growth, making shoots of great length in a single season and bearing clusters of from eight to ten flowers. There is one drawback, and that is the unpleasant odour of the leaves when bruised; the abundance of reddish-brown hairs also does not add to its beauty in our opinion. But its advantages outweigh its disadvantages, and it seems to be only a matter of time for it to become a general favourite. A specimen the other day was in full bloom in the nursery of Mr. Morse at Epsom, and this had been flowering for weeks past. Some seedling specimens were bought in February last and when planted were about 6 inches high, the seed having been sown about twelve months previously. Although no special culture was given, but rather the opposite, the plants have covered one of the rafters, and for some weeks past a plentiful supply of flowers for button-holes and bouquets has been obtained. It likes plenty of sun and rich soil, especially when in a pot, but offers no great difficulty in culture. Last week this plant was still blooming freely. Although often described as a greenhouse plant, it requires an intermediate temperature to bring out its full character, and when seen in perfection its elegance and informality render it attractive, while all appreciate the nutty fragrance of its Stephanotis-like flowers.

HIMALAYAN LILIES.

CONSIDERING the limited number of Himalayan Lilies, it is somewhat singular that two of them (L. nepalense and Wallichianum) should have been exhibited within a fortnight of each other at the meetings of the Royal Horticultural Society, and both in such condition as to each gain a first-class certificate. Of the only three other species from that region, L. polyphyllum was recognised in the same way in 1880, and L. neilgherrense as long ago as 1876. This is more commonly met with than the others; indeed, a considerable number of bulbs are every year imported into this country from their Himalayan home, and, generally speaking, they flower well the first season; but it is certainly a very difficult Lily to maintain for any length of time in a flourishing condition. It is, indeed, a very grand and imposing Lily, the flower-stem of which reaches a height of 2 feet to 4 feet, and is clothed with scattered dark green leaves of a stout, firm texture, somewhat variable in size, but, generally speaking, from 3 inches to 4 inches is their utmost length, and in many cases they are shorter than that. The blooms are long and tubular, something like those of the variety of L. longiflorum known as Harrisi, but they present a more massive appearance than Harrisi does, and besides that, the Neilgherry Lily is more or less of a yellow tint, though it varies to a considerable extent, for in some the blooms are almost white, and in others deep primrose. There is also considerable variation in the shape of the flowers, some being much shorter in the tube than others and more open, while an extreme form is sometimes met with in which the tube is very long and contracted. In this the segments of the flower are more revolute than in any of the others. It appears to be the L. tubiflorum of Wight, but it is certainly no more than a form of L. neilgherrense. This Lily frequently behaves in a peculiar manner, for the flower-stem will often proceed underground for some distance before coming to the surface—that is, if it is not confined, but should it be in a pot the stem will often make its way around the ball of earth, and finally appear just at the side of the pot. A valuable feature of the Neilgherry Lily is the fact that it flowers after all Lilies are past, its general time of blooming being the months of September, October, and November, though I have often had good blooms up to Christmas. The second Lily from this region (L. Wallichianum) is something in the way of the last, but the points of difference are strongly marked. In the first place, the bulbs differ widely, those of L. neilgherrense being globose in shape and composed of large scales rather loosely put together, and mostly of a reddish colour; while L. Wallichianum has longer and more pointed scales closely adpressed together, so as to form a firm, solid, and somewhat pointed bulb, whose colour is generally whitish. The leaves are scattered on the stem, as in L. neilgherrense, but they are much longer and narrower than in that kind; indeed the foliage is very much like that of L. philippinense. The flower-

tube of this is very long and narrow, and generally the segments reflex in a marked manner. I have never succeeded with either of the above-named Lilies out of doors, though among my notes is one from the late Mr. Niven, who says it stood sixteen years in the open ground at Hull and flowered annually. Though this should be proof of its thorough hardiness, I think that both may be safely classed as greenhouse Lilies; indeed, even if L. neilgherrense were quite capable of standing the winter out of doors, the season at which it blooms would render shelter absolutely necessary to prevent the blooms from being injured. The third Himalayan Lily (L. polyphyllum) has a peculiarly long-pointed bulb, in shape more nearly resembling that of the Siberian L. tenuifolium than any other kind, while the flowers are drooping and prettily reflexed, somewhat after the manner of L. Szovitzianum. The colour is yellowish dotted with purple. When grown out of doors this needs a somewhat sheltered spot, and thorough drainage is essential to its well doing. The fourth species to be noted here is L. nepalense, which attracted so much attention when it was exhibited at the Royal Horticultural Society on September 11 last. The blooms of this are tubular and pendent, while the petals recurve in a peculiar manner. Both the interior and exterior of the throat are a greenish yellow, and so are the recurved tips of the petals, but the remainder is of a dark red colour. Messrs. Low's specimen had been grown in a pot in a cool house. The remaining Himalayan Lily (L. giganteum) is widely different from any other, except it be the Japanese L. cordifolium, which is a small growing form of L. giganteum. The large heart-shaped leaves of L. giganteum are very ornamental, while the stately flower-spike terminated by a number of long tubular blossoms forms a most imposing feature. The colour of the flower is whitish, tinged more or less with purple. H. P.

Impatiens Hawkeri.—Like your correspondent, "Erin," p. 307, I have grown this Impatiens since it was first sent out, and my experience of it is perfectly in accord with his, for though it will occasionally produce a flower or two when in a small state, it needs at the very least a pot 6 inches in diameter, and even then seldom thrives so well as it does with additional root room. As a specimen plant for the stove it is, however, remarkably showy, and as such will no doubt meet with extended cultivation, but it will never supersede the older Impatiens Sultani, as it does not flower so freely as that kind, while a warmer structure is needed to maintain it in health. As with your correspondent, I. Hawkeri has not produced seeds here, neither has it with any of my friends who possess the plant; but that matters little, as it will strike easily from cuttings during the spring and summer if they are formed of the growing (not flowering) shoots, and kept close till the roots are produced.—H. P.

Sarracenias as insect traps.—Our plants of these were grown during the past summer in a warm and sunny pit, and made some nicely-coloured leaves. A few days ago we took some of the best plants into the Orchid house, and now I see three cockroaches in one of the pitchers. Two were dead, but the third, a fine specimen, was alive and active, and yet he seemed quite incapable of getting out of the pitcher in which he was imprisoned. These plants catch flies, moths, and beetles by the hundred, and on cutting away old, decayed pitchers it is usual to find them stuffed full of dead insects. Someone once told me that in California the residents near where the Darlingtonia grows often use its pitchers as fly-traps by suspending them in their houses. At the Edinburgh Botanic Gardens Mr. Lindsay showed me pitchers of Nepenthes half full of water containing quite a collection of flies, ants, cockroaches, and other insects; and in the same garden the cockroaches evinced quite a liking for the leaves of the Coca plant (Erythroxylon).—F. W. B.

Anthurium Lindeni.—This is a plant which has long been known and grown in English gardens for the beauty of its foliage, but I recently noted it flowering in the garden of the Comte de Germiny and in the public gardens at Rouen. It has a large and handsome white spathe, and in these days, when white Anthuriums are a desideratum, it is well deserving of more attention.—W. H. G.

DWARF GERMAN SCABIOUS.

The fact that Mr. T. S. Ware sent a double white form of the dwarf German Scabious as a new plant of merit to the last meeting of the Royal Horticultural proves the value that is attached to this group of plants. They have such a high decorative value, that it is not to be wondered at Mr. Ware thought his form to be of unusual excellence. But the double white form is not uncommon. When looking through a fine collection at Gunnersbury Park a few days ago I saw the pure white double form there, and it is found in all collections of eight or so varieties.

Messrs. Vilmorin and Co. make our garden Scabious, both tall and dwarf, to have come from S. atropurpurea (Desf.), and this I should imagine is an offspring of the common British form. They are termed German Scabious because the German florists improved the varieties, and by selection developed new colours. At Gunnersbury Park Mr. Roberts grows the dwarf German Scabious to perfection, and they do duty during the summer and also through the winter and spring; but not the same plants, for two sowings are made, one in early spring from collections of eight varieties, and another in September or thereabouts from the same. The spring and late summer sowings are made in boxes; the plants raised from the former are planted out in lines in front of his glass-covered Peach wall or by the side of walks, and to secure the best decorative effect the varieties, though sown in their colours, are mixed together, and being planted out in good soil flower abundantly and very finely. It is not too much to say that they furnish Mr. Roberts with bushels of cut blooms, and they will go on flowering until the blooms are destroyed by the wet and fogs of autumn.

The plants raised from the late summer sowing and bloomed in pots, generally of a 6-inch or 7-inch size, are placed in a frame where they can have the help of a little fire heat or in a forcing house. They do best with just enough heat to expel damp and assist in the expansion of the flowers. They are found very useful indeed for cutting from during the winter.

There is a very pleasing range of colours in the dwarf varieties, from a rich crimsom-maroon down to pure white, through crimson, rose, mauve, salmon, and other shades. Some of the varieties are apt to be sportive, and it is these sports which have helped to add to the varieties in cultivation.

It is, no doubt, a great advantage to have the dwarf strain, but it has been gained at the expense of size in the flowers. Some of the tall-growing forms are really superb; but they are too tall for small gardens, and in large ones they are apt to be blown about by the wind and their beauty destroyed. This is how it is the dwarf strain has become so popular. I am quite sure that in the case of well grown plants, if bunches of the different varieties were shown in public they would surprise people with their variety and beauty. I think the Scabious is not nearly so well appreciated as it ought to be, because it is not known, and I infer this from the fact that Messrs. Sutton and Sons in their work on "Plants and Flowers" do not mention the Scabious. As I write there stands before me a vase of varicoloured blooms with which are mixed a little foliage and some heads of a simple Grass, and I can assure your readers that being tastefully arranged the effect is charming. R. D.

Canna Souvenir de Louis Van Houtte.—This a variety well deserving the attention of English gardeners. It is dwarf in habit and a free and continuous bloomer. The flowers are large and of a rich, deep crimson-scarlet. It was one of the most attractive plants recently noted in the Garden of Plants at Rouen. M. Varrene assured me that it bloomed the whole season through in the open air. It is one of the fine forms of the old Indian Shot that appears to be receiving more attention from the gardeners in France than they receive on this side of the channel, but we certainly are the losers by neglecting them.—W. H. G.

Passiflora kermesina.—This charming species, with its free-growing slender habit and medium-sized, three-lobed, dark green leaves, can be seen just now to great advantage in the stove house at Gunnersbury House gardens. Mr. Hudson has it trained the length of the house, about a third of the way up the slanting roof, and its flowers hang down a foot or so below the foliage. The blossoms are of a rich magenta-crimson colour, medium-sized, and freely produced. Mr. Hudson finds the flowers very useful for table decoration. It is just suited for such a position. The space of the roof below the Passiflora is filled up with a plant of Dipladenia amœna similarly trained, and this also blooms very freely, and quantities of its flowers are cut for table decoration.—R. D.

The Garland Flower (Hedychium coronarium) is now in great beauty in the Water Lily house at Kew. Its great clusters of snow-white flowers are so strongly perfumed as to scent the house, and the plant delights every appreciative visitor. Treated as a semi-aquatic, it seems to flourish to perfection. H. flavescens, which is like the Garland Flower, except that the colour of the flower is yellowish, has been finely in bloom; and the common H. Gardnerianum, which has massive cylindrical clusters of yellow flowers, is one of the features of the temperate house, where a huge specimen planted out in free soil is carrying numerous spikes. These three Hedychiums are valuable garden plants thoroughly deserving the attention of those who like to grow plants out of the ordinary run. They are all of easy culture. The two first succeed best in a stove; the last in a greenhouse and in some warm places in the open air. Mr. G. F. Wilson has a plant of H. Gardnerianum in flower in his Wisley garden. It has been planted out for some time, and seems to withstand the winters well, but, of course, its growth and flowers are not to be compared with those of the plant under glass.

Two beautiful Calceolarias for the greenhouse in autumn are C. fuchsiæfolia and C. Pavoni, both of which are in flower now, and may be seen side by side in the temperate house at Kew. The Fuchsia-leaved species is the finest, perhaps, of the two, and likely to be the most valuable for general culture. It is a small growing shrub, of loose habit, with leaves very much like those of the ordinary Fuchsia. The flowers are a bright clear yellow, about the size of those of the bedding Calceolaria, and are borne in loose clusters terminating the branches. The strong contrast of the abundant flowers with the dark green foliage makes it a most striking plant at this time of year. It is easily grown in an ordinary cool greenhouse or frame, and may be even grown in the open border during summer if lifted before frosts come. It is the finest of all Calceolarias for winter flowering. It is also known as C. deflexa, and is a comparatively new plant, having been introduced in 1878. It was first brought into notice by Messrs. Rodger, McClelland, and Co., of Newry, through Mr. T. Smith, and in 1879 a coloured plate of it was given in The Garden (March 29), accompanied by an original botanical description by Mr. W. B. Hemsley. C. Pavoni is a herbaceous species of less garden value than C. fuchsiæfolia, but still very handsome. It is a tall growing plant, with larger leaves and the flowers are much larger, and of a paler yellow. It may be grown well against a wall out of doors in summer. Between these two Mr. Burbidge raised his beautiful hybrid C. Burbidgei.

Zonal Pelargoniums for market.—It is a very interesting and instructive visit that anyone can pay to Messrs. Hawkins and Bennett's nurseries at Twickenham during early summer, for there they can see zonal Pelargoniums grown in enormous quantities for cutting for market. The plants are raised from autumn-struck cuttings, and by the time they come into bloom they have grown into good size and are of a very bushy character. The leading sorts are Raspail, double scarlet; Henri Jacoby, crimson; De Lesseps, scarlet;

Vesuvius, pale scarlet; Eureka, Queen of Whites Improved, Jeanne d'Arc, and Niphetos, white (white zonals being in very large demand); and Constance and Master Christine, pink. The trusses are gathered and then passed on to girls, who deftly place a drop of gum in the centre of the flower without staining the petals or making its presence known, and they are then put into bunches and carefully packed in shallow boxes for sending to market. Mr. Bennett said that the before mentioned varieties are the best he has yet seen for the purpose. The double-flowered Ivy-leaved Mme. Crousse is also largely grown for cutting purposes. Thousands of trusses of bloom go out of this nursery every season in this way, and it must be said they are admirably grown, the pips large and stout, and they are sent to market in the very best condition.—R. D.

WORK IN PLANT HOUSES.

Roses.—The Tea varieties that have been stood out-of-doors through the greater part of summer, and were repotted during the time, will be better under cover from this date. As has before been pointed out, success in the production of Roses through the winter depends much on the way the plants have been treated out-of-doors in summer. When kept quite free from mildew, red spider, and aphides, and their wants in other matters have been well attended to, the pots will now be full of healthy roots, and the top growth in correspondingly good condition. The plants will be in different states according as the varieties are more or less inclined to set flower-buds on short growth. Such kinds as Isabella Sprunt and Safrano usually make quantities of buds on short shoots, whilst Niphetos, Catherine Mermet, and others of like habit push longer growths before the buds appear, and do not produce them in such quantities. Plants that are well set with buds should, if there is the means, be put in a house or pit by themselves, where, if the weather becomes cold, a little warmth can be turned on at night. This will keep the flowers moving, so that should the supply from plants that are planted permanently out-of-doors against walls get cut off, the indoor bloom will be ready to fall back upon. Plants that are full of free young shoots should be in a house or pit, where they will be exposed to the light and where the growth can be encouraged. Where an unbroken succession of Roses is required all the year round, and there are one or two sufficiently roomy houses devoted exclusively to them, with a plentiful supply of plants that will give relays to bloom in succession, a little more warmth may be applied to the earliest set, and also enough to those that are to immediately succeed them. By this means the latter will keep moving more freely, which is desirable, for though the buds that have set out-of-doors will make acceptable flowers, still they will not be equal in size and quality to those that are produced from growth that is made under glass. When housing the stock, each plant should be closely examined to see that it is free from mildew, aphides, and red spider, which, if present, must be destroyed at once, as if allowed to remain after the plants are housed, the insects, as also the vegetable parasite, will so increase as to be more difficult to deal with afterwards.

Bouvardias.—Where cut flowers are required in quantity, it is necessary to look well ahead to have the necessary supply coming on in regular succession. This is specially requisite at this time of the year, when the daily decrease of light and solar warmth causes everything to grow slowly. To have Bouvardias in a condition that will enable them to keep on producing fully-developed flowers for any length of time, they require to have more heat than a greenhouse affords. Even in the case of plants that are wanted to bloom late in winter after the earliest are over, they must have enough warmth to keep them moving slowly, as if they get into a stagnant state the flower-buds that are already formed dwindle away, and no more will be produced until new growth is made under the influence of a brisk heat. Plants that have been well managed, and that are sufficiently furnished with strong shoots 12 inches or 15 inches long, will give many more flowers than the weak-branched, over-stopped examples that are usually met with, which, after bearing a meagre crop of flowers, have not enough vigour in them to yield the requisite successional bloom. This applies to the stronger-growing varieties, that make much longer and stouter shoots than B. Vreelandi, which is naturally a dwarf, weak-growing kind. This sort is better adapted for ordinary decorative use than for the production of flowers for cutting. The plants that are now kept in genial warmth with a view to their present flowering should have a position well up to the glass in a house or pit where they will be fully exposed to the light. When so treated the flowers have more substance in them, and will keep up correspondingly better when they are cut. Manure water should be given once a week; this will cause the later flowers to come stronger and also increase the quantity. Bouvardias, as usually seen, are wanting in strength, through not being sufficiently supplied with liquid stimulants and with surface dressings of concentrated manure during the summer whilst the principal growth is going on, as well as whilst they are flowering.

Carnations.—Independently of their agreeable perfume, which by many people is preferred to that of all other flowers, Carnations when well managed are amongst the most reliable of all flowers that can be had in winter. The length of time that they last in water, and their endurance when used for personal wear in sprays and button-holes, are not equalled by anything I can call to mind. Another thing in their favour is that the bloom comes on in gradual succession, so that there is no glut at any time, with a corresponding scarcity at others. The plants that have their flowers the most advanced should now be selected; if the leading buds are showing colour so much the better, as then there will be little difficulty in getting them to open directly. They should be put in a house or pit where they can have a night temperature of from 45° to 50°; they should, if possible, be stood where their heads will be close to the glass. Carnations are not fond of much in the way of forcing, particularly at this time of the year; but if the plants get plenty of light, it will counteract any tendency that there may be to become drawn. It is necessary to guard against this, for though the first flowers will open right without the precaution named, to have the later blooms in good condition when fire heat is used, the plants must have all the light that can be given them. Such of the stock as will be required to flower after the first set is over should be kept cool, care being taken not to crowd the plants too closely together, or to put them where they will be under the shade of other things. Full light they must have if they are expected to bloom satisfactorily. Slow-growing plants like Carnations do not require, nor are benefited by, the use of manurial stimulants to the extent that quick-growing softer-textured things like, but weak manure water may be given once a fortnight. Whatever is used in this way will be better with a little soot in it; the use of this if there happens to be any worms in the pots will cause them to come to the surface, when they can easily be got rid of. Keep a look out for aphides and mildew. The aphides will not now increase as fast as they do earlier in the season, but, nevertheless, if present they soon injure the leaves. Mildew will spread apace and do irreparable damage.

Hyacinths.—It is now time to pot bulbs of the large-flowered Hyacinths that are wanted to be in bloom at the beginning of the year. If proper judgment is exercised in choosing early sorts for flowering, with others to succeed them that have a disposition to bloom later, the requisite succession would be kept up without difficulty. Where room is an object, two or three bulbs may be put in a pot that is not more than one size larger than is generally used for one bulb. A 6-inch pot will be large enough for two or three bulbs if the soil that is used is naturally of good quality and well enriched with rotten manure. The quality of the soil has much more to do with the flowering of Hyacinths than the quantity that is given them. In potting, avoid the extremes of putting the bulbs in too deep and of leaving them too far above the soil. After potting, they are best in the open air. Let the plunging material, whether this is fine coal ashes or Cocoa-nut fibre, be deep enough so that there will be several inches of it beneath the bottoms of the pots, so as to keep out worms, and 3 inches or 4 inches over the top; without this the roots, instead of entering the soil, will be in danger of raising the bulbs above it.

Polyanthus Narcissus.—A sufficient number of bulbs of these sweet-scented plants should now be potted. Three of these also may be put in each pot. So managed, when the plants are required for greenhouse or room decoration, they make a better display than when only one or two are grown together. A sufficient supply of the earliest sorts, including the Paper-white variety, should be grown for forcing.

Early Tulips.—For cutting, these small early Tulips are even more useful than Hyacinths. Three or more bulbs may be put in a pot, or if room in the forcing pit is limited, the bulbs may be put 1 inch or 2 inches apart in shallow boxes, and when the flowers are near opening they may be potted. If reasonable care is taken, so as not to break the roots in moving them, the flowers will receive no check through potting. One advantage attending Tulips being treated in this way is, that in potting them those that have their flowers equally advanced can be put together in each pot.

Crocuses and Snowdrops.—A sufficient quantity of these useful bulbs should also be potted. Few flowers are more acceptable than Snowdrops, and being naturally amongst the earliest to bloom there is no difficulty in having them in early. The principal thing with them, as with other hardy bulbs that are to be flowered in heat, is to pot sufficiently early for them to make plenty of roots before heat is applied. Strong roots should be used; ten or a dozen may be put in a 6-inch pot; of Crocuses, when the bulbs are large, half a dozen will be enough in a pot of the above size. In potting Crocuses with a view to the roots being of further use when planted out of doors in spring after they have flowered, the corms should be put half way down in the pots so as to admit of the young ones that are formed immediately on the top of the old ones having sufficient depth of soil.

Potting Soils.—The present is the best time in the year for getting in loam and peat. It is not well to dig the turf too thin or have it much thicker than the roots of the Ferns or Grasses have penetrated; 5 inches or 6 inches in thickness is generally about right, varying it according to the nature of the soil. Potting soils are much better in the open air than under cover, except as far as is necessary to get them dry enough before using. Stack them ridge fashion, so that the water will be thrown off. T. B.

PROPAGATING.

Cratægus Lælandi.—This variety of the Fire Thorn (C. Pyracantha) can be increased from cuttings more readily than any other Thorn that I am acquainted with; and this mode of propagation is to be preferred, as it is then possible to select only the very best form to propagate from. If, however, a number of plants are raised from seeds, the chances are that a certain amount of variation will exist among the progeny, and perhaps some will be from an ornamental point of view inferior to the parent. Cuttings formed of the shoots about 5 inches or 6 inches long and dibbled into pots of sandy soil will, in a close frame, strike between now and the spring, but the best time of the year to take the cuttings is about midsummer, as they then strike in a short space of time. In proof of this I may mention that a quantity put in at that time of the year are now not only rooted, but potted into small pots ready for planting out in the spring. One great consideration to be borne in mind when selecting an ordinary garden frame in which cuttings are to be kept during the winter is to see that it is in a thoroughly well drained spot,

as if too damp, the heavy, stagnant atmosphere therein will cause many of the cuttings to decay. If possible the pots should be stood on a bed of coal ashes, as it seems to prevent worms entering the pots as well as of ensuring thorough drainage.

Arnebia echioides (the Prophet Flower).—This highly ornamental herbaceous perennial is readily increased by cutting up the thick fleshy roots into pieces 3 inches or 4 inches long. Put them into pans of sandy soil. They should be inserted in a perpendicular manner, and at such a depth that the upper part of the root is just below the surface of the soil. Early in the spring is the best time of the year to put in the cuttings, but advantage may be taken of any plant that is moved during the winter to take off a root or two for propagating if required.

Begonia socotrana.—Around the base of this Begonia, which is now in active growth, are formed small bulb-like masses, which are available for propagating, as placed under conditions favourable to growth they form roots of their own. T.

Ferns.

W. H. GOWER.

STENOSEMIA AURITA.

This genus belongs to the Acrostichoid section of Ferns, and accords most closely with the genus Polybotrya, from which, however, it differs in having an erect instead of a creeping growth, and in one or two other minor points. This genus contains only the species here named, and this is an exceedingly handsome, dwarf-growing, warm-house Fern, which, although it has now been in cultivation for very many years, has always remained a rare plant in collections. The fronds rise from an erect caudel or short stem, and are of two kinds. The fertile ones are more erect than the barren; they are divided in exactly the same manner, but the divisions in the fertile fronds are reduced to narrow segments entirely covered with sori. Although the sori are produced in such a prolific manner, I have never been very successful in raising the variety from spores. The barren fronds are ternately-pinnate; when strong, some 18 inches high, and from 6 inches to 8 inches wide at the base. The pinnæ are deeply lobed and of a deep green in colour, and near the base of the lower pinnæ there are usually one or two viviparous buds, and from these I have been successful in obtaining more young plants than from spores. In the matter of propagating this plant, I have usually pegged the viviparous portion of the frond on to a pot of soil properly prepared, and when the little bud is rooted into the soil and has begun to grow the frond may be liberated, and will not have suffered much injury. The fertile frond is sometimes partially developed into a barren one, and the apical portions only become fertile. In this state the plant assumes a very unique and handsome appearance; but in all stages it is a real gem and worthy of every attention. The fertile fronds are not long-lived, and die away after a little time, but the barren ones are evergreen. It is a native of the island of Java.

The Japanese Royal Fern (Osmunda javanica).—This species is now in great beauty in the Holloway Nursery, where a very extensive collection of Osmundas is maintained. It is a plant of tufted growth, and the fronds attain a height of from 1 foot to 3 feet, and a breadth of about 1 foot; the fronds leathery in texture, the lower pinnæ and sometimes the central ones being contracted and fertile. It is an evergreen species of great beauty. This species, with O. Claytoniana and O. bipinnata, forms the genus Plenasium of Presl. It is a strong-growing variety and requires ample root room, and the soil, to which should be added some sharp sand, should consist of about equal parts peat and loam, broken up somewhat roughly.—W. H. G.

ARTHROPTERIS TENELLA.

This is the Polypodium tenellum of Forst and the Arthropteris filipes of Moore, who at the time he wrote of it did not recognise it as the already described plant of Forst. As a genus, Arthropteris is distinguished from Polypodium by its jointed fronds and pinnæ, and by its almost terminable sori, but I here wish to recommend it to Fern growers as a basket plant, or, what is preferable, a climbing Fern. It would appear to be a very common kind in New Zealand, for I always get it amongst consignments from friends resident there, who tell me it grows to considerable size, climbing to the tops of lofty trees, and draping their stems with a beautiful verdure, so that it will thrive well in a cool fernery in this country. The plant also appears to be widely distributed in the islands of the Pacific Ocean, and in all probability plants derived from these sources will be found to require more warmth than those of New Zealand origin. It is also a native of Norfolk Island and Australia. The plant was introduced to cultivation upwards of thirty years ago, but has never prospered much in the hands of Fern growers, and it never appears to assume a robust habit, such as one would expect from a lofty climbing plant; hence, in very few gardens has it been seen in its full beauty. It is usually to be seen with slender, creeping rhizomes and diminutive fronds an inch or two high, more or less irregularly divided, whilst in New Zealand it climbs by its creeping rhizome, which is densely scaly, and the pendent fronds are pinnate, from 1 foot to 18 inches long, and from 4 inches to 6 inches broad, the pinnæ being linear-lanceolate, acuminate, and of a bright, cheerful, green colour. A. obliterata is another plant nearly related to the preceding, which has been mismanaged in our gardens and misunderstood. Although an inhabitant of our gardens for many years, it is seldom seen in a mature state. I believe the plant was introduced many years ago by the Messrs. Low, of Clapton, and it found its way into commerce under the name of Lindsæa Lowi, but what claim it has to the title of Lindsæa I fail entirely to understand. It has also been called Polypodium obliteratum, from which, however, it is to be distinguished by its indusium, and it has been called Nephrolepis ramosa and N. obliterata by some. In a young state the plant develops its pinnæ on one side of the mid-rib only, but when mature its fronds attain a length of from 12 inches to 18 inches, and a breadth of 6 inches or more. The pinnæ are obtusely lobed on the edge, and suddenly contracted into a tail-like point at the apex. It has suffered from the too anxious care of the cultivator, and has usually been coddled under a bell-glass or in a Wardian case, which treatment has tended to keep it in the immature state. It appears to be scattered over the islands of the Malay Seas, and requires strong, moist heat to develop its beauties. W. H. G.

Japan Tree Ferns.—There recently came to Messrs. Protheroe and Morris' sale rooms a quantity of Angræcum falcatum and Aerides japonicum fastened upon pieces of Tree Fern, which had apparently been sawn out of large stems. Upon my expressing a doubt of their having come direct from Japan upon these Tree Ferns, I was told that hundreds of Tree Ferns grew in Japan. Of this I was, and am still ignorant, as I do not know what species or number of species can be so plentiful in that country. Being, however, always anxious to learn, will some reader of The Garden kindly say what are the Tree Ferns of Japan? It is strange we have never had any imported, as they would add materially to the embellishment of our open-air ferneries; in fact we want them; and I am sure if anyone would only introduce some hardy Tree Fern stems, they would find a ready sale.

The Tartarian Lamb (Cibotium Barometz).—During the past week I have had several applications for information respecting this plant, by which I infer that a repetition of the fallacious tale is abroad again. The stem of the plant is decumbent, and clothed somewhat thickly with woolly hairs, and this, if deprived of all its fronds, saving four to serve as legs, and reversed, presents some rude resemblance to an animal, which, however, is very much smaller than a lamb, and to the lovers of the marvellous is a great prize. Cibotium Barometz, as an evergreen cool house Fern, is of infinitely greater importance to the amateur, as it is robust and hardy in constitution. Its fronds, varying from 3 feet to 8 feet in length, are somewhat triangular in shape. They are of a rich deep green colour on the upper side, whilst beneath they are of a glaucous hue. It is a native of China, and some twenty or thirty years ago had become tolerably plentiful in cultivation.—W. H. G.

Garden Flora.

PLATE 670.

AQUILEGIA STUARTI.*

In May, 1880, having plants of Aquilegia glandulosa (Grigor), as sent out in 1848, and also Aquilegia Witmanni in pots and in flower at the same time, I fertilised a flower of that variety with the pollen from A. glandulosa. A pod was gathered in less than a month and the seed sown at once. Seven plants lived to be planted out on a sheltered border in the autumn. I had almost forgotten their existence, till about the end of May in the following year a friend who was staying here, on looking round before breakfast, came on the first open bloom on one of these plants. He asked me where the plant came from, as the flower was the finest he had seen. Before referring to my notebook, I could not inform him, but that they were seedlings I knew quite well. The seven plants all bore flowers identically the same, the top blooms measuring 4 inches and more across. The following season I took up a quantity of the flowers to a meeting of the Berwickshire Naturalist Club, and showed them to the late Professor Balfour, of Edinburgh University, and Mr. John Sadler, Curator of the Botanic Gardens, Edinburgh, and many other competent judges, who all considered A. Stuarti a first-rate novelty, and it was then and there named by Professor Balfour. The original A. glandulosa I have grown on and off for forty years. It is a notoriously shy flowerer, and we used many years ago to consider it a triumph to get it to display its beauty at all. All I claim for A. Stuarti is that it is an improved form of A. glandulosa, refined in colour, free-flowering, very large, and attractive. It is perfectly hardy, flowers three weeks before other Columbines, and always comes true from seeds. It does not, however, succeed in every place, as I know persons who tell me they cannot flower it. After several years' experience in growing and rearing the plant, I recommend that a bed be trenched 2 feet deep and well enriched below, and that the seed be sown thinly in rows, and the plants allowed to remain where they are to stand. The plants may be thinned if necessary to 8 inches, and allow a foot between the rows. In process of

* Drawn for The Garden by H. G. Moon, from flowers sent by Dr. Stuart, Chirnside, N.B., June 1, 1888. Lithographed and printed by Guillaume Severeyns.



STUART'S COLUMBINE (AQUILEGIA STUARTI)

time the fine foliage will cover the entire bed and there will be abundance of flowers on moderate-sized stems. With a little well-rotted manure as a top-dressing in the autumn, the plants improve in vigour every season, and a three-year-old bed here this spring with thousands of blue and white flowers was a sight to see. The specimens sent to the editor of THE GARDEN were taken at random from this bed. CHARLES STUART, M.D.

Hillside, Chirnside, N.B.

FRUIT GARDEN.

APRICOTS.

To a great many people the failure of the Apricot crop is always a source of disappointment, because it is a fruit that is greatly esteemed. Apricot jam is the choicest of all our preserves, and as a dessert fruit, a well-ripened Apricot is generally preferred before other stone fruits. Judging from the fruit reports and the complaints of gardening friends, Apricots have generally failed this year, and even in favoured spots where the trees set a good crop, the fruit has failed to ripen satisfactorily, the slightest crack or damage caused by insects resulting in decay before it was nearly ripe, thus showing the Apricot to be a lover of the sun. The evenly ripened fruit of last year, when we were favoured with plenty of sunshine, was in striking contrast to the tough, insipid examples we have had to rest contented with this season. It is a pity this delicious fruit is so capricious under culture in this country, no fruit, perhaps, being more particular as to the character of the soil. A rather light loam on a gravelly subsoil apparently suits it best, whilst if the soil is naturally very heavy no amount of correction seems to entirely adapt it to the wants of the Apricot. The trees from a young state are subject to gumming and the loss of branches to such an extent, that many cultivators have reluctantly given up the attempt to grow it. The danger attending the blossoms from frost, on account of the early period of the year in which they open can, to a great extent, be overcome by affording protection to the trees at this time, but this persistent gumming and dying off of the branches has, up to the present, defied all our efforts. I do not say that the Apricot cannot be grown in heavy soils if they are corrected with burnt earth, lime, old mortar, &c., but it is often attended with much disappointment, as the branches die off suddenly and the tree is entirely ruined, while no amount of filling up will maintain a respectably furnished wall. When the above difficulty is experienced to any extent, I would recommend growing and training the trees upon the semi-cordon system in the following manner: Plant maiden trees on prepared cordons 4 feet apart and train one main stem obliquely to the wall, and instead of spurring in closely allow shoots to radiate on each side, laying in young wood annually, as is done with the Peach. By purchasing a few maiden trees every year and training them to a piece of spare wall or fence, or on a warm piece of ground, training them to stakes, they will form a reserve from which trees can be drawn to fill up the vacancies occasioned by losses on the wall. The first and most essential point to be observed for the roots is a well drained base; therefore if the subsoil is not naturally dry and porous, no pains should be spared to make it so and to provide efficient drainage. Although the Apricot delights in abundant supplies of water, there must be no stagnation or waterlogging, especially during the winter time, when care should be taken to remove any obstruction to the free passage of water. A dressing of light porous compost in the autumn will be more beneficial to the roots and tend to keep the border in a more sound and sweet condition than a mulching of wet manure.

The Apricot will scarcely bear any forcing, being very impatient of artificial heat, especially when in bloom, and when grown under glass this is the time when the greatest care is needed to secure a crop of fruit. It is not, however, very difficult to ensure a good supply of fruit annually under careful management in a cool orchard house, provision being made for warming the house in case of sharp frost, but fire-heat should not be used unless absolutely necessary to prevent the blossoms being frozen. We had some trees which had been growing here in pots close upon twenty years, but, they having become too large for the house and somewhat rough and ill-shapen through amputating diseased branches, they have been replaced by young trees. Pot trees do not, however, suffer so greatly from this malady as those grown outdoors, the fact of trees being grown in pots for twenty years speaking for itself on this point.

Apricots ripened under glass are certainly superior in flavour to those grown outdoors. The fruit may not grow quite so large as the trees become old, but what is lost in size is gained in other ways, the fruit being clean and more evenly ripened, while it is not so much exposed to the attacks of insects, which often spoil numbers of wall fruit. The details of culture do not materially differ from those of other fruits grown in the orchard house. Fruiting trees established in pots can be purchased and will bear fruit the first year, or young trees may be potted up from the open ground. No return can be expected from these for a year or two, but with proper attention they will soon form fruiting trees. In either case they must remain out of doors until the bloom buds show signs of bursting, when it will not be safe to leave them outside. On being removed to the orchard house, this structure must have abundant ventilation night and day, excepting when it becomes necessary to close it to exclude frost. Do not attempt to forward the trees in any way, but allow them to come along as naturally as possible.

The period of flowering, as I have previously observed, is a very critical time, the least excitement often causing the blossoms to fall off in profusion; therefore, particular attention should be given to the maintenance of a cool, airy state of the atmosphere; also to assisting the fertilisation of the flowers by using a brush and gently tapping the trees. In some seasons a very thick set will follow, and when such is the case, thinning must be performed immediately the fruit commences to swell, doing it with no sparing hand, as it is easier to err on the side of leaving too many than too few, and over-cropping means inferior fruit and ruin to the trees. The final thinning should take place when the fruits are the size of marbles. From this stage the trees will require liberal supplies of water and liquid manure, often demanding attention in this respect twice during the day, and if the pots are very full of roots, a circle of loam and cow manure placed on the rims of the pots will greatly assist in keeping the balls moist. After the fruit has been all gathered the trees had better be removed outside, the same attention being still given to watering, not omitting the liquid manure. The necessary operations of repotting and surface-dressing should be completed while the leaves are still green, giving young trees a shift into pots only one size larger until the largest size it is desirable to have them in is reached, when top-dressing will have to be depended upon for providing the roots with a little fresh run annually. If stopping the shoots has been rightly attended to, very little pruning will be required, but if the knife has to be used this is the best time to do it, as gumming is less likely to follow autumn than spring pruning. The trees can then be placed on a piece of ground, where the pots can be protected from frost by a covering of leaves, and here remain until the time arrives for removing them inside again.

The following varieties I have found succeed well under pot culture: Early Moorpark, Early Peach (Oullins), Hemskirk, Kaisha (the fruit of this variety is rather small, but the flavour is delicious), Large Early, Musch-Musch (a small fruit, remarkably sweet and melting; worth growing on this account as a pot tree), Peach, Royal, and St. Ambroisa (a large Apricot of great merit). For walls, Royal, Hemskirk, New Large Early, Shipley's, and Powell's Late.

A. BARKER.

Grapes cracking.—Surely "X." must have misunderstood what I wrote upon this subject. If he will again refer to the article which he criticises, he will find that instead of condemning the extension of lateral growth I considered it beneficial, if undue crowding was avoided. Again, in reference to large berries cracking, "X." will find the following sentence: "Although cracking is often produced by a check in the growth of the berries, it is more often caused by a too humid state of the atmosphere of the house and insufficient ventilation." It must be evident to "X." to what I attribute the cracking of large berries, certainly not a check in the growth, because as, he truly remarks, if so the berries would never increase in size.—A. BARKER.

Gathering Apples and Pears.—This season the late kinds will be longer than usual in ripening, and special care should be taken that the best keeping kinds, such as the Blenheim, Cox's Orange Pippin, Alfriston and Wellington, are not gathered too soon. If they are their value will be much reduced, as a shrivelled Apple is not worth much, and the same remark applies just as forcibly to Pears. It is not difficult to determine when Apples and Pears are fit to gather. There are indications in the tree itself, in its foliage and general appearance, which tell the person of experience and observation when to gather; but apart from that the novice need not err. If the fruit be lifted up from its suspended position to the horizontal, so that a little gentle pressure is brought to bear upon the stalk, and the Apple or Pear readily separates from the tree, then the fruit is fit to gather; but if more pressure than is given by merely changing the position of the fruit is required to effect a separation, then the fruits should not be gathered, as they are not ready. When a Pear or Apple is quite fit to gather the seeds or pips change colour, and are either quite black or a rich mahogany-brown. Fruits which are expected to keep must be handled with care, as if bruised or damaged the fruit of an Apple or Pear will not keep, and its decay may affect others. It is best to sort the fruits on the tree when they are small, so that when they come to maturity there are no seconds, but all are prime fruit. But in the case of standard trees this cannot be done; but all trees of a manageable size should be relieved of all inferior fruit not later than the month of July. Where this has been omitted the sorting must be done in the fruit room, the inferior samples being placed on one side for cider-making or for other uses, and only the best packed carefully away for use when the season comes round. The fruit should remain for a time on the shelves till the fermentation is

over, and then such valuable Apples as Orange Pippin and Blenheim should be wrapped in paper and packed away carefully in drawers and boxes or barrels. Such kinds as Court Pendu Plat, which are always difficult to keep, I have seen turn very fresh out of a barrel which has been standing in a cool cellar all winter.—*Field.*

THE GOOSEBERRY AS A PYRAMID.

It is remarkable that one at least of our most delicious and wholesome cultivated fruits is indigenous to Britain. Such, however, is the case as regards the Gooseberry, and a recent writer in The Garden has justly observed that the Gooseberry deserves a much higher position than it has at present.

It is generally admitted that in the comparatively cool and moist atmosphere of the northern counties of England and in Scotland the Gooseberry attains greater perfection than it does in the more dry atmosphere of the south and eastern parts of England. The Gooseberry, however, can with ordinary attention be successfully grown in any part of the country. The plant is not particular as to the character of the soil in which it is grown, although the better the soil the more abundant will be the fruit. Lancashire and other parts of the north of England have long been celebrated for the successful cultivation of this fruit, but what are known as the Lancashire varieties are more remarkable on account of their weight than for fine quality, which is most frequently found in varieties of medium size. In most gardens the Gooseberry is grown in the form of a somewhat low bush, and in some instances these are not subjected to any regular pruning. This system, however (if system it can be called), can hardly be recommended, as in a few years the shoots become so crowded, that light and air are to a great extent excluded from the fruit, which is consequently neither of such a good colour nor flavour as would otherwise be the case, while from the densely crowded state of the bushes it becomes exceedingly difficult to gather the fruit. It is consequently advisable to annually prune the bushes more or less as may be found necessary. The Gooseberry is also adapted to other methods of training, such as upon the surface of a north or west wall, and the fruit of such varieties as Red Warrington when thus treated will keep in very good condition until late in November. It may also be grown in the form of standards with stems of any desired length. The most satisfactory method, however, of growing the best varieties of this really useful and delicious fruit is in the form of pyramids, and these may be arranged so as to be very effective, such as forming lines on each side of a long walk or otherwise forming a plantation of any desired form or extent. The land should be properly prepared, as the trees are likely to occupy the same for many years; consequently it should be deeply trenched and enriched with suitable soil or manure.

The plants should stand not less than 6 feet or 7 feet apart. Place where each tree is to go a strong stake, or, what is better, Larch posts, and well char the point of each. To give additional strength, a strong wire may be made to extend from the top of one post to that of the next, and so on. Early in autumn or in spring a healthy Gooseberry tree should be planted against each post, and from each plant four shoots should be allowed to grow, and should be secured to the stakes. From these leading shoots lateral branches should be allowed to extend, and thus the pyramidal form may gradually be obtained. Some varieties, it is true, more readily assume this form than others, but all of them may with little trouble be made to do so. On account of the natural curve in the branches of the Red Warrington, it assumes the pyramidal form more readily than most other varieties, and this kind is one of the very best and most useful of Gooseberries. There are other varieties which ripen early and of equally good flavour, but as lists of these have been recently given in The Garden it is unnecessary to repeat them here. P. G.

Figs in the open air.—Although the summer was cold and cheerless the crop of Figs which ripened in the open air on the south coast was not only a good one, but was quite as early as that in summers of much greater heat than the one just passing away, for the only summer weather we have had came to cheer us as the days were rapidly drawing in, and a fine warm September has worked wonders with outdoor hardy fruits. Figs have ripened and been very plentiful, not only on trees that get the benefit of a wall, but also on those quite in the open, for I may remark that the finest trees we have in this locality were originally planted as wall trees, but the walls being too low and the training neglected, they have extended their branches in all directions, and the stems of many have grown into timber size, while the crops they bear are enormous. When severe winters come round, only the soft, unripened ends of the shoots are killed and the tree itself only appears to suffer a very temporary check, although the crop for the current year suffers. It takes a good deal of frost to kill the wood of trees that make short stubby growth, such as those growing in rather poor, hard soil produce. I think if those who grow Figs on a restricted wall space were to pay more attention to curtailing the root run and making the soil very hard, that they would have better results, as the Fig is such a strong rooter that it will live and thrive where many other fruit trees would starve. Some of the old trees here are of the Brown Turkey and the White Marseilles, but the majority are the small luscious green Fig that must have been more largely planted a century ago than now, proving that our forefathers bestowed more care on wall trees before the advent of cheap glass than has been the case during the last quarter of a century.—J. G., *Hants.*

STANDARD APPLES FOR BRITAIN.

1. ALFRISTON.
2. BESS POOL (NEW).
3. BLENHEIM ORANGE.
4. BRAMLEY'S.
5. CLAYGATE PEARMAIN.
6. COX'S ORANGE PIPPIN.
7. DUTCH MIGNONNE.
8. FLANDERS PIPPIN.
9. LANE'S PRINCE ALBERT.
10. MERE DE MENAGE.
11. NORTHERN GREENING.
12. REINETTE GRISE.
13. RIBSTON PIPPIN.
14. STONE'S.
15. STURMER PIPPIN.
16. WELLINGTON.
17. WINTER QUEENING.

Early Apples.—Carlisle Codlin, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Devonshire Quarrenden, Irish Peach, Oslin, Early Margaret.

Fine-flowered Apples.—Emperor Alexander, Hawthornden, Lord Suffield, Hambledon Deux Ans, Blenheim Orange, Court Pendu Plat, Orange Goff, Kirke's Incomparable, Sharp's.

Cider Apples.—Fox-whelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Joeby Crab, Styre Wilding, Eggleton Styre, Royal Wilding, Black Wilding, Pym Square, Mumm's Red, Bran Rose, Red Styre, Tremlett's Bitter, Ellis's Bitter, Slack-my-Girdle, Pound Apple or Sweet Buckland, Red Cluster, Sweet Albert, Holmcote Sweet, Cat's-head, Sweet Portugal, Red Bosberry, White Bosberry, Tom Putt, Kingston Black, Greasy.

Little Apples.—Golden Harvey, Pearson's Plate, Beachamwell, Keddleston Pippin, Ashmead's Kernel, Pine Golden Pippin, Pitmaston Pine-apple, Lucombe's Pine-apple, Sam Young, Lodgemore Nonpareil.

Brightly-coloured Apples.—Incomparable, Hanwell Souring, Cox's Pomona, Brabant Bellefleur, Bauman's Red Reinette, Rymer, Red Hollandbury, Alexander, Hoary Morning, Tom Putt, Tyler's Kernel, Striped Beaufin, Fearn's Pippin, Cumberland Fillbasket, Duchess of Gloucester, Worcester Pearmain, Cellini, Adams' Pearmain, Scarlet Nonpareil, Red Astrachan, Norfolk Beaufin.

Our readers will remember that last year we raised the question of the needless number of Apples, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The minor lists will, we hope, be useful, as they will prevent the exclusion of fruits with useful secondary qualities. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on English Apples of the highest quality and able to compete with those of any country.

—— In reference to The Garden list of standard Apples (which should be standard kinds of Apples to avoid confusion as to form of tree), I would not admit Reinette Grise, because it requires a good situation to ripen it fit for table, and is best as a garden tree. Flanders Pippin and Mère de Ménage are so much alike that they are frequently given as synonyms. I retain Mère de Ménage; Stone's is not a kind that makes a large tree, and is more adapted for garden culture, but specially for grafting on old orchard trees, where it soon becomes fruitful. As a standard it begins to fruit and becomes at once mop-headed. Bess Pool (new) is a good fruit, but such a shy bearer that it should not figure in a select list. Alfriston, again, makes but a small tree, and is not a good bearer. As a rule it forms a sturdy bush and a fair horizontal tree, but as a standard is not desirable. I am doubtful if Dutch Mignonne will ripen in the midlands or farther north. In Kent it is fertile and fit for table at the end of the season. In the little Apples, you might add Van Mons Reinette and Sykehouse Russet, as richly flavoured sorts, and in the highly coloured Incomparable is the Col. Vaughan of Kent, and Hanwell Souring and Tyler's Kernel are not usually conspicuous for colour. Among the early dessert sorts, I would also include Kerry Pippin; in early kitchen sorts, Lord Suffield (for warm soils), Grenadier, and Grosvenor; and later on, Stirling Castle and Ecklinville cannot well be omitted, and as an all-round early kitchen Apple, Pott's Seedling will take a front place.

In addition to your list reduced by me to twelve kinds, I should add as conspicuous for quality and quantity: Beauty of Kent, Lady Henniker, Brownlee's Russet, Waltham Abbey Seedling, Mother Apple, Margil, Peasgood's Nonsuch, Golden Spire, Warner's King. These, with the early ones above named, will bring my selection up to thirty, which for most growers will be enough; but there are fifty more of high-class quality which are worthy of culture, and several new kinds, especially Lady Sudeley, Bismarck, American Wealthy, the Swedish Okera, and Gascoyne's Scarlet, which will surely become indispensable.

My selection would then be as follows: For dessert use in order of ripening—Irish Peach, Devonshire Quarrenden, Kerry Pippin, Margil, Blenheim Orange, Mother Apple, Ribston Pippin, Cox's Orange, Adams' Pearmain, Beauty of Kent, Brownlee's Russet, Claygate Pearmain, Lady Henniker, Scarlet Nonpareil, Sturmer Pippin. Blenheim, Lady Henniker and Beauty of Kent are also good cooking kinds. For kitchen use—Lord Suffield, Pott's Seedling, Grenadier, Lord Grosvenor,

Stirling Castle, Ecklinville, Peasgood's Nonsuch, Warner's King, Waltham Abbey, Golden Spire, Mère de Ménage, Lane's Prince Albert, Winter Queening, Wellington, Northern Greening, and Bramley's Seedling. GEO. BUNYARD.

FRUITS UNDER GLASS.

STRAWBERRIES IN POTS.

THE past fortnight having been all that could be desired for the ripening of the crowns, early plants are looking much better than we a short time ago anticipated. The plants are not over large, but the foliage is short in the stalk and plentiful, and the crowns, mostly single, are plump and sufficiently advanced to warrant a good account when they are taken in for forcing. Very early plants of Vicomtesse Héricart de Thury in many gardens this past spring did not maintain the reputation of this excellent variety, but the peculiar summer of 1887 being entirely at fault, I trust no one has thought of discarding it from their earliest batch. Want of water or premature ripening of the crowns and roots in many instances, I believe, was the whole and sole cause of the collapse, but this is not likely to be the case this year. The plants, nevertheless, must have plenty of water so long as the weather continues mild, as dryness at the root at any time is fatal. If wanted for early forcing, and the plants, say, in 5-inch or 6-inch pots, show signs of going to rest, I would suggest plunging them to the rims in coal ashes or old tan quite out in the open until they are wanted. In this position they will not require frequent watering, but the pots being intensely full of roots, the greatest danger may be the outcome of keeping them too dry. La Grosse Sucrée, by many preferred to the preceding, we generally place in 6-inch pots for forming a very close succession to the first, not that it is less early, but, producing fewer and larger fruit, it answers best for leading up to midseason varieties. In all other respects it is treated precisely as Héricart de Thury, and well deserves universal culture, both in pots and upon warm south borders in the open air. The main batch of plants, potted or layered later into larger pots and now growing very freely, will requre very careful watering for some time to come, as too much may cause splitting of the crowns, which means a number of inferior trusses in lieu of one or two good ones; whilst too little may produce a check before the crowns are perfect. Runners, fortunately, were unusually good this year, and the Strawberry plant being a true lover of dripping weather, they have gone on well without a single check, or very much attention beyond re-arranging to let in air. The time, however, is now at hand for pronouncing them ripe and fit for storing, and in no way can this process be better facilitated than by constant change of position—first, to prevent the crock roots from getting away; and, secondly, to expose the pots and crowns to a free circulation of air. This treatment in most gardens produces the desired effect, but the few who are unusually late or lie low and cold may give extra impetus by ranging their plants in single rows in a warm, sunny part of the garden, using as a foundation dry bricks, tiles, or boards. Next as to

Storing for the winter, a point upon which I touched a few weeks ago. It is only fair to say the Strawberry is perfectly hardy and requires perfect rest; consequently it resents coddling. Cold, shallow pits, if otherwise unoccupied, may be filled with the plants, which should be well packed with leaves to prevent severe frost from bursting the pots, but the lights, unless the weather is unusually wet and severe, will be better off than over them. As few gardeners have many cold pits they can give up to hardy plants, temporary stores can be made by placing planks on edge about 6 feet apart and plunging the plants to their rims in coal ashes. A few short stakes driven in back and front and standing a foot above the tops of the planks will form supports for a skeleton framework of laths, and upon these mats or other covering can be placed in bad weather. In forming these light lath frames, the work should be sufficiently substantial to preclude the possibility of a breakdown under a heavy weight of snow. An indifferent store for these plants is a cold, draughty house; the worst of all is a dry shelf, upon which the roots require frequent supplies of water throughout the winter.

FIGS.

Whilst we are still gathering fine ripe fruit from open walls, it is time to see about preparing the first set of pot trees for giving the early supply next April. In good ordinary seasons we have often placed the pot trees for a month or more under the protecting influence of a warm south wall, but the past has not been one of these; consequently the majority of them, certainly north of London, will still occupy their summer quarters. Potted on or reduced and repotted they may, or should have been, but, assuming that this operation has been delayed, I venture to say a healthy tree in a small pot well filled with roots, if properly top-dressed and fed, will do better than if reduced when it is too late for fresh roots to take to the new compost. Forced Figs, above all other fruit trees, being so subject to troublesome insects, a complete clear out, scalding and cleansing must precede all future operations. The trees now leafless, as a matter of course, must be taken out, washed, tied and regulated, and placed in temporary quarters. If bug, no unlikely pest, has been detected, washing with good insecticides after every stick and tie have been removed must be thorough; if twice over so much the better. The surface soil, too, especially near the stems must be taken off and replaced with fresh compost. When the glass and woodwork have been well washed, and the walls dressed with quicklime, a coat of good turps paint must follow, that is if the house requires painting, otherwise washing with turpentine alone, well working it into all holes and crevices, will answer equally well. In the arrangement of the trees dry solid pedestals should be built up from the floor of the pit, bricks being best, as a course or two can be taken off at any time during the growing season should more head room be required. Upon these the pots may be ranged at once or later on, and, provided the house is kept cool and dry, they will require no further care until the time arrives for starting.

Larger trees intended for succession having been cleared of all unripe fruit also may be cleansed and prepared, but having a longer resting period before them they may still be potted on or turned out, disrooted, and replaced in pots of the same size, or possibly a size larger. The Fig being so accommodating and tenacious of life, I have allowed large old trees to remain for years in the same pots, their fertility increasing with age, and frequently others have been turned out of the pots or tubs, divested of a matter of 2 inches or 3 inches of the old balls, roots included, and returned to the same pots, apparently without suffering. The pots, I may say, should be quite clean, dry, and well crocked, and the compost, especially when the plants have been pared down, should be thoroughly rammed to prevent water from passing by the old balls.

Succession houses, in which the trees are planted out and trained to wire trellises, may now be kept dry and freely ventilated to harden and ripen the points of the shoots, which, by the way, should be properly thinned if too numerous to let in light and air. If these trees show the slightest tendency to grossness, they must be root-pruned, otherwise they will become quite unmanageable before the end of another season. The most common cause of barrenness or casting fruit is uncontrolled root action, the run in most houses being much larger than is absolutely necessary. A cubic foot of border to every 2 yards of trellis is ample for house trees, and this, considering the quantity of warm liquid which passes through it and the free use of fermenting material, is more likely to make them strong than weak. The pit or border area, in fact, well concreted and drained, should never be entirely filled up with compost, but preferably each tree should have an allotted space bounded by boards, dry bricks, or turf walls. The last are cheapest and best, as they can be forked down every autumn and rebuilt with new sods and old lime rubble, a material warm, elastic, pervious to water, and quite rich enough. We sometimes see large Fig houses, or rather the pits, divided and sub-divided with solid 4-inch walls, through which warmth from the fermenting material does not quickly penetrate. Moreover, being of a cold, condensing nature, the compost is apt to become wet and sour, a condition most objectionable in the culture of Fig trees.

VINES IN POTS.

If anyone who could keep them under glass has been bold enough to place early forcing canes out of doors, he should lose no time in restoring them to more genial quarters. As the strongest and best Vines are often twisted and injured by removal from one place to another, I would suggest the immediate cleansing and preparation of the fruiting house, as it matters not how soon they are placed in position. Having been divested of all laterals from the base up to the probable pruning buds before the main leaves fell, shortening back may be deferred and regulated by the length of trellis at command. The pots, it is needless for me to say, should be washed and examined to ascertain that worms have not choked the apertures through which all the water must pass freely, and possibly it may be necessary to set the crock roots at liberty by enlarging the latter with a hammer. Some very good growers keep all the roots confined; others, after building up dry brick pedestals capped with a sod of turf, set the pots thereon, and allow the young roots to ramify in this diminutive larder richly stored with warm liquid on its way downwards. Whichever plan is adopted, one thing is certain: the roots within the pots must be kept fresh, bright, and active; neither too dry nor too wet through the most critical period which intervenes between starting and breaking into full leaf. Up to this stage they must have just enough and no more, but afterwards they will carry off most liberal supplies of water. Young stock struck last spring should now be placed against walls in a cold house or facing the west, where they can be made secure from wind in the open air. In either situation, after being properly moistened to keep the roots right, the pots should be well packed with old tan or Fern to protect them from frost through the winter. If any of them are intended for cutting down to make the next supply of fruiting canes, now is the time to pick them out, as none but the best with stout short-jointed canes and well-ripened base buds should be used for this purpose. If not already done, the Vines in

Early houses may now be pruned and washed ready for starting. Once for all, I may say a good start with every part of the structure sound, sweet, and free from pest or parasite, is quite as imperative in the vegetable as it is in the animal kingdom. The ways and means are patent to all who love cleanliness; those who do not, close their ears to advice and suffer accordingly. When pruned, if not previously top-dressed, the borders may now be pointed up, cleared of all loose material, and very lightly covered with fresh compost, consisting of good turf and a liberal percentage of bone-dust. Years ago the everlasting rotten manure, a good thing in its place, was recommended for all stimulating purposes, but hard, dry materials in which all the elements of plant life are supposed to be highly concentrated are now coming into favour. Of these the name is legion, but none, I venture to think, are safer, sounder, and better adapted to Grape culture than good, honest crushed bones. Of these, of course, there are two qualities, the boiled and the raw, each good in their way; the first for top-dressing, potting, and quick action; the second, for placing over the drainage and mixing with the compost intended for permanent Vine borders. When these finely broken artificial manures, as they are called, are mixed with treble their weight of good loam and sown thickly over the surface of a pot or border, new roots spring into life by the thousand, and then comes the time for giving the draught of bright, clear, diluted liquid. Assuming that the borders are on the dry side, a good watering should be given before they are top-dressed, otherwise they will now stand until the time arrives for closing. From the time the house is ready

until it is started, a full and free circulation of air should be maintained, and the introduction of dangerous plants on no account should be permitted. Houses in which ripe Grapes are hanging must now be kept drier and somewhat cooler than hitherto. The greatest danger here, especially amongst Hamburghs and other thin-skinned varieties, is damp or mould, which spreads rapidly and soon spoils the largest clusters. The best preventive is a free circulation of air, with just a taste of gentle warmth on the pipes by day and early closing of the front ventilators to prevent the ingress of moisture through the night. The Grapes, of course, will require looking over twice a week for decaying berries, and the laterals may still be reduced, but not to an extent that will fully expose black varieties to the influence of the sun. White sorts should have all the sun they can get, and then they will not be deficient in the brilliant amber which fire-heat never gives.

Muscats, now ripe or approaching that stage, also will do with a lower and drier temperature, but moderate fire-heat, so long as the leaves hang on the Vines, will do good rather than harm. When these have fallen, modern roofs, composed of large thick squares, may require slight shade to prevent sudden bursts of sun—often powerful in October—from browning the upper sides of the shoulders. Two or three folds of herring netting answer every purpose, and give no trouble, as they do not check circulation or impede light. Now, for the last time, the internal borders should be examined, and if at all dry, thoroughly watered with pure water. A fine bright morning is the best time for watering, and the better to keep moisture in the border and out of the atmosphere, a good covering of old Mushroom manure, faced with clean straw or Fern, may immediately follow. All young canes, from the base to the pruning bud, should be divested of every bit of lateral nearly close to the bunch-producing buds—that is, provided the main leaf has not been injured or destroyed. Those above the pruning point may remain, care being taken that the foliage is not thick enough to hold or condense moisture.

Late Grapes

intended for bottling have not had a good summer, as keeping so greatly depends upon thorough ripeness. Fire heat helps them to maturity, but nothing can compensate for bright sun heat, as it obliges us to ventilate freely, and all know how much good colour depends upon a circulation of fresh, and, as a matter of course, warm air. Having so frequently advised taking time by the forelock by pushing forward with fire-heat in the spring, I take it for granted that the Grapes are now finishing well and the foliage is changing colour. When this stage is reached, and danger from too much moisture is apprehended, the laterals all over the house may be pretty freely shortened into the main buds. Shoots minus clusters should be denuded first, but the Grapes being well coloured, a general removal of growing points will tend to rest and ripening of the wood. Grapes still unripe and imperfectly coloured will hardly finish well up to the foot-stalks; consequently they must be expected to shrink; when checked by November cold the leaves fall from the Vines. It is now too late to entirely redeem the past, but slight help may be given in the form of moderate surface waterings with extra warm diluted liquid or weak guano water. A moderate quantity of lateral foliage, too, must be retained to keep the sap in motion, and the proper temperature with ventilation must be secured by steady firing. When late Grapes are quite ripe and the foliage begins to fall the latter should be picked up every morning, and the better to prevent dust from rising, all border surfaces may be well littered down with dry Bracken. W. C.



Viburnum macrocephalum.

Trees and Shrubs.

W. Goldring.

FLOWERING TREES AND SHRUBS.

(*Continued.*)

Veronica (Shrubby Speedwell).—Of late years the shrubby kinds of Veronica from New Zealand have become an important class of shrubs in mild districts, where they are not liable to be injured during ordinary winters. For seaside gardens they are particularly valuable, as they withstand wind and spray better than most shrubs. A large number of New Zealand Veronicas, all of shrubby growth, are now to be found in cultivation, but the bulk of them hardly come within our present scope, inasmuch as they are too small for the shrubbery, and are suitable only for choice borders and the rock garden. Of the larger growing kinds only one can be termed thoroughly hardy in all parts of England, and this is V. Traversi, a very neat-



The Hop-leaved Vine (Vitis heterophylla humulifolia).

growing shrub with pale green leaves, arranged in rows like those of Box. Fully grown, V. Traversi forms a round-headed bush about 4 ft. high, and in late summer, when crowded with spikes of pale mauve flowers, is very beautiful. Though introduced within the last twenty years it has become quite common, and is classed in nurseries as one of the choicest Evergreens. It is of rapid growth and very hardy.

The commonest shrubby Veronica in seaside places is V. speciosa and its varieties, which are, however, few. It may be at once recognised by its broad leaves, dense growth, and erect feathery spikes of bloom, which in the original are a deep purplish blue. In the variety imperialis the flowers are a rich red-purple, and in rubra they are inclined to red or rose-pink. Though invaluable as a seaside or mild district shrub it is but half-hardy, requiring protection in winter in cold localities. It is a first-rate shrub for a



The Willow-leaved Speedwell (Veronica salicifolia).

light and airy, cool greenhouse. V. salicifolia (the Willow-leaved Veronica) (see illustration), called also V. Lindleyana, has long narrow leaves and spikes of white or purplish flowers, and grows about 2 feet high. V. ligustrifolia is similar, but has narrower leaves and white flowers in feathery spikes. V. elliptica, known also as V. decussata, is a common species in the way of V. speciosa, but smaller in foliage and growth; and V. Andersoni, said to be a hybrid, much resembles V. speciosa, and has spikes of bluish violet flowers. The variegated form of Andersoni is a first-rate shrub, largely used as a half-hardy bedding plant. All the foregoing are half-hardy, and suitable only for walls and warm spots in any but the mildest and seaside districts. The dwarf or alpine species are hardier, and of these V. epacridea, V. cupressoides, V. lycopodioides, V. Lyalli, V. pinguifolia, V. pimelioides, V. carnulosa, are among others coming into general cultivation for rock gardens.

Viburnum (Gueldre Rose, or Snowball Bush).—In this genus there are some of the choicest of flowering shrubs. The most familiar, as it is also the commonest species, is V. Opulus, a native shrub, the sterile-flowered variety of which (sterilis, the Snowball Bush) may be found in every shrubbery, and though so common, is still among the best of all shrubs. A finely grown specimen of the Snowball Tree on a lawn is, when covered with bloom in early summer, one of the finest sights in an English garden. The original form of V. Opulus, whose flower clusters are flat and crowded with small flowers, is scarcely worth growing in a garden, but where it grows wild it should be encouraged, if only for the sake of the glowing effect of its decaying foliage in autumn. Next in importance is V. plicatum from North China, a very beautiful and thoroughly hardy shrub now becoming common in gardens. It is a dwarf spreading bush with deeply wrinkled foliage. In summer every branch is wreathed with clusters of snow-white sterile flowers, larger than those of the common Snowball Tree and whiter. It grows freely in most places, but likes a good soil and a warm sheltered spot in cold localities. It is a shrub of the highest merit, and should be included in the choicest selections. V. macrocephalum (see illustration), another Chinese species, is not so valuable, because less hardy, though its flower clusters are of enormous size. In some places it thrives against a wall, but it is rarely seen in a flourishing condition. It is not a plant for general cultivation. The North American species V. prunifolium and V. Lentago though handsome when in flower are worth the attention only of those who wish to extend their lists of flowering shrubs. The first has foliage like that of some of the Plums, and the abundant clusters of white bloom in May are handsome. V. Lentago resembles our native Wayfaring Tree (V. Lantana). Both have dense clusters of white blossoms, which are succeeded by small black fruits, but they are not in the front rank of ornamental shrubs. V. nudum and V. dentatum, also North American, are interesting for botanical collections, and so is V. pubescens, a relative of V. dentatum. It has large heads of white flowers. It is an uncommon and little-known shrub from North America. The favourite Laurustinus, known to everyone, is V. Tinus, and no description need be given of it. There are several varieties of it, more or less distinct. One of the best known, and certainly the finest, is that called lucidum on account of its shining leaves, which are larger than those of the common kind. The flower clusters are larger, the blossoms whiter, and it is therefore more suitable for forcing than the common form. That called rotundifolium, or round-leaved, is a beautiful and distinct variety, and there is also a variegated form of it, but, like the variegated form of the common Laurustinus, it is not remarkable as an ornamental shrub. Other varieties named variabile, Frœbeli, &c., are more or less distinct from the type and worth growing; in fact, every form of so beautiful an Evergreen as the Laurustinus is valuable. It need hardly be said that the Laurustinus is not a perfectly hardy shrub in every part of these islands, and when small it is especially liable to be killed during the winter. In the south and mild localities it rises to tree-like dimensions, and has few rivals among Evergreens.

Vitex Agnus-castus (Chaste Tree).—A very old South European shrub, sometimes met with against walls in old gardens, but not of much importance. It has divided leaves, and produces in late summer clusters of small, pale lilac flowers. It grows from 6 feet to 10 feet high against a wall, but even when thus protected it is liable to be killed during a severe winter.

Vitis (Vine).—As ornamental climbing shrubs some of the many species of Vitis are of great



The Bush Honeysuckle (Weigela rosea).

value in the garden, and especially for trailing over trellises, arbours, pergolas, bold rockwork, pillars, and such like. There being a similarity in most Vines as regards their foliage, there is no need to describe them in detail. The best for our purpose are the Isabella Grape (V. Labrusca), known also in gardens as V. Thunbergi, with large, bold leaves, rusty coloured beneath and turning to brilliant shades of crimson in autumn. V. cordifolia (called also V. riparia)



Weigela grandiflora.

is also a North American Vine, of rapid growth and very hardy, and others are V. æstivalis (the Summer Grape), V. vulpina (the Fox Grape), both from North America; while from the east we have from the Himalayas V. lanata, whose foliage dies off in autumn with brilliant

shades of red and crimson, and from China and Japan comes the beautiful little V. heterophylla humulifolia (the Hop-leaved Vine, see illustration), which has small leaves like those of the Hop, and its berries, about the size of Peas, are of a lovely turquoise-blue. This is one of the most valuable hardy ornamental Vines, and is easily procurable. The common Grape, V. vinifera, is, of course, ornamental, but not being so vigorous or so rapid in growth as those above-mentioned, it is not so desirable. Some of the more robust, such as the Fox Grape and Isabella Grape, will climb and ramble over trees to a great height, and in autumn light them up with the fiery hues of their decaying foliage. In planting Vines under trees they should not be placed close to the stem, but a few feet away where the soil is less dry and poor.

Weigela (Bush Honeysuckle).—The Weigelas have long been in the front rank of flowering shrubs; they are deservedly popular everywhere, being elegant, rapid in growth, and beautiful when in bloom. There is now a multitude of varieties, the originals of which are W. grandiflora, known also as W. amabilis; W. rosea, W. floribunda, and W. hortensis. These type species are natives of China and Japan, whence they have been introduced within the last forty years. They have been so much hybridised that the original kinds are rarely found pure. The most valuable sorts have sprung from W. grandiflora, which has the largest flowers, while the smaller, but more numerously flowered kinds have originated from W. rosea and W. floribunda. The varieties have been raised chiefly on the Continent, as may be inferred from their names. A selection of the best kinds of Weigela include the following: Abel Carrière, flowers small, very numerous, and deep red; Isolinæ, flowers large, white, or pale rose, with yellow markings; Van Houttei, flowers white and red, large and showy; Lemoinei, flowers small, numerous, deep crimson-red; Groenowegenei, one of the best, the flowers being large, pale rose or pink, with yellow blotch; striata, a very pretty sort, with flowers striped red and white; Stelzneri, flowers numerous, deep red; Lavallei, crimson-red, and numerous; hortensis nivea (see illustration, p. 352), growth more spreading than that of others, foliage larger and paler, flowers large and pure white; candida resembles the last, but is superior. These last two should always be selected, and if a larger collection is needed, the following may be added: Carminea, Emile Gallé, Docteur Baillon, Edouard André, Aug. Wilhelm, Diderot, Montesquieu, and Desboisi. The golden-leaved W. Looymansi aurea is a very fine ornamental shrub that usually retains its bright golden foliage through the season, and the variegated-leaved form is also an excellent kind. All the above are of good habit of growth if planted in good soil in an open position to enable them to grow freely. They should never be crowded, their proper place being as isolated groups on lawns or on the margins of shrubberies. Where Weigelas flourish they make large symmetrically-shaped specimens from 6 feet to 10 feet high and as much in diameter, with gracefully drooping branches, which, even when leafless in winter, are ornamental. Attention should be paid to top-dressing them with good rich soil annually, and to pruning them well, so as to retain only the vigorous stems and branches that yield the finest bloom. Weigelas are now known botanically under the genus Diervilla, which also includes other species, D. sessiliflora and D. trifida, from North America, being among them, but neither of these are, in their present stage, to be recommended for general cultivation, though they are worth planting on account of the bright tints of their autumn foliage.

NOTES FROM EASTNOR.

The pleasure-grounds at Eastnor are so varied and full of treasures, no matter at what season they are visited, that something of more than ordinary merit is sure to be found. I was fortunate, when on a visit there in the early part of September, to see two large trees of the Lily of the Valley Tree (Clethra arborea) in full bloom. The shining green foliage and brown stems showed off the exquisite creamy, pink-tinted flowers to perfection. The latter are borne on the points of last season's growth, and resemble loose bunches of Lily of the Valley. The scent, too, is delicious. The tree is not quite hardy, excepting in the most favoured parts of the country. Those at Eastnor are growing in large tubs standing on the terrace, and in the winter time they are removed under cover. Coniferous trees, owing to the wet season, are all making a fine growth, and cones are freely produced on the well-ripened growth of last year. Pinus Montezumæ is very beautiful just now. This Pine is of low spreading growth, the leaves being very long and light glaucous green. The branches are thinly disposed, so that the tree has a light feathery appearance, and is very distinct and ornamental. Picea bracteata, although one of the newest of this genus, will no doubt surpass the older kinds which were planted before it. The specimen at Eastnor has attained the height of 40 feet, and is this year bearing three cones. P. bracteata is more graceful in habit than P. Nordmanniana, nobilis, Pinsapo, and others. How seldom is the Hemlock Spruce (Abies canadensis) seen in our gardens! It seems strange that planters should neglect such a graceful tree while the formal Wellingtonia is used everywhere. Many specimens at Eastnor have reached a large size, with the lower branches sweeping the ground. The irregular growth and weeping habit of this Spruce render it an object of great beauty.

Amongst deciduous shrubs the Smoke Tree (Rhus Cotinus) has this year assumed its richest garb. A mass of this plant is gorgeous, especially when backed by sombre Yews, amongst the branches of which the Sumach has become entwined. The rich colour of some of the Japanese Maples is always attractive. The largest plant of Acer polymorphum atro-purpureum growing here is probably the finest in Europe. We have many shrubs which give us colour in the autumn, but this Maple is bright and beautiful throughout the year with its crimson leaves and twigs. No garden should be without it. The Purple Hazel is perhaps a tree of coarser growth. It is, however, very effective in some positions, and deserves to be more extensively planted. Another plant I admired very much was Bambusa Metake. Established at the base of a large Portugal Laurel, it seemed quite at home, and sent up its spear-like shoots in all directions. The older parts presented a waving mass of grassy leaves. The above struck me as being particularly beautiful at Eastnor. A. Barker.

Hindlip.

SHORT NOTES.—TREES AND SHRUBS.

Xanthoceras sorbifolia is fruiting freely in the Epsom Nursery, but the frost has shrivelled the leaves. The fruit is like a small green Pear. When in bloom this tree is very ornamental.

Variegated Irish Ivy should be used more than it is, as its variegation is not of a sickly hue that betokens weakness. There is a large batch of it in the Epsom Nursery that shows how vigorous it is, the leaves being of a glaucous grey tint.

Cotoneaster microphylla is delightful now with its mass of Holly-like berries. These cluster amongst the small shining green leaves. A specimen on the rockery, falling over a large stone and hiding its bald ugliness, makes a rich glow of colour in autumn. In a border in the Epsom Nursery it was also very effective. Though an old plant it is new to many, judging by its scarcity.

Prunus Pissardi is very rich now with its bronzy purple leafage that changes gradually to a brilliant crimson colour as the autumn gives way to winter. In the nursery of Mr. E. Morse at Epsom it was one of the most striking trees with coloured foliage, notwithstanding that the leaves generally are remarkably fresh and spring-like for the season. Isolated specimens here and there with a suitable background would make a striking feature.

Kitchen Garden.

BLANCHED VEGETABLES.

Vegetables generally cannot well be too green when growing, but although we like to see an abundance of chlorophyll in the foliage, the less of this there is present in that part which is cooked and eaten the better it is appreciated. A slightly bitter taste is far from being objectionable in a few exceptions, but, as a rule, anything strongly flavoured, or the reverse of sweet, rightly meets with disapproval. Undue exposure to the light and air is in very many instances to blame for this lack of quality in the vegetables sent to the table, and for this the cultivator may be to blame in that he leaves them too long on the plant or above ground. More often than not, however, those in the kitchen are responsible for the mischief. They are to blame for using vegetables that have been lying about in exposed positions several days when, perhaps, quite fresh supplies are conveniently near, or might be had without much trouble.

Not only are all green vegetables best when fresh cut, but roots of all kinds are more tender or mildly flavoured when newly dug up from the ground, long exposure to the light having a most injurious effect upon them. They require to be well blanched, in fact, or at any rate prevented from being greened or spoilt in flavour by exposure to the air and light. Take the Potato as an instance. This is the most popular vegetable we have, and yet I may safely assert it receives from the majority of cooks the least attention of anything sent to their employer's table. If this were not so, fewer complaints from those who eat them would be heard. More pains ought to be taken with the Potatoes after they are delivered at the house, whether in the town or country, not merely as regards the cooking, but also, what is of equal importance, in the temporary storage of the supplies. It is no unfrequent occurrence to see them kept for several days in open boxes where the process of greening goes on rapidly. These Potatoes are, perhaps, sent to the house newly lifted and washed, or from a cool, dark storage place, and a few hours, or it may be two or three days' exposure to the light, results in partial greening, and bad cooking completes the ruination of the noble tuber. In any case Potatoes ought not to be washed long before they are required for use, and the less skin necessarily pared off them the better the flavour will be. It is my belief they are best as regards flavour when fresh lifted from the ground, or when most perfectly blanched, and if the right season of each variety is caught by the grower it rests with the cook whether the tubers are served in a floury state or not. Carrots, again, are invariably most tender and sweet when drawn direct from the ground and used in a few hours. If they are lifted and stored where the light and air can reach them they become tougher and less sweet, and it is very certain they are not improved by being kept several days. The same remarks apply to Turnips. Bulbs long exposed to the light become stringy and strongly flavoured, but if kept on the ground and moulded over they remain quite tender and are mildly flavoured for a much longer period. If they cannot be left on the ground, the least that can be done is to at once store them in a heap and cover them

with straw and soil, so as to exclude both light and frost from them. Nor are Beet so sweet and tender after they have been drawn from the ground for some time, and these again must be stored in sand or fine soil. Parsnips, as a rule, are not lifted from the ground till they are wanted for use, and it is generally admitted that they are improved by being left alone. We do not find it necessary to lift either Salsafy or Scorzonera, as the roots being dug up when required are thus fresh and good. Jerusalem Artichokes are also left undisturbed, and are all the better for it. Celeriac or Turnip-rooted Celery requires to have the roots well moulded over, this keeping them tender and sweet, and only a severe frost would injure them. It is very well understood that the stems of Leeks must be well blanched, or otherwise they are too strongly flavoured, and not sufficiently tender to be served as a vegetable, while Celery is simply uneatable unless thoroughly blanched. Every pains should therefore be taken with these, as it is very certain that nothing but perfect blanching will complete the culture and give to the Celery that nutty flavour for which it is so much esteemed.

At one time many writers were in the habit of condemning the French system of blanching Asparagus, under the impression that the blanched or greater portion of the shoots was tough and uneatable. As it happened, their experience was somewhat limited, and had they first tested quite fresh produce instead of that which had been exposed in shops in this country for several days, they would not have so hastily condemned the blanching process. Quickly grown, well-blanched Asparagus, cooked the same day as it is cut, is most succulent and delicately flavoured, and very superior to that which has been greened by exposure to the light for a few hours prior to cutting. The most perfectly blanched Seakale is the least strongly flavoured, and Rhubarb with but little green in the stalks is preferable to any grown in the full light—at least such I hold to be the case. Cucumbers are apt to be bitter and more indigestible when grown slowly and longer exposed to the light, and the most delicately flavoured Vegetable Marrows are those somewhat young, and which have been heavily shaded by the foliage. It will also be found that Broccoli and Cauliflowers which are most closely protected by the inner leaves are the most mildly flavoured, and even if they were not, it is yet advisable to keep them closely covered in order to have the hearts as perfectly blanched as possible. Long exposure to the full light quite spoils Brussels Sprouts, making them less tender and more strongly flavoured. Frost has to a certain extent much the same effect on these as blanching has on other vegetables I have alluded to, this evidently destroying much of the chlorophyll in the outer leaves. Few care to eat Cabbage unless blanched somewhat, and in many instances this blanching ought to be brought about earlier and in an artificial manner, the outer leaves being tied up so as to enclose the hearts. Savoys must be blanched to be good, and if the heads of Borecole were tied up, as advised in the case of Cabbage, even these would be greatly improved in quality. The new hearting Kale naturally forms a good and fairly blanched heart, and this is far superior in point of quality to the older forms. The latter can be made tender by good cooking, but the blanched require less careful cooking, and are the most delicately flavoured.

It is even of greater importance that the bulk of the contents of the salad bowl be well blanched. Endive and Chicory are simply unfit to eat unless thoroughly blanched, and Lettuce at all times ought also to be blanched as much as possible. The leaves of Mustard and Cress only ought to be green and the stalks blanched, in which state it is more attractive in appearance and more mildly flavoured. It is only the blanched portions of Onions, Shallots, and Garlic that are used in salads, and it is a well-known fact that the white-skinned Onions are the most mildly flavoured. Altogether, I think I have written enough to prove that, as a rule, we do not attach sufficient importance to the value of, and necessity for, attending more closely to the process of blanching vegetables.

W. Iggulden.

Winter Spinach.—This vegetable, like all the winter stocks of the Brassica family, is far too strong and early for the season. I have never seen such splendid breadths as may be noted in the open fields about here, the leaves being unusually large and the soil literally covered. As long as runner Beans were plentiful there was little call for Spinach; hence it has been in little demand, and is therefore very luxuriant. The soil is usually found so full of manure, that in growing weather the development of field crops is wonderfully rapid. That has been the case this year to a remarkable degree, and besides Spinach, Coleworts, usually wanted from November onwards after the colder weather has set in, are not only ready to pull, but are even bursting their heads. Colder weather will check growth and perhaps assist the demand for the Cabbage tribe; but with the decline of the Beans and the abundance of Spinach, there comes also a wonderful quantity of Autumn Giant Cauliflowers, and Cabbages of every kind stand but a poor chance as long as Cauliflowers are plentiful. Very sharp weather might help to check this luxuriant growth on the part of the Cabbage tribe and improve the demand, but such weather might also materially injure the heads, because the leafage is so luxuriant and lacking hardness. The hard gathering from Spinach breadths now if practised will help to check luxuriance and render the leafage hardier. One of the worst enemies of Spinach is found in fogs, especially those accompanied with white frost. Against these there is no protection, but the breadths suffer less on high or gravelly soils; therefore it is always wise to select such positions if possible when sowing winter Spinach.—A. D.

The Potato disease.—This has been a good season for testing the disease-resisting properties of Potatoes that have made their appearance since Magnum Bonum and The Champion came to the front. It is impossible to test the real value of a Potato in such dry summers as we have experienced of late, and I hold that a kind that acutely feels the attacks of the fungus should never be extensively planted. Wet, cold summers are sure to come in their turn, and it is then that we fully appreciate varieties that will produce a crop under such adverse climatic conditions. What puzzles me in connection with the Potato disease this year is the great difference in the yield of sound tubers. In this district the fungus was impartial in its attacks, making a clean sweep of the haulm in every garden. I never remember to have seen it so completely destroyed before. It was fully expected that scarcely a sound tuber would be dug, but although in some instances these gloomy forebodings were more or less fulfilled, the majority of the crops have turned out very well, if not in size, at least in freedom from disease. Beauty of Hebron with me has not given more than 2 per cent. of unsound tubers, and thus far I find no signs of disease in the Magnum Bonum. Quality, of course, is out of the question, for the season being late, the haulm was cut before the tubers had attained to anything like their proper substance. All that I have hitherto eaten are very deficient in mealiness and flavour. The reason of the tubers remaining sound when the tops were so virulently attacked is probably owing to the more or less porous nature of the soil in which they were grown. Most of the land about here is light sandy loam. In many instances it would be better described as loamy sand, and the nearer it comes to this description the sounder the crops. Still, there are exceptions, and these are difficult to account for. One thing this year struck me as interesting. By the side of some Potatoes, Strawberries grew, and wishing to allow the runners to extend, I did not have one-half of the outside row of Potatoes earthed up. This row was distinguishable by the way in which it withstood the disease. It was green when the rest of the patch had gone black, and I shall be curious to see the yield from it.—J. C. B.

KITCHEN GARDEN NOTES.

Frost and its Effects.

During the week ending October 6 several severe hoar frosts were experienced, and this has put an end to the most varied supply of green vegetables that could possibly be available at this time of the year. Globe Artichokes were badly crippled, and very few more of these will be cut this season. Vegetable Marrows are completely destroyed, and the greater portion of the runner Beans are spoilt. The latter have been unusually productive, and where a slight protection in the shape of overhanging trees was afforded them, there are yet several good dishes uninjured. Kidney Beans have also been very productive, and a very little shelter has saved and prolonged the usefulness of several short rows. Much of the seed of both running and dwarf varieties is yet uninjured, and the pods being at once gathered and hung up under glass to ripen, a good supply of seeds will be available for forcing and other purposes. Peas are badly cut up, much more so than anticipated. We were daily gathering capital dishes of Ne Plus Ultra, Autocrat, and Sturdy, all good late varieties; and the new selection from Dickson's Favourite was also just becoming useful. Tomatoes against walls, some of which had escaped disease and were ripening off fairly good crops, were not injured by frost, but all have now been cut in large bunches and suspended to the roofs of forcing houses to ripen. Tomatoes wholly ripened off the plants are never equal to those grown and ripened under glass, and the latter ought therefore to be reserved for salad purposes, and those of inferior quality handed over to the cook. Now that the frost has cut off the supply of other vegetables there will be a greater demand for Cauliflowers. These are remarkably fine and very abundant this season, the market being glutted with them. A moderately severe frost will spoil many advancing or fully grown hearts, and the beds ought therefore to be frequently gone over, and any hearts at all exposed be well covered with leaves gathered from plants previously cut over. Caterpillars ought also to be looked closely after, these soon disfiguring the hearts. Later on, or whenever extra severe frosts are anticipated, it will be necessary to lift the more advanced Cauliflowers and earliest Broccoli, moving all with a small ball of soil about the roots and storing in deep pits, empty vineries, or open sheds. New Zealand Spinach where unprotected is killed outright, but, fortunately, the season has been favourable to the growth of the ordinary Spinach, both thinnings from the crowded rows and gatherings from the earliest sowings being available. It is also advisable to gather freely from the Spinach Beet, this encouraging the formation of a greater abundance of young and more tender leaves for the early winter supply. Lettuces fully grown and situated in the lowest part of the garden were slightly injured by the frost, and we have taken the hint that the time has arrived for protecting the more advanced of these. The simplest plan is to tightly tie up all those commencing to heart in and to carefully transplant them to a frame placed on a warm, dry border. They may be packed rather closely together and the ties should be removed. Plenty of air ought to be given during mild weather, and the lights well covered with mats when frosts are imminent. In this manner the supply will be maintained for a considerable time, and if other frames are less closely filled with strong plants these will continue to grow and may be induced to form useful hearts for the winter. Fully grown Endive is also liable to be badly injured by moderately severe frosts and seeing that it is only those

plants with uninjured leaves that will keep any length of time, steps should be taken in cold localities to protect them early in the season. Garden frames of any kind are suitable for the purpose, these being closely filled with the most forward plants as advised in the case of Lettuce protecting. It is yet quite early enough in more favoured districts to interfere with the main crop, but the most advanced may be at once stored in frames, or covered with some kind of material that will both blanch and protect them. Fresh hay, slates, and boards laid on the rows of plants will all answer this double purpose; and another good plan is to tie up the plants and then cover each with a flower-pot, taking care to stop the drainage hole of the latter. This will be found a clean and safe method of protecting and blanching Endive during October. The process of blanching effectually stops all further growth, and it is only the nearly, or quite fully grown plants that should be covered. Turnips, Beet, Carrots, and in some districts Onions, are apparently still growing, as the tops are remarkably vigorous and green. No frost experienced during October is likely to injure them, and these crops ought not to be lifted and stored prematurely. Horn Carrots on warm or light borders are rarely damaged by frosts, and these, therefore, ought to be drawn from as required, this being a far better plan than lifting and storing in any way. These somewhat early and severe frosts will have the good effect of checking the growth of Cabbages, Cauliflowers, and Lettuces that are required to stand through the winter, and will also hasten the resting period of Asparagus, Seakale, and Rhubarb roots that are wanted for early forcing. The two latter may well be loosened out of the ground and partially exposed to frosts, as they start into growth more strongly when forced if thus given an early check. W. I. M.



Weigela hortensis nivea. (See p. 350.)

ORCHIDS.

W. H. GOWER.

CYPRIPEDIUMS AT STUDLEY HOUSE.

At this dull season the beauties of the numerous forms of this genus can be more fully appreciated than when the eye is lured away by the gorgeous blooms of Cattleyas, &c., yet whilst at no time in the whole year is this superb collection of Slipper Orchids to be found unrepresented by flowers, the autumn months are the most bare. Here, however, I recently noted some beautiful flowers, and some of them kinds of great rarity, whilst others promise ere long to yield a great display. Amongst the most notable kinds now flowering I must not miss my old favourite C. Fairrieanum, which still remains one of the rarest and most beautiful in the whole genus. The plant is not a large one; indeed I do not know of a large specimen in the country at the present time, but the shape of its flower and the exquisite colouring of the dorsal sepal are quite unique. C. Arthurianum is a hybrid obtained between Fairrieanum and insigne; the dorsal sepal is large and beautifully marked, the whole flower showing its close affinity to the first-named parent. It is an extremely beautiful variety, but it does not in my estimation equal Fairrieanum. Another grand form flowering here is C. tessellatum porphyreum, a variety which to my surprise I recently noted in Mr. Williams' nursery at Holloway bearing on one spike three flowers, all large and perfectly developed. It is one of the very deepest coloured hybrids yet obtained in this or any other country. A plant of C. Sanderianum, which has become fully established and is truly a grand and singular species, its petals being fully 18 inches long, was also flowering. The beautiful western species, C. Schlimi, is also in flower, bearing twelve spikes of its elegant blooms. This is one of the many plants which are so well grown in Mr. Tautz's collection. C. cardinale is one of the Sedeni set of hybrids that can always be depended upon to flower, and here at the present time it is charming. C. Crossianum is also good here, also good forms of C. Spicerianum, one example bearing about a dozen spikes with twin flowers, whilst several other forms are doing the same. What is the cause of this? I suggested to Mr. Cowley it was extraordinary vigour, which inference I drew from the very robust and vigorous health in which not only the Cypripediums, but all the Orchids in the collection are.

The Cypripediums are grown with such plants as Aerides, Vandas, Angræcums, and many other hot country plants, so that they are really in East India temperature. But this I do not think is now generally maintained so high as was considered necessary in my early days of Orchid growing, and before the accident happened which taught me the cool Orchid temperature, after which the heat was much reduced in all the other houses and more air admitted. For the admission of air I always was a great advocate, and I believe yet in many instances it is withheld by far too much. I am not, however, saying such is the case with the Studley House collection, as one always feels a pleasure in these houses without any feeling of depression.

Vanda concolor.—The Holloway collection of Orchids can seldom be visited without a great number of the Vandas being in flower. In the first week of the present month of October there were many grand examples blooming, including many varieties of V. tricolor, V. suavis, one plant with two spikes, each bearing fourteen flowers, and a plant which I take to be the true V. concolor of Bl., the flowers of which are large and of a uniform bronzy-brown, more or less veined with a deeper brown. I had not seen this plant before; moreover, the flowers were slightly on the wane, but it is evidently a distinct and most desirable variety well deserving the attention of lovers of this extremely beautiful genus.—G.

The Rainy-month Flower of Ceylon (Dendrobium Macarthiæ).—This is the most beautiful Orchid peculiar to the Island of Ceylon, and, indeed, one of the most beautiful species of the extensive genus Dendrobium. It is by no means an abundant plant in its native habitat, and is not plentiful in cultivation; indeed it has hitherto been somewhat difficult to keep it alive in our collections for any length of time, so that it behoves our Orchid growers to find out its peculiar requirements to avoid its extermination. Naturally it blooms in the rainy month, which is May, and it is sometimes called in Ceylon the Mayflower. Under cultivation in this country it is usually an autumn bloomer, and I last week saw some nice examples open in Mr. Williams' nursery at Holloway, where the plant appears to find a congenial home. It is grown in a high temperature and a moist atmosphere, the air

being plentifully admitted and the plants never shaded from the sun.—G.

Dendrobium superbiens.—This is one of the very finest of the North Australian Dendrobes, introduced some eleven years ago, and so long-lived are the flowers and so free-blooming are the plants, that where it is largely grown flowers may be had all the year round. It is a strong, erect-growing plant of the D. bigibbum type, its flowers being produced on long racemes bearing from one to two dozen or more of its beautiful rosy purple blooms, which are narrowly bordered with white. This plant appears to grow freely in a very warm house kept very moist during the growing season, the plants being placed near the glass and never shaded, while free ventilation is maintained during congenial weather. It should find a position in every collection in the country.

Oncidium Jonesianum.—This is a species largely grown by Mr. Tautz, and here, as I recently reported from Mr. Williams' nursery, more success has been obtained since it has been subjected to a greater amount of heat. It has grown, rooted, and flowered in profusion this season, and has been fixed upon bare blocks of wood and hung up behind the Cypripediums, so that it has been really subjected to the highest temperature maintained in that establishment. There are at the present time numbers of plants in flower, and it must be reckoned amongst one of the very best autumn-flowering Orchids. Among these plants have originated several varieties, and, what is more curious, one plant has assumed an upright habit, producing yellow and crimson flowers that somewhat remind me of those of O. Sprucei, but it is really so long ago since I saw O. Sprucei that I have but an indistinct recollection of it. With respect to O. Jonesianum, I think this collection fully proves that it enjoys strong heat and moisture, and that it thrives best without soil of any kind. Neither does it suffer from having its thick, fleshy, stem-like, pendulous leaves wetted.—W. H. G.

The Gold Chain or Fairy Orchid.—I quite agree with Mr. Iggulden (p. 247) that Dendrochilum filiforme is not a showy Orchid as compared with Cattleyas and Lælias. I also cordially assent to "W. H. G.'s" opinion that it is one of the most elegant and beautiful of the whole Orchid race when the specimens are of a fair size. Even small plants bearing five or six spikes are, I think, lovely; but some time ago I saw a nice tuft of it in a suspended pan bearing sixty spikes of its graceful golden-green flowers. This I thought at the time was a specimen of a fair size, but I again saw the plant the other day and was told it had borne over eighty spikes at its last blooming. Now as only one spike is produced from each growth, some idea may be formed of what this specimen must be like, as also of its free and vigorous development. There are fine plants of D. glumaceum and of D. Cobbianum in the same collection, all of which were small bits only a few years ago. They are growing in shallow earthenware pans of ordinary manufacture, but at the bottom of each pan there is a "little secret." The compost is a tough fibrous sponge of peat and Sphagnum Moss, heaped up rather higher than usual, in a cone-shaped mass. Oh, yes; but what is the little secret? someone will say. Well, I once took Mr. J. O'Brien to see these plants when they were small, and to my friend, the owner, he whispered, "Drain your Dendrochilum pans with bones." My friend took the hint at the next shifting season and has continued the practice ever since, and I have never seen plants more vigorous, free-flowering and healthy than are his to-day.—F. W. B.

SHORT NOTES.—ORCHIDS.

Pleione (Cœlogyne) lagenaria is flowering with its accustomed freedom now in the Orchid house. Such delightful Orchids as this are welcome now that there are few kinds in blossom.

Brassavola Perrini is in bloom at Kew. The most striking feature of the flower is the spoon shaped lip, which is wholly white, except a yellow tinge that runs into the throat; the sepals and petals are narrow and greenish yellow in colour. The leaves are terete and not abundant.

Cirrhopetalum ornatissimum.—It is quite charming to find the various species of this curious genus again cropping up. This species has bright purplish flowers, but it is not remarkable for an agreeable perfume. I recently noted this pretty and somewhat rare species flowering in the rich collection at Studley House, Shepherd's Bush, where it is grown close to the glass in the East India house.—W.

Odontoglossum grande aureum.—A superb variety, the blooms being as large as those of the typical plant, and the sepals and petals are wholly yellow, with a few narrow lines of bluish green; lip white, barred with yellow. This fine form was recently flowering in the collection of Mr. Tautz, who is largely extending the cultivation of this fine section of the genus, the only requirements of which are a low temperature and moisture.

Lælia amanda, also known in gardens by the name of Cattleya Rothschildiana, is one of the introductions of Mr. Wm. Bull, of Chelsea. It is a supposed natural hybrid from Brazil; the flowers are nearly as large as those of L. purpurata, the ground colour being pale rosy purple, more or less streaked and flaked with amethyst. It is extremely valuable as an autumn bloomer. It succeeds under the same treatment as L. purpurata, L. elegans, and other similar plants.—G.

Cattleya Dominiana.—This is amongst the first of the Exeter hybrids raised by Mr. Dominy, and although producing somewhat inferior flowers when compared with those of many of the grand Cattleyas we have in cultivation at the present day, it is well worth attention. It is the result of a cross between C. maxima and C. intermedia, the sepals and petals being soft rosy lilac; lip white at the base, middle lobe purplish lilac, veined with darker lines, the disc pale yellow. It is valuable as an October flowering Orchid.

Disa graminifolia.—This elegant plant I recently noted in bloom in the collection of Mr. Tautz at Studley House, Shepherd's Bush. At present it is an extremely rare plant, but as seen in the above collection, it causes one to long to see it in numbers, such as I recently noted its ally, D. grandiflora, in the Comte de Germiny's collection in Normandy. It bears numerous flowers on the spike, the blooms being about the same size as those of Lælia albida, whilst the colour is rich azure-blue.—W. H. G.

Lælia monophylla.—This small growing species has not yet been seen in a very effective state, and I think it is because it usually receives too high a temperature. It is said to grow at some 5000 feet altitude in Jamaica, and I should imagine in such a position it is somewhat cool. I saw it flowering recently in Mr. Williams' nursery at Holloway, the plants growing in a cool house. This, in all probability, is the right place for it, and I hope those who may not have been successful in its cultivation will adopt the same treatment.—W. H. G.

Ansellia africana.—A discarded Orchid which is now again finding favour—and deservedly so—in our Orchid houses. It requires strong heat and moisture to produce strong growth, which, through the winter, is enlivened by large panicles of bloom, which last long in perfection. When strong the pendent panicle bears scores of flowers, the ground colour of which is yellow, profusely spotted with rich deep brown. It usually flowers in mid-winter, but a fine form was recently flowering in the Holloway Nurseries.

Dendrobium rhodostomum. — This very gay species is now flowering in the Studley House collection; it is a Veitchian hybrid raised between D. Huttoni and D. sanguinolentum. The plant has the habit of the last-named parent, and the waxy white flowers are of much the same size and shape, the sepals and petals being broadly tipped with purplish magenta; the lip white, the front portion being rich purple-magenta, with a yellow disc. It is a very elegant variety for autumn flowering.

Houlletia Brocklehurstiana. — This is a grand old species. The plant is a native of Brazil, but it thrives well under cool treatment, and, unlike the Odontoglossums, it should have a season of rest after growth is mature, but yet it should not be dried sufficiently to cause the bulbs to shrivel. The spike is erect, and bears a raceme of from six to twelve large flowers of a very peculiar shape, the ground colour of which is orange-brown profusely spotted with deep purplish brown. There are several species in this genus, all being of great beauty and remarkable for their curiously-shaped flowers.

Vanda Sanderiana.—This magnificent plant is now displaying its charms in Mr. Measures' collection at Streatham. It continues rare, and has the reputation of being difficult to establish and slow to grow. From observation, I came to the conclusion that it requires strong heat and a moist atmosphere. The flowers are very large and the sepals and petals are broad and flat; the dorsal sepal and the petals are of a delicate blush-pink, more or less suffused with buff, whilst the lower sepals are of a greenish-yellow mottled with veins of crimson; the lip is small and deep purple.—W. H. G.

The Ladies' Tresses (Spiranthes autumnalis).—This sweet little native Orchid is now appearing on many of our Kentish fields and downs in all its glory. It is a pretty plant, the one-sided spike of paper-white, almond-scented flowers being very conspicuous, and imparting to a good-sized tuft of this Orchid an appearance that is as striking as it is, from its quaint look, uncommon. Differing from the majority of our native Orchids, this Spiranthes sends up its flower-spike not from amongst the leaves, but alongside these, the spike rising to 7 inches in height, and being clothed at intervals with pointed sheathing scales. A mound or hillock covered with this pretty Orchid when in full flower is very beautiful. By the side of a stream, threading its way through an undulating field or grassy down, this Spiranthes delights to grow; and it may seem curious, but it is nevertheless true, that most persons cannot fail to consider this Orchid a rarity, although they may find a score of plants to the square foot. As a pot plant this Spiranthes is quite at home, but to be seen to perfection half a dozen specimens should be placed side by side in a 6-inch pot, and then when in full flower their beautiful colour and delicious fragrance will enchant everyone. For many years I cultivated this Spiranthes along with the rare S. Romanzoviana in my garden, and where it did well and increased from year to year. The soil best suited for its wants is a fine sandy, inclined to peaty, loam. I wish some one would send me a flower of S. æstivalis from the New Forest.—A. D. Webster.

CHRYSANTHEMUMS.

E. MOLYNEUX.

PREPARING BOXES, ETC., FOR EXHIBITING.

Those intending to exhibit cut blooms of Chrysanthemums at the forthcoming shows and not in possession of the necessary stands, boxes, cups and tubes, tweezers, &c., should lose no time in obtaining the necessary materials, in order that success may crown the efforts put forth during the past eleven months of anxiety. A few hints as to the best kind of each may not be out of place now, so that ample time may be allowed before the date of exhibition arrives.

The stands upon which the blooms must be staged are specified by all societies to be of one uniform size. As far as I know, with one exception, they do not differ in this, and this is very necessary, as much inconvenience would be caused to exhibitors who are in the habit of going to more shows than one in a season. The increased size of the blooms obtainable in the Japanese section almost demands that the stands for this family should be larger than those in use at present and of the same size as for those of the incurved section. Many blooms are at present unable to be seen to advantage on account of their large size, the florets of one overlapping those of the next flower. But as matters at present stand, the usual size must be adhered to. The stands for twelve blooms are 2 feet long, 18 inches wide, 6 inches high at the back and 3 inches in the front. Two stands of the above size may be used for twenty-four blooms. The stand when six blooms are to be shown should be 18 inches by 12 inches, and standing the same height both back and front. The holes in the stands to admit the cup which supports the bloom should be 6 inches apart

from centre to centre; the outer row of holes should be 3 inches from the edge of the stand. The boards forming the tops of the stands should be half an inch thick, and the two sloping sides three-quarters of an inch thick. The front of the stand should be filled in with a board half an inch thick, this hiding the cups from view and giving a much neater appearance to the whole when arranged on the tables. The back of the stand should be hollow, being thus handier for arranging the blooms in the stands and for convenience in packing. Most societies insist on having the stands painted green. Some exhibitors have the fronts varnished instead of painted green. I have heard objections made against varnished fronts on the silly plea that the judges knew certain competitors' stands. To avoid anything of this sort all stands should be painted green.

No matter how few blooms are to be exhibited, some contrivance is necessary to carry the blooms to the show. Seldom, indeed, does any exhibitor stage less than two dozen blooms at one show or other. Therefore, it is wise to provide a box that will contain two stands, or as many as four stands, as it would cost less to provide one box for four stands than it would for two boxes holding two stands each. My experience is that the larger the box is, in reason, the better will the blooms bear a long railway journey. Those persons having had experience know well the cost of having blooms damaged in transit. I have seen valuable prizes lost through a single bloom being damaged, if not by faulty packing, by using contrivances not of the best kind. Below I give the specifications for a Chrysanthemum box, which should be made in cupboard form of three-quarter inch well-seasoned American Pine, and dovetailed together at the angles. The door, hung with one pair of 2½-inch butt-hinges, and fitted with a cupboard lock and key, must be clamped top and bottom, and be hung to fall in flush with the sides of the box, a chest handle being fixed on each side of the box. It will be noticed that when the stands are placed inside the box the door closes tightly against them, thus preventing any movement in transit. The clear inside size of the box should be 2 feet 10½ inches high, 2 feet 4 inches wide, and 1 foot 8 inches deep from back to front. The box is intended to hold four stands, each stand arranged to hold one dozen blooms. The runners for the stands should be screwed to the sides of the box, a groove being cut in each to allow of the stand sliding into it, thus securing it in its place. I have taken as many as 400 blooms in one season to various shows in boxes of this pattern, and never had a single flower damaged. Any handy carpenter may make boxes of this description.

The next point to consider is the cups and tubes in which the blooms should be staged. To do justice to blooms, be they good or bad, cups and tubes must be provided (if the competitor expects to win prizes) in spite of what has been written against their use and the manner of arranging the flowers in stands, which remarks generally emanate from those persons not having had any experience in such matters. Many attempts have been made to stage the blooms in what has been termed a more rational manner, but the best of them have been failures. There is a great variety of cups and tubes to choose from, some being made of wood and similar in shape to egg cups. These are objectionable in appearance, and do not last so long as those made from zinc. They also cause much inconvenience when least wanted, as they swell with the moisture, which causes the tube to stick fast and difficult to regulate quickly, while they are not of the right shape in the tube, not being hollowed out enough in a slanting direction. Some growers use cups and tubes made of tin. They are cheaper than zinc ones, but as they are so liable to rust, zinc is preferable. The cup should be 3 inches long, three-quarters of an inch in diameter, with a flange at the top one-eighth of an inch broad in a horizontal manner. This prevents the cup swaying to and fro. There are several methods of fitting the cups with springs for convenience in staging the blooms at a given height from the board, according to the depth or style in growth of the variety under consideration at the time. One plan is what is termed the "Jameson" springs. Inside the cup are fitted pieces of brass 1¼ inches long and half an inch wide at the bottom, narrowing off a little at the upper end. These, being soldered on to the top just below the flange and hanging loosely down the cup one on each side quite opposite to each other, hold the flower firmly. The advantage of this arrangement is that the stem of the tube when pushed down can be fixed at whatever height is thought desirable for the flower, be it a large or a small one. This spring does away with the necessity of using any kind of support, as in the case of the older shaped plain cups. The cups should be made in exactly the same manner as in the plain system, with the addition of the springs. Another plan is to fix a brass spring, one-fourth of an inch wide, on the outside of the cup on one side. By fixing it at the bottom of the cup, the top part of the spring stands away from the cup a little. When pressing the cup down through the hole on the boards, the spring tightens the cup in the board at any given height. The tubes should be made in two sizes, the stems of each being of the same width, allowing them to fit into any cup holding the water. The stem should be 2¾ inches long, made in a telescopic manner. The largest size should have the flange 3¼ inches in diameter, and 1¾ inches in the flange. These tubes are suitable for the larger varieties of both Japanese and incurved flowers, particularly the drooping varieties of the former section, which are much improved in appearance by having the petals supported at a proper height from the board, which in the case of Boule d'Or, for instance, cannot be done when one sized tube is used for all varieties. The other size should be 2 inches in diameter at the flange, which should be 1 inch deep. Every grower should provide himself with a few of these larger tubes, as they will be found of much service in arranging the blooms in the most attractive manner.

Forceps for dressing the blooms is the next consideration. Much has been written against the manipulation of the petals, more commonly called "dressing" the blooms, but for my part I see no possible objection to the practice, which simply consists in arranging the petals in a regular manner, so as to make the flowers appear smooth and of a more proper form than they generally grow without any assistance in the manner named. Persons with a small amount of experience must know, after being to a show of Chrysanthemums, that it is useless to stage blooms which are not dressed in competition with those the petals of which have been arranged. Indeed, there is no comparison between the appearances of the two stands. These remarks apply to the incurved section; the Japanese need very little attention to their flowers, which seem to defy improvement, beyond the removal of a decayed floret. Amongst growers there is a variety of opinions as to which is the best kind of forceps to use for dressing the blooms. Those made of bone or ivory find favour with some. My objection to them is that they do not grip the florets firmly enough, they are so liable to slip off. I prefer those made of steel. The forceps should be made in three sizes to suit the different large and small Japanese and incurved blooms. Those of largest size measure 8 inches in length, are half an inch wide at the rough or grip part, about midway their entire length, and about one-eighth of an inch wide at the points. Those of the middle size are 5 inches long and five-eighths of an inch wide at the grip part. Those of the smallest size should be 3 inches long and a quarter of an inch wide in the middle. Dust while travelling is sure to collect on the blooms, and in the case of white varieties is a defect. A soft camel's-hair brush, 1 inch long, with a handle 6 inches in length, should be provided for brushing off the dust, which if done in a careful upright direction will not damage the flower. A shallow box should be provided to hold the forceps and brush, making it so that the instruments fit in, keeping them secure and not so liable to rust.

Societies and Exhibitions.

ROYAL HORTICULTURAL.

OCTOBER 9.

THERE was very little shown at the meeting of this society at the Drill Hall on Tuesday last, and if it had not been for the group of Ferns from Mr. May, of Edmonton, there would have been scarcely anything. This, however, was the redeeming feature, and was certainly the finest display we have seen for years past. First-class certificates were awarded to the following:—

LÆLIA PORPHYRITES.—This is described as a natural hybrid, and has a marked distinctness, though we may liken the flowers in character somewhat to those of C. intermedia or marginata, as it is apparently of this section. The small plant of it shown by Mr. Ballantine, gardener to Baron Schrœder, The Dell, Egham, carried a short spike of two flowers, these being of neat shape, with sepals and petals of a curious shade, approaching mauvy lilac, and a deep rich purple lip, with the side lobes of a paler tint. The leaves are deep green and not abundant. It is an interesting, but scarcely showy Orchid.

NEPENTHES DICKSONIANA. — An exceedingly beautiful Pitcher Plant, named in honour of Prof. Dickson, and the result of a cross between N. Veitchi and N. Rafflesiana. It is of remarkably robust growth, and its affinity to Rafflesiana is seen in the broad flask-shaped lid, conspicuous wings, and rich colouring. This is green, overlaid with blotches and patches of crimson. It is a strikingly handsome addition to a peculiarly interesting race of plants, of which we have many handsome representatives. From Messrs. J. Veitch and Sons, Chelsea.

CHRYSANTHEMUM ELSIE.—This is the most delicately-coloured reflexed variety we have seen, as the beautifully shaped flower is just touched with pale yellow that passes to cream colour, except the centre, which remains a soft golden tint. Those shown by Mr. G. Stevens, of Putney, were forced out of character. As exhibited last year at the Royal Aquarium and there certificated, it is of medium size, neat, gracefully reflexed, and more of a decorative than a show variety.

ADIANTUM WALTONI DIFFUSUM. — This is a beautiful free-growing Fern of the character of A. elegans, and not showing a great departure from the type. It is described as a hybrid, and seems to have smaller pinnæ than the typical form, displaying as much beauty as the old A. cuneatum itself. Seedlings of various Ferns, as A. fragrantissimum, however, show considerable difference, so that it ought to be a thoroughly well-marked variety to receive a certficate. Shown by Mr. H. Walton, Burnley.

Canna Ulrich Brunner.—A beautiful variety of extremely neat growth, the leaves being of a deep reddish green tint. The flowers are rich self crimson, and a few flowering specimens in pots would make a great display in the greenhouse at this season. It is very evident that the Canna is becoming one of the most popular of flowers, as shown by the increase of new varieties, especially those of French origin. From Messrs. J. Veitch and Sons.

Begonia Mrs. Stark. — A double-flowered tuberous-rooted variety of a rich citron-yellow colour, uncommon amongst this section of Begonias. From Messrs. H. Cannell and Sons, of Swanley.

Begonia General Chichester.—This is also a double-flowered variety from Messrs. Cannell, and welcome for the strikingly rich rose-crimson colour of the well-formed flowers.

The group of Ferns from Mr. May, of Edmonton, was not only of very large extent, but comprised an exceptionally interesting selection of thoroughly well-grown varieties and species. There was a magnificent spreading plant of Davallia Mooreana and a neat specimen of the popular D. bullata, while of the Adiantum genus there was a great show, from the famous A. cuneatum to the noble A. Reginæ, which has broad, heavy fronds, with bold, well-developed pinnæ of rich appearance. There was also an excellent plant of A. scutum, the lovely A. farleyense, and the close-growing A. Pacotti, which is now well known; and those who like a Fern of dense, crisp appearance should secure this. A. elegans is appropriately named, and it is being grown largely for the market. In this superb collection were also plants of A. Williamsi, A. Legrandi, A. Bausei, and A. cardiochlænum. Polystichum setosum is remarkable for the glossy green colour of its fronds; and another Fern that is of great beauty is Nephrodium molle corymbiferum, which has beautifully crested fronds like Moss. The Nephrolepis were represented by such noble kinds as N. davallioides furcans with its boldly forked pinnæ and the tall-growing N. rufescens tripinnatifida. Asplenium viviparum is an exceedingly beautiful Fern, the fronds like delicate lace, finely cut, rich green, and gracefully arched. The collection was especially strong in Pteris, which included P. serrulata cristata compacta, with pale green, finely cut and compact fronds; P. geranifolia, with fronds not unlike those of the Oak Fern; and P. cretica Mayi, a well marked and exceedingly ornamental variety, the fronds glaucous in colour, the margins deep green. There were also shown P. cretica major, a very robust form, sometimes confounded with umbrosa, which is quite distinct, as the fronds are of the richest green possible, and the habit is different; Gymnogramma peruviana argyrophylla, G. Alstoni, the fronds richly powdered, and Osmunda palustris. A silver Banksian medal was awarded.

From the Chelsea nursery of Messrs. Veitch came specimens of Begonia John Heal, a very free blooming variety of the Socotrana race, and described before in The Garden, and Amaryllis Autumn Beauty, a neat, small-flowered variety with well shaped flowers of a bright rose colour veined with the same, each segment having a central band of white. There also was shown Amasonia punicea, or calycina, as it is now called, and plants of the most brilliantly coloured Bouvardia yet raised, President Cleveland. Nerine coruscans came from Mr. S. Ford, The Gardens, Leonardslee. This is a variety of N. sarniensis, and has glittering orange-scarlet flowers that sparkle as if bespangled with jewels. It is figured in the *Botanical Magazine*, t. 1089, as Amaryllis coruscans. It is strange, considering the remarkable richness of the Nerines and the dull season they bloom in, that they should be almost rarities.

Flowers of a Hybrid Perpetual Rose named Danmark were received, through Messrs. W. Paul, of Waltham Cross, from Messrs. Leiner, Lassen and Dithmer, of Elsinore. Although bruised, they were fresh enough to see that the variety Danmark is evidently of some value. The colour is that of La France, but deeper, and the form closer, while the sweet fragrance of La France is not lost. Messrs. Laing and Co., of Forest Hill, showed a collection of cut flowers of tuberous Begonias, the colours exceedingly bright and varied. An interesting exhibit was Adiantum farleyense, from Mr. Walton, and described as having been raised from spores sown Feb. 23, 1887. The plants were of good size and quite true. If this is so, a great point will have been gained, as it has always been supposed to be impossible to raise this lovely Fern from spores. Besides those certificated, Messrs. H. Cannell & Sons showed other tuberous Begonias, and a seedling Gladiolus of good colour came from Mr. C. Fordy, Markworth, Northumberland.

Fruit committee.—There was not much more fruit than flowers. An interesting collection of Plums came from Messrs. J. Veitch and Sons, Chelsea, for which a silver medal was awarded. There were such varieties as Fulton, Kirke's, Braby's Green Gage, a finely flavoured and luscious variety; Belgian Purple, White Magnum Bonum, Belle de Septembre, Pond's Seedling, a handsome fruit, but of inferior quality; Archduke, fine purple; Jefferson, and Coe's Golden Drop. A collection of seventeen kinds also came from the Royal Horticultural Gardens at Chiswick, where there has been an exceptionally heavy crop this season. Blue Damson, Prune Damson, Reine Claude d'Octobre, Drap d'Or, a small, yellow richly flavoured Plum, and Belle de Septembre, the fruits large, red, and of good quality. Mr. W. Roupell, of Roupell Park, exhibited bunches of Cannon Hall Muscat, Gros Colman, and Black Hamburgh Grapes. The two former were cut from plants in pots on warm pipes; the Gros Colman Vine, repotted every year, has by this treatment produced fine Grapes for three years in succession. The Cannon Hall Muscat Grape has very handsome golden berries, of excellent flavour and very fleshy. The bunches of Black Hamburgh had been cut from a Vine grown in an unheated house; the berries were of fair size and of first-rate flavour. Laxton's Open-air Tomato came from Mr. R. Dean. Carter's Model Onion, from Messrs. J. Carter, High Holborn, seems a firm and distinct variety. Cherry Late Duke was sent by Mr. G. Bolas, Wirksworth. Several seedling Grapes were exhibited, but none of special merit. Vegetables comprised a very handsome dark-leaved Beet named Dracæna-leaved from Chiswick, and Endive Queen of the Winter, a large-leaved coarse-looking variety, from the Novelty Co., Lancashire.

Council meeting.—At a meeting of the council held last Tuesday the arrangements made for the Apple and Pear conference, to be held at Chiswick Gardens from the 16th to the 20th inst., were discussed and agreed to. It was resolved that a special general meeting of the Fellows be held at 2 p.m. on Tuesday, November 13, in the council room of the society, 111, Victoria Street, to discuss and pass the bye-laws. The hon. sec. reported that during the recess he had received an application from the Melbourne Exhibition Commissioners for a representative collection of English-grown Apples and Pears to be sent out to Australia for the exhibition, and that he had arranged to comply with this request immediately after the Chiswick conference, in the hope that many of the exhibitors there would allow their specimens to be sent out to the colony for that purpose.

National Apple and Pear Conference.—This conference, which opens next week in the Royal Horticultural Society's Gardens at Chiswick, promises to be of great interest to fruit growers and of wide general importance. At a meeting of the executive committee, held on Tuesday last, the following arrangements were made: The fruit, which will comprise selections from various districts, is to be staged early on Tuesday next, and the conference will be opened by the council of the society at 3 p.m. On Wednesday papers will be read by Mr. G. Bunyard on the "Growth of Apples for Profit," by Mr. W. Paul on the "Growth of Pears for Profit," by Mr. T. Francis Rivers on "Stocks for Apples and Pears," by Mr. W. Wildsmith on the "Fewest Varieties of Apples and Pears Necessary to Ensure Supplies of Ripe Fruit from August to March," "Pruning Apple and Pear Trees," by Mr. Shirley Hibberd, Dr. Hogg being nominated to preside at the meeting. On Thursday the subjects are "Canker in Fruit Trees," by Mr. J. Douglas and Mr. E. Tonks; the "Enemies of the Apple and Pear," by Mr. J. Fraser; "Varieties of Apples for Sussex and their Culture in Heavy Clay Soils," by Mr. J. Cheal; "Renovation of Old and Formation of New Orchards in the Midlands," by W. Coleman; "Apples and Pears Suitable for Cultivation in Scotland," by Mr. M. Dunn, Mr. Shirley Hibberd presiding. On Friday the papers to be read are on "Compensation for Orchard Planting," by Mr. W. E. Bear; "Fruit Production and Distribution," by Mr. E. J. Baillie; "Railway Charges for Carriage," by Mr. D. Tallerman, Mr. T. B. Haywood being nominated to preside on the occasion. The meetings are to commence at 1.30 on each day, and discussions are expected to follow the reading of each paper. Visitors from the country who propose attending the meetings may be reminded that the Gardens are within five minutes' walk of the Acton Green station on the Metropolitan District Railway, and trains run in half an hour from the City stations every twenty minutes. Visitors from the south will find trains from Clapham Junction to Chiswick station, which is within a mile of the Gardens.

NATIONAL CHRYSANTHEMUM SOCIETY.

A committee meeting of this society was held on Wednesday last at the Royal Aquarium, when there were a few novelties shown. This is not likely to be such a fine season for Chrysanthemums as was once anticipated, as the frost of the 3rd inst.—the commencement of unusually cold weather for October—destroyed the hopes of many growers. In not a few instances large batches were destroyed, but those who housed their plants in time will reap a good harvest, as the flowers promise well. Only one first-class certificate was granted, and this for the following:—

Dorrie.—A beautiful variety of the Japanese type, reminding one of Mr. Garner, but it is quite distinct from this November-blooming Chrysanthemum. The flower is of excellent build, full, of a brighter yellow than that of Mr. Garner, and with well-arranged thread-like florets. It is an excellent addition to its class, as it blooms just when we require bright colour in the greenhouse. Shown by Messrs. W. and G. Drover, Farnham.

A variety named Mons. Lévêque was commended, and, in our opinion, deserved a greater distinction. It is also a Japanese flower, the colour delicate soft rose, more beautiful and telling than in the variety James Salter, from which it is supposed to be a sport, and with straighter florets. It is one of M. Délaux's seedlings of 1888.

Flowers of the Japanese Chrysanthemum Edwin Molyneux came from Mr. Molyneux, Bishop's Waltham, and showed this magnificent variety in its fullest perfection. Each bloom was of immense breadth and substance, the colour deep crimson, with the reverse of the broad florets rich golden yellow. A stand of blooms was exhibited by Mr. W. Owen, of Maidenhead. There were flowers of W. Holmes, deep crimson, golden reverse to the petals; Rose Beauty, a narrow-petalled variety of a rose colour; Miss Burgess, dull rose; and Sam Henshaw, a silvery grey-coloured Japanese variety of the Comte de Germiny type. It is one of the earliest in bloom of the incurved class, but we can well do without such "washy" tints. Messrs. H. Cannell and Sons, of Swanley, had double-flowered Begonias and ornamental Beet.

The death of David Wooster occurred recently at Bayswater after a lingering illness. Mr. Wooster, who was 64 years of age, was connected formerly with Loudon, and he will be remembered for his work on alpine plants.

Names of plants.—*Old Subscriber.*—Epidendrum nemorale.—*Edward Black.*—The winter Cherry (Physalis Alkekengi); the Cape Gooseberry is Physalis peruviana; send specimens of the other plants you refer to.—*G. P. Q.*—It is very much like A. Waltoni, but you had better send it to one of the Royal Horticultural Society's meetings.—Others next week.

Names of fruits.—*H. C.*—Apples, 1, Stirling Castle; 2, Warner's King; Pears, 1, Beurré Clairgeau; 2, Catillac.—*E. B. D.*—Roundway Magnum Bonum.—*G. T.*—A very fine sample of Louise Bonne of Jersey.

WOODS & FORESTS.

FORESTRY.

Notwithstanding the cold, wet summer which we have experienced, trees, on the whole, have made satisfactory progress. This proves that abundance of moisture when not allowed to become stagnant at the roots is favourable to the growth and healthy development of the trees. The fine seasonable harvest weather which we have been favoured with has been beneficial for ripening the young growth and bringing it into that hard, firm, matured condition which is so desirable before winter sets in. Now that the different species of trees are clad in their garb of many colours, rendering the landscape particularly attractive, foresters and others can study with advantage the combination of colours with the view of introducing new species and varieties to improve the scenery. Where additions are contemplated and the ground properly trenched and drained, the planting of evergreen trees and shrubs may be proceeded with at once, as the soil is in capital order, neither too wet nor too dry, and as this is a matter of much importance in favour of the future growth of the plants no time should be lost in making a commencement. In renovating old plantations with the view of improving the woodland scenery, it sometimes occurs that old, unsightly and dead trees have to be removed around the margin of the plantation to afford space for those about to be planted, and in doing so, in place of felling the trees with the axe and digging a pit at the side of the root left in the ground for the reception of the tree to be planted, the better plan is to entirely root the tree out. This can be done in a very efficient manner, and at a small cost, by attaching a rope to the top and taking advantage of the leverage of the stem thus afforded to pull it down. The ground can then be trenched and prepared for the reception of the new tree in a superior manner, and although the cost is a little more, yet the growth and healthy development of the newly-planted tree will more than compensate for the extra outlay. When executing such work the planter should be careful to pick out all dead wood, roots, and chips from the soil in order to prevent as far as possible the growth of fungus, which would not only be detrimental to the growth of the tree, but in course of time would most probably kill it altogether. The ground at the spot where an unhealthy tree has been rooted out should be thoroughly examined, and in nine cases out of ten it will be found that the tree had contracted disease from excess of stagnant moisture at the root or a hard impervious subsoil below, both of which are inimical to the healthy growth of trees.

Ornamental specimen trees on the lawn and elsewhere that are showing marks of decay had better be examined at this season in order to ascertain the cause and apply a remedy. In cases where excess of water at the root is to be dreaded a few test holes should be dug here and there around the tree, and these, should they attract and retain any considerable quantity of water, show that the subsoil is wet and requires draining. Under such conditions and when draining becomes necessary, care should be taken to cut as few of the roots as possible. It sometimes happens that old drains in the vicinity of such trees get choked up with roots to such an extent that stagnant water accumulates at the spot, destroys the roots and gradually brings about the death of the tree.

In addition to excess of moisture at the roots, many handsome specimen trees contract disease and die a premature death through the poverty of the soil in which they are planted; consequently, when the soil is found to be exhausted to such an extent that the trees begin to show signs of decay, no time should be lost in applying a good top-dressing of rich compost around the tree, and as the roots extend for a considerable distance from the stem, the dressing should be spread over the whole of the surface where they are. I have treated ornamental coniferous trees of stunted growth in this manner with the greatest success, and in cases where the soil is naturally of a poor thin texture a dressing of thoroughly decomposed manure is very beneficial in promoting their healthy growth, and may now be applied to the surface with advantage. But the case is much more serious when trees have to be dealt with that are planted upon soil resting upon a hard till or soil of a poor character. In such a case the surface should be carefully removed with a fork and the roots lifted to allow space for breaking up the hard crust with a pick. Part of the bad subsoil should be removed and a quantity of good substituted in its place. The original surface if not too poor should then be replaced and the ground made firm, and in some cases I have found it necessary to stake and tie the tree to keep it secure until the roots got a hold of the fresh soil. In performing this operation care should be taken not to lift so many of the roots as would endanger the life of the tree, but the size, species, and local circumstances connected therewith will always prove a safe guide to the operator in such cases. The short-sighted policy of planting trees without having the ground properly prepared is here clearly exemplified, and although amateurs and perhaps others may think that they are thereby reducing the cost at the time of the formation, yet a few years' experience and observation tell them a different tale. The leading object of skilful tree culture is to convert the dormant particles of the soil into an active state, and thereby render them available as food for the support of the plant, and as this can be best accomplished by thorough drainage and trenching, such should precede all other operations. In the formation of ornamental plantations the ground should be thoroughly drained wherever necessary and trenched some 18 inches or 20 inches deep, according to the texture of the soil and subsoil. As a general rule I have had the work done in a very satisfactory manner at an average rate of from £8 to £10 per acre. Stiff clayey soils will be greatly improved by the action of air and frost during winter, and for this reason I have found it to be a good plan to dig pits for the trees in autumn. J. B. Webster.

The Lebanon Cedar on chalky soil. — In answer to D'Arcy W. Reeve, in The Garden, October 6 (p. 330), as to whether a Cedar of Lebanon will do well in chalky soil, I would unhesitatingly reply in the affirmative. Here we have it growing very luxuriantly where only a few inches of loam, and that of by no means the best as regards quality, overlie the chalk; indeed, some half a dozen large specimens are growing within almost a stone's-throw of a disused chalk pit. I would, however, strongly advise "D'A. W. R." to loosen well with a pick the chalk for a couple of feet in depth where the Cedar is to be planted, throw about half of it from the pit, which should not be less than 6 feet in diameter, and substitute instead a load of good loam from an adjoining field. Mix this latter well with the remaining portion of the loosened chalk, and leave all fully exposed to the weather for at least a fortnight before planting the Cedar. "D'A. W. R." is wrong in supposing that the Cedar would require constant feeding, at least if treated in the manner just described. Where the Beech is largest and strongest in chalky districts, it is quite easy to mark out the line where the chalk cliffs almost crop through the surface; and in such situations we have the Lebanon Cedar doing unusually well, and where it has stood and thriven for a century at least, without feeding or even top-dressing. Staking is an all-important point in the establishing of a Lebanon Cedar, few trees, in my opinion, requiring to be kept more staid and free from root-straining than that in question. It is a rather "miffy" Conifer to deal with; therefore in planting be sure to choose a well-rooted, healthy specimen; plant it not too deeply, have it securely staked at once, and, if need be, the ground around it mulched with damp, half-decayed leaves or Grass.—A. D. Webster, *Holwood Park, Kent.*

LARCH SEED.

It is many years since there was such an abundant crop of Larch cones, and years may elapse before a similar result will be obtained, and particularly so in the case of the Larch, it being amongst the earliest of the coniferous trees to start into growth in the spring, and therefore most liable to have the foliage, flowers, and fruit injured by frost. Perhaps the Larch, with the exception of the common Silver Fir, bears cones more freely than most of the Coniferæ, and yields more abortive, worthless seed. In ordinary seasons about two or three fertile seeds of the highest vitality are all that can be got from a Larch cone. This year unfertilised seeds are rare. The cones on the whole are large, compact, and well formed, while the seed is plump and well developed, and it may be assumed that the offspring will be strong and numerous. Indeed, in localities in which the conditions favourable to growth exist, the process of reproduction cannot be otherwise than eminently satisfactory this year. All who are interested in the Larch cannot better promote its cultivation than by seeking when opportunity offers to utilise the good and suppress the spurious seed. Those who have any experience in forestry know there are many varieties of the same tree, and also many varieties of cones, which, of course, produce many qualities of seed. Hence it is evident that experience and discretion are needful in the gathering of the seed. There is no limit to the good that would ensue from carefully chosen seed. It is certainly a great loss to forestry that competent people are not employed to collect tree seeds. Perhaps the seed has more to do with the dissemination and perpetuation of tree disease than any medium extant.

The Scotch, Spruce, and Silver Firs are all well cropped with cones. It may be well to be reminded that squirrels and crossbills, where found, should be destroyed, so that the cones may be able to become ripe. Other tree seeds are equally good and abundant this year. On some trees of the Ash, Beech, Birch, and Elm (Wych) there was a most extraordinary crop, the foliage being entirely obscured by the superabundance of the seed. Sycamore, Maple, &c., all bear abundance of good seed. The time for gathering is approaching, and those who require should gather in freely.

James Farquharson.

"The Garden" Monthly Parts.—*This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d.*

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"The Garden Annual and Directory" for 1889 *will contain a Complete List of Gentlemen's Seats, their Names and Gardeners; List of the Nursery Trade, with a new List of the American Trade. All changes of address, with applications for advertising spaces, to be sent at once to the Editor of the "Garden Annual," Mr. James Flood 37, Southampton Street, Strand, London.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

NOTES ON MICHAELMAS DAISIES.

To be a Michaelmas Daisy an Aster should be at its best during either September or October. Some very good species of Aster are over before the autumn begins, but these are not Michaelmas Daisies. One of the best, perhaps the very best, in colour of the genus is A. spectabilis, a rich dark blue. Enough is not done in the way of raising Michaelmas Daisies from seed. Many of them, even the later flowering kinds, produce fertile seed plentifully, and with a little help in the way of pollen brushing, new and improved varieties might easily be raised. Some reproduce themselves with a tiresome sameness, whilst others seem ready to run into varieties. If the chance seedlings which come in gardens where many varieties are grown were allowed to flower, we should now and then get an advance. For instance, we might hope to get the colour of A. spectabilis with the habit of the medium-sized varieties of versicolor. Asters are by no means worked out, and hardly a year passes in which I do not meet with some improvement. This year a very large-flowered Aster of the versicolor type and of moderate height has come in the middle of an entirely different kind. It is quite new, and I think will be very good. To speak of Michaelmas Daisies by botanical names suggests little or nothing to those who are experienced about them. They know that of the selections sent to the gardening papers there are hardly half a dozen of which the names are consistently uniform in the trade or out of it. As a rule, Asters with botanical names are worthless, and one need not go further than Kew Gardens to be convinced of this. I mean no disparagement to Kew Gardens, for which I have the greatest respect; but for ornamental purposes collections of Asters must be made quite regardless of names, and as a rule the more ornamental they are the less likely they are to have specific names, being made up probably of some half dozen species each.

The best way to get a good selection of garden Asters is to buy or beg a piece of every one you see which has any merit. In this way at least 200 varieties must have lodged for a year or more in my garden. Some are turned out at once after their first flowering, and others at the end of two or three years; but at this season eradication is constantly going on. Perhaps the average number of varieties retained is about fifty. But to have showy and decorative Asters something more than selection is necessary. The same collection of Asters grown in two gardens where the soil was equal, if in one garden they were left alone for five years and in the other constantly renewed by transplanting and dividing and enriching the soil, would not be recognised as the same.

After what I have said, I shall hardly be expected to give a list of names of the best kinds, though I may repeat what I have often said, that the same botanical species often includes good and bad varieties, quite distinct for all garden purposes. Novæ-Angliæ, Novi-Belgii, cordifolius, lævis, versicolor, are amongst specific names represented in gardens by different heights, sizes, and colours, and many botanical names are to be found in nursery catalogues which never had authority in any standard nomenclature. But amateur gardeners, if they get good ornamental flowers, need not trouble themselves much about the names, and much less confusion would be caused by the omission of names than is caused by the reckless forging of Latin names which is so prevalent. It should be remembered that two-thirds or more of the Asters we see are mere garden varieties, and should be named as such, if they must be named at all. C. WOLLEY DOD.

Edge Hall, Malpas.

CARNATIONS IN THE FLOWER GARDEN.

TO THE EDITOR OF THE GARDEN.

SIR,—Having been a grower of Carnations for over sixty years, I have found them perfectly hardy, never having used a frame or any other protection. In order to ensure success, I have found it necessary to begin to layer them generally about the middle of July, and to complete that process by the third week in August. This secures good, strong plants for taking off at the end of September for planting out in the flower garden or in the border. If in the border, it is quite necessary to pit them—that is, to dig a hole in the border 14 inches square and 10 inches deep, and which should be filled up with a good mixture composed of two-thirds light loamy soil, one-third rotten manure, and a little sharp sand mixed up thoroughly, taking care in turning it over to look out for and destroy the wireworm, which is the greatest enemy to the Carnation. If in a bed in a flower garden, the ground should be trenched to the depth of 20 inches, digging in some rotten manure (from a hot-bed is best). In planting, use the compost referred to above. I have found October a good time to plant out permanently, as the plants take hold of the ground before winter fairly sets in.

My practice has been to plant Carnations in threes of the same variety, 8 inches apart. This mode of planting saves stakes, and very much minimises the number of stakes generally used.

It is necessary to look over the beds or borders planted after a frost, as it frequently lifts some plants out of the soil, and these should be restored when the frost is out of the ground to save them from being destroyed.

I have noticed this year the effect of autumn planting of Carnations in Messrs. Dickson's nurseries at Chester, where there is a most extensive collection. They were strong and healthy, flowered profusely, and were furnished with unusually strong "grass" for layering in autumn. It is here clearly demonstrated that autumn-planted Carnations have surpassed plants that had been under glass through the winter and planted out last spring, having finer flowers with better colour.

The Carnation, therefore, should claim a place almost, if not quite equal with the Rose in the flower garden and the open border, being sweet-scented, so beautifully diversified in colour, and quite as easily managed. THOMAS M. WALL.

Wirrall Cottage, Rockferry, Cheshire.

Two new Ageratums (Ada Bowman and Wilhelm Pfitzer).—The first of the above-named varieties was sent me for trial this spring by its raiser, Mr. Bowman, and I am happy to be able to speak very favourably of it as a distinct addition to this family of summer bedding plants. It comes into bloom very early in the season, and continues to flower freely throughout the whole summer and autumn; in fact, until destroyed by frost. It is also of a dwarf and tufted habit of growth, with good trusses of large pips of fine quality, borne well above the foliage, and of a light and pleasing shade of bluish grey. Seed of this variety was offered this spring by a leading London nurseryman, but with this I would have nothing to do, as this family of plants cannot be relied upon to reproduce themselves true from seed. Those hoping to obtain any specific variety by purchasing seed could not fail to be disappointed, as though they might by chance find a few of the specified variety among the seedlings, the majority would differ in height, habit of growth, and shade of colour of flower. One lady visitor to my garden this summer, when shown this plant, remarked that she had purchased seed of it from a London seedsman, but not a single grain of it came up, which was another form of disappointment. The variety Wilhelm Pfitzer was sent me by its raiser, the well-known German nurseryman of that name at Stuttgard, who has also raised some very distinct and handsome hybrids of the handsome family of Kniphofias, most of which have bloomed with me this season, and of which I hope to give some account in THE GARDEN after seeing them flower again next season on more thoroughly established plants. The new Ageratum is a plant of dwarfer habit of growth than the English variety, producing with exceeding freedom a large number of small trusses of a much deeper shade of colour. It is also considerably later in coming into bloom than the variety Ada Bowman. Both of them are first-class varieties for summer and autumn bedding, and strike with so much readiness from cuttings in sand and water, that from a plant or two a stock may be got up in a few weeks.—W. E. G., *Belgrove, Queenstown, Ireland.*

TUFTED PANSIES.

I MAKE a distinction between the florist's or choicer section of Pansies and the forms I refer to, simply because florists' flowers are grown for specified objects and must possess certain properties. I make no complaint that such is the case; there is ample room for the florists' forms and for the numbers of border and seedling kinds. Florists in seeking for flowers which must possess certain qualities have raised many varieties, which if not good enough for their purposes have yet made very attractive border flowers, and all who love Pansies are indebted to them for so much. But I rather wished to refer to the Pansy just now because it has had such a capital season, and in all its forms exhibited such staying powers and flowered so freely. Plants which had bloomed so long as to have become straggling and loose, when cut over hard soon recovered and bloomed as brightly as ever. But the best effects have been seen in seedlings from May sowings and from plants of the bedding forms, which lifted, divided, and replanted have now got a firm root-hold. All these are blooming profusely and very beautifully. Whilst for bedding the fine self varieties are most in favour, a good mass of seedlings of the Belgian or fancy strain display both greater colour and variety. It would be indeed hard to excel in beauty a bed of these if of a good strain. The older English forms look poor indeed in comparison, for whilst in the latter both colours and markings are restricted, in the former colours are both wonderfully rich and illimitable, and markings are varied and quaint. How superb are the purple, claret, maroon, chocolate, and similar hues. How glorious the white, yellow, and cream colours, with their black blotches, whilst in not a few flowers the deep colours are lit up by bands or edgings of white or some pale hue. Even these fancy forms are so robust, that they show no danger of decaying from lack of stamina. Sown in the open ground, planted and grown in fields without shelter, they fully justify their appellation, for truly they are hardy border flowers. There is one unfortunate defect on the part of the very finest flowers which it may be well to note. These are always the most shy in producing seed, whilst the poorer flowers seed freely. Of course, if seed is saved from these, a strain soon loses its value and deteriorates, although the presence of many fine flowers which may not produce seed does apparently help to keep up the quality of the strain to some extent. It is well

that those who may prefer to save their own seed should understand that in so doing, and trusting thereby to the best seed producers, they are very likely only perpetuating their worst forms. Those who grow for seed find it needful to eliminate from their stock all inferior seedlings, and even if the seed produce be relatively so much smaller, it is all the better, and, of course, all the more valuable. There are, indeed, few really first-class strains of anything which seed freely, especially amongst flowers. The market grower of Pansies, who cultivates them by thousands for spring blooming chiefly, does not care to let his plants flower largely in the autumn. Generally, the plants are lifted in the spring after the bulk of the respective kinds have been sold and are replanted, dividing as far as is safe to do. About the end of August, if the plants have done well, they are again lifted, and each one divided into about three or four, and planted up thickly, stand until the spring. Any tendency to bloom is often checked by having the tops of the plants cut over, so as to make them compact and dwarf. Fancy Pansies from spring growths are often treated in the same way, unless a specially good selection be wanted for seed producing. The present season's experience of the Pansy may, perhaps, help to render it somewhat more popular as a garden flower than it has been of late. A. D.

HELIANTHUS MULTIFLORUS (LINN.) AND ITS VARIETIES.

These have become too well known to need further comment, or to require any description, as I write solely to remove duplicity of names found to exist as abundantly in this species and its varieties as in other species of this handsome genus. Helianthus multiflorus (Linn.) may, in commerce, be said to consist of three forms, the type of which has, according to the *Bot. Mag.*, vol. vii., t. 227, published 1794, been said to have been introduced previous to 1699 by Lord Lemster. Loudon mentions it as having been introduced from North America in 1597, and the late Dr. Asa Gray, as recently as 1886, said that it must have originated from H. decapetalus, and designated H. multiflorus (Linn.) as H. decapetalus multiflorus. With this I disagree, and assert that H. multiflorus must either be a true species (it is certainly distinct enough for such), or it must be a hybrid, as has before now been supposed. The three varieties bear so much resemblance to each other, that, for all practical purposes, the name H. multiflorus (Linn.) may be applied to all. The typical form in light rich soil attains a height of between 4 feet and 5 feet and flowers from the middle of July to the middle of October and sometimes later. It is figured in the *Botanical Magazine*, vol. vii., t. 227, as H. multiflorus, and is sold by some nurserymen under the erroneous name of H. multiflorus major, under which name I have, for test purposes, obtained it, but it never proved different to the single-flowered form which, in the first place, was produced some years ago from my stock of H. multiflorus fl.-pl. This is a facsimile of the type, and is said to have been introduced from North America in 1797, and, as in the type, attained in light rich soil a height of between 4 feet and 5 feet, but with me this cold season it has not grown so high. This double-flowered form, if grown in a strong soil, is apt to become so double as to appear without ray florets, and is then sold under the following erroneous names: Helianthus grandiflorus fl.-pl., H. multiflorus grandiflorus fl.-pl., and H. multiflorus grandiplenus. Under the last name it will be found in The Garden, Sept. 24, 1887 (p. 283), and there public attention was drawn to it as a welcome addition to gardens as a plant not in commerce. This is a mistake, as the double-flowered variety in this form has been in commerce for the last ten years to my knowledge. If it would remain constant it would form a distinct and useful addition, but I think not so elegant as when in its ordinary double form—a form which "Soleil d'Or," writing on this disputed question in The Garden, Sept. 29, 1888 (p. 294), would, he says, like to designate anemonæflora. "Soleil d'Or" also mentions this variety in its more double state under the name of grandiplenus, and says "the petals are frilled towards the centre like those of a Dahlia, the colour brighter, the bloom much finer, and the plants, grown side by side, distinct both in foliage, habit, and bloom." This, however, is not my experience from the plants obtained from time to time under the foregoing erroneous names. The plants under these names I have always found soon change when brought into light, rich soil, and on several occasions when they have either been grown in poor soil, or, as the *Botanical Magazine* says, continued in some spot a number of years, the blossoms have become single. I have also found during a dry summer, in rich, light soil, odd plants, one or more in a hundred, revert to the parent type, and whenever they have done this I have never found them to again produce double flowers, and not until this wet, cold summer of 1888 have I had in rich light soil one double flower, even in a large stock of the single type, while persons with heavy soil most likely have. I am of opinion that wet seasons or heavy soils make all the difference ever found in the three varieties. The last of the three varieties is H. m. maximus, which, as far as my knowledge of its origin goes, was first offered about 1881 or 1882 by Mr. R. Parker, then carrying on business at Tooting. It would be interesting to know its origin before that date, but it is sufficient now for me to say that the names H. grandiflorus, H. giganteus, or H. multiflorus giganteus, under which this plant is sometimes sold, are superfluous and ought to be discontinued. S. Appleton.

White Snapdragon.—The pure white variety of Antirrhinum majus, recently figured in The Garden (p. 293), deserves all that has been said of it as a beautiful hardy flower. I do not know who raised it, but some years ago I saw a long row of it in Messrs. Ireland and Thomson's nursery at Edinburgh, and got seed of it, from which our stock was raised. I believe every seedling was true, *i.e.*, pure white, and we have found it very useful for yielding a profusion of late white flowers. —F. W. B.

Eulalia japonica.—Your correspondent "W.," at p. 320, asks if E. japonica variegata is hardy in this country. In the Botanic Gardens of Trinity College, Dublin, the typical species, E. japonica, and both its variegated forms, viz., variegata and zebrina, are perfectly hardy, the roots having been unharmed during the past five or six winters. The tufts vary in height from 4 feet to 6 feet, or more, and all the forms have produced their characteristic inflorescence. During very severe winters the stems are cut to the ground level, but they spring up afresh the following spring. A slight protection of coal ashes or Cocoa-nut fibre would probably preserve these plants from fatal injuries, even in cold localities. As pot plants for warm greenhouse or conservatory decoration the variegated Eulalias are most distinct and graceful. E. zebrina is especially worthy of heat and shelter in this way, its leafy Bamboo-like growth attaining a height of from 5 feet to 8 feet. If dwarf specimens are desired, these plants grow nicely in 5-inch pots when young, forming bushy tufts of stems varying from 1½ feet to 2 feet in height. They are easily propagated by division.—F. W. B.

Lilium speciosum vars.—"H. P." in The Garden, October 6 (p. 319), in directing attention to the above, says, "it is easy to pick out L. s. album novum from L. s. a. Krætzeri even before they flower." My experience, however, does not agree with this. Now and then L. Krætzeri will exhibit slight variations, but I have never seen an instance where album novum exhibited any difference in leaf whatever, and do not regard it as constant. I am speaking from the experience of a large stock of this Lily—probably the largest in the trade—and from having watched it carefully for some time past. I regard the date of flowering of these two varieties as identical when they are established and side by side; the greatest difference I have noticed has been from three to four days. This summer, however, has proved conclusively the opinion I have always held with regard to their flowering. The variety album novum was the first to expand a bloom, but in less than twenty-four hours album novum had opened five blooms and Krætzeri four blooms. "H. P." omits one particular of the true punctatum, viz., that it has yellow anthers.—E. Jenkins.

FLORISTS' FLOWERS.

Auriculas.—The moist, cool summer appears to have suited Auriculas in pots, for they have made a fine clean growth, and are now falling away to their autumn and winter's rest. I am letting my plants have the full effects of the mild dews and mists that are now so abundant, but they are carefully screened from rains. All the air possible is given to them; they have it above and below, and the crowns are full and Filbert-like. Water is given sparingly, but no plant is allowed to become dust-dry. The outer leaves are beginning to fade, as they will do at this season of the year, and they are removed as soon as they turn yellow. The plants are gone over occasionally, and the surface soil gently stirred. All the plants are in their blooming pots, and if any growth of green appears on the surface it is at once cleared off. Cleanliness is of the utmost importance, and an occasional fumigation with tobacco smoke keeps the Auriculas free from green-fly. The house or frame should be cleansed throughout before the plants are placed in their blooming quarters.

Seedlings from seed sown in the spring of 1887 are commencing to bloom; the autumn bloom is sometimes misleading, but it enables the grower to throw out some amount of rubbish. The seedlings will go on flowering until the frost stops them. Another batch, raised from seed sown in August last year, are in store pots, seven and eight plants in a pot, and they are fast growing into size. A few of these may bloom this autumn, but the bulk not until spring. Seedlings from seed sown in March last are being pricked off into store pots filled with a light compost, sand, fine leaf-mould, and Cocoa fibre predominating. Of another batch of seedlings from seed sown in August, which is germinating rapidly, the most advanced will in spring be pricked off into store pots, which will make room for the tardy seedlings that do not appear until then. The Rev. Mr. Horner stated once that he kept his seed-pans two and three years, so tardy in germinating were some of the seeds, and that the latest produced were often among the finest of the progeny. In the case of seeds sown at the end of July, the more advanced of the seedlings have four leaves; others have the cotyledons just appearing through the soil; and some will not appear until May in next year. The raiser of seedling Auriculas needs to have an inexhaustible fund of patience.

Polyanthuses.—It has been a pleasure to have the named gold-laced Polyanthuses in pots this season. In the case of a hot, dry summer the leaves become infested with red spider, the crowns lose them, and it is very difficult for them to break out into growth again. But for once red spider has made but little head-way, the plants have kept their leaves, and those re-potted in July and August are growing away merrily, and they are full of promise for a good spring bloom. Earl of Beaconsfield, a scarce black ground, is a strong grower, but is said to be inclined to coarseness. The early flowers are no doubt the best. Other good and useful black grounds are Prince Regent, Cheshire Favourite, and Exile. Red grounds: George IV., Lancer, and William IV. Two of this half-dozen, George IV. and Exile, are somewhat scarce. Strange to say that, with the many thousands of gold-laced Polyanthuses raised since these varieties were first cultivated, so few improvements should have been made upon them as exhibition varieties. New varieties are occasionally certificated, but how or where they are to be procured no one seems to know, nor does it appear that they have been sent out, except in two or three cases. Probably they have become lost altogether.

Double Primroses.—I wish the committee of the National Auricula Society would make it a condition at their April show that double Primroses be grown in pots, like Auriculas and gold-laced Polyanthuses. As it is at the present any nurseryman

who grows double Primroses in quantity can lift any number of plants of any one variety and make up a big pan, swamping by mere quantity the best plants grown and flowered in pots. What I think the committee should endeavour to do is to encourage the growth of these charming subjects in pots, for it is becoming more and more difficult to grow them in the open air near London. But they can be cultivated in pots in a cold frame if they be potted properly and treated rightly. Now is a good time to pot; it should be done in September if possible, and not later than the middle of October, before the roots cease to be active. If three good strong plants of each variety, plants say with a couple of crowns to each, are potted into 8-inch pots, they make fine specimens in the spring. I give plenty of drainage, laying a little fibre over the crocks. Over the fibre I place a layer of dry cow manure and then pot, spreading out the roots so that they can reach the sides of the pots. I am using a compost made up of good fibry yellow loam, leaf-mould, manure from a spent Cucumber bed, and silver sand. In potting I keep the roots pretty near the surface and press the soil firmly upon them, and the plants are placed in the pots so that the stalks of the lowermost leaves are just below it. The result is that the plants throw out fresh roots from between the leaf-stalks, and when they do this they are certain with proper treatment to do well. And as I use the soil nice and moist without being sticky, I give no water for a week, but stand the plants in the open and let them have the benefit of soft showers. I am satisfied that one frequent cause of loss of double Primroses in pots is owing to deluging the plants with water directly they are potted. They should not have any until the roots become active, and then, if the weather is dry, gentle sprinklings overhead are better than pouring water into the pots. During winter the plants have the benefit of a cold frame, they have plenty of air, but only soft rains in mild weather are allowed to fall upon them. If they go dry, I find that immersion in chilled water, allowing the plants to drain well before they are returned to the frame, is the best method of watering. But it is very little they require before the spring makes the plants become active. On the other hand, dry rot must be guarded against; danger lies in the extreme of dryness, as in that of wetness. I have three strong plants of the double crimson-velvet Primrose in a pot. They are doing grandly and are full of promise. Other fine attainable varieties are Croussi fl.-pl., purple, blush, white, lilac, Scotch red, late yellow, early sulphur, and platypetala plena. That makes ten varieties, and a very pleasing and interesting collection well worthy anyone's care.

R. D.

Tortuose white Trumpet Daffodils.—Now that the season for planting and purchasing white Trumpet and other Daffodils is at hand, will some of your readers kindly inform me which of the four or five following varieties Parkinson wrote about as the great tortuose white Daffodil, or which of the number Haworth ever saw living specimens of? I mean first of all the Conference typical tortuosus. Then come Leda and Colleen Bawn from Ireland, and we have Sarnian Belle from another island, and three others that I know of also found in Ireland, all tortuose Daffodils, viz., having the trumpet longer than the perianth divisions and the latter twisted and shorter. About Manchester, where Colleen Bawn has been distributed largely from one Irish garden in particular, it is only recognised as Haworth's tortuosus, and Sarnian Belle, starred as new in some catalogues, I got as tortuosus from a famous London firm in 1884 as the typical Conference one. This plant happens also to turn up in Irish gardens, and I got it also from another firm as true Colleen Bawn in 1886. M. Krelage, of Haarlem, has a form of tortuosus, which I have had growing here for the last three or four years, and which he sells as cernuus. Will some of your readers kindly throw some light on the matter? When I took Sarnian Belle (then sold as both Colleen Bawn and cernuus) to the Daffodil Committee in 1887, some pronounced it tortuosus and others said Colleen Bawn. Yet it is "starred" now as new, and without authority from the Daffodil Committee.—W. B. Hartland, *Temple Hill, Cork.*

BEAUTIFUL FLOWER BEDS.

Any time during September, before the autumn frosts destroy the plants in the flower garden, may be chosen for a tour of inspection, in order to chronicle successes and failures for another year's guidance. One important fact has struck me during an inspection, and that is the prominent part taken this year by seedling plants. The wet summer has prevented Pelargoniums from blooming, but it has developed seedling plants in an extraordinary manner. Begonias, Petunias, Verbenas, dwarf Marigolds, and the Sweet Tobacco amongst other things are at their very best. Fuchsias have rapidly come to the front as bedding plants during the last few seasons, and some of the best beds in Hyde Park are those filled with old varieties of this favourite flower. Madame Cornellissen, Annette, and Rose of Castile are probably three of the best for this purpose. They are most effective if planted thinly, and isolated plants on a carpet, say of dark Petunias, Verbena venosa, or Ageratum, show to great advantage. One of the best beds I have seen this year was the result of the employment of ten large plants of Madame Cornellissen Fuchsia on a carpet of crimson Begonias. It is not generally realised what a splendid effect can be produced in the same season with seedling Begonias if they are sown very early and grown on as quickly as possible until the time for hardening off. I have a very light pink variety, a vigorous grower and free flowerer, that comes nearly true from seed, and this on a carpet of dwarf Ageratum with an occasional plant of Acacia lophantha makes a charming bed. The darker shades of Begonia are seen to the best advantage on a carpet of Mesembryanthemum; indeed all the tuberous Begonias, except the small-flowering varieties, as Northiana, are best planted thinly and the surface diversified in addition to a carpet of some light feathery plant. They are too heavy and formal in a compact mass to suit most tastes. Verbenas have done well this season and make the most attractive beds in the flower garden; large masses of the varieties with scarlet and purple shades, dotted over with occasional plants of the Blue Gum and the Sweet Tobacco, are a special feature. There are not many named varieties, with the single exception of Hampton Court Scarlet, that have all the requirements essential in a good bedding Verbena; the necessary colours can, however, as a rule, be secured by sowing each year and carefully selecting the most free and sturdy seedlings. Violas, double Tropæolums, and Calceolarias are not at their best this year; a capital substitute for the latter is, however, to be found in the two shades of the dwarf Marigold. An old tree stem in the centre of a large bed is covered with Canary Creeper to a height of 12 feet, and the bed itself filled in with Marigold, and this for a long time has been a sheet of golden yellow. Mixed beds are also a success this year, filled in with such things as Marguerites, Fuchsia, Heliotrope, variegated Geranium, crimson Beet, Hyacinthus, Eucalyptus, &c. A pretty foliage bed has been formed by a carpet of Vitis heterophylla var., dotted with crimson Beet and a few plants of Grevillea robusta. Another pleasing combination is half-a-dozen plants of the big-leaved Solanum, filled in with a mixture of Heliotrope, double pink-flowered Ivy, and Manglesi Geraniums. The Sweet Tobacco has been largely used, and whether as an isolated plant, towering above scarlet and pink Geraniums, &c., or as a background associated with the Cactus Dahlia, it is very effective.

E. Burrell.

Claremont.

Dabœcia polifolia.—Wherever hardy Heaths are grown, this—the Irish or St. Dabeoc's Heath—and its varieties must all have a place, as the blooms are large and showy, and continue in beauty from early summer till they are cut off by frosts in autumn. Besides the typical form with rosy purple blossoms there are a couple of varieties, one in which the flowers are pure white, and another in which both forms are borne not only on the same plant, but often on the same spike. Like most of its class, this Heath thrives best in a peaty bed, where it is shaded from the full rays of the sun during the hottest part of the day, and besides this it is absolutely necessary that the soil be fairly moist during the summer. Where a bed of it exists under conditions such as these it will be found that the blooming season extends over a much longer period than in the case of any of the tender bedding plants, and no coddling during the winter is necessary, as this Heath is perfectly hardy. It is one of the easiest of its class to strike from cuttings, and may be propagated with equal facility by means of layers.—T.

AUTUMNAL CROCUS.

I am a great lover of the Crocus, and delight to see them pushing through the ground in the early days of September. Having seen the note by "F. W. B.," I made a minute inspection of all that were in flower in our collection, and I find that a succession of frosty nights and a gale of wind with cold, driving rain have sadly marred the beauty of the more advanced clumps out of doors. To-day, Saturday, October 6, has been calm, with bright sunshine, and some of the flowers have opened nicely. But when protected by glass we see their rich and delicate colours and the exquisite feathering on the transparently beautiful petals. C. pulchellus out of doors has been completely spoilt, but under glass C. pulchellus albus is most lovely, and flowers very freely. C. pulchellus is easily propagated by seed, and if the weather should prove favourable it will flower from the first week in September until November. It was described under the name of C. Constantinopolitanus as early as the year 1670, and was long confounded with C. speciosus until Herbert separated it from that species.

C. zonatus is the freest flowering species we have, and multiplies more rapidly than any other autumn flowering species. The flowers lavender, with a decided rose tinge, have a deep yellow centre, and a mass of them fully open in the bright sunshine is delightful. It flowers as well out of doors as C. speciosus. They grow side by side, and the flowers of the last named snap over more readily by the wind. The colours, of course, are more delicate under glass.

C. cancellatus var. cilicius is in flower under glass, the flowers of a bluish lilac colour. This plant has many names, and may probably vary in colour. The true cilicius is from Asia Minor, and is a pure blue Crocus. C. cancellatus is Grecian, and is common near Athens on Mount Hymethus, where Mr. Mann gathered it abundantly in the spring of 1877. C. medius under glass is fully open. C. Salzmanni is just opening its flowers, and can scarcely be said to be a September species. It is a vigorous growing form, with lilac and purple flowers; we only grow it under glass where all the winter-flowering varieties ought to be in order that their beauties may be more fully developed. The flower borders are also gay with masses of Colchicum autumnale and the massive beauty of C. speciosum. Only those who have grown collections of these beautiful hardy bulbs and have studied their history can realise how much real enjoyment can be obtained from them.

J. Douglas.

Ilford.

Purple King Verbena.—For late decoration of the beds or borders I find this Verbena very useful. We have a row growing in the front of some Rhododendrons and next to the Grass. At the present time (Oct. 10) the plants are full of flower in spite of the severe weather we have had. It is but right to say that behind the Rhododendrons is a Laurel hedge, which screens the front plants and the Verbenas get the full benefit of the sun. For such a position this Verbena is very useful at the present time, and by the appearance of the plants and buds looks likely to continue blooming for some time yet.—S.

Hyacinthus candicans.—This beautiful Cape Hyacinth is one of the most effective of our hardy plants for autumn blooming. Its magnificent and stately spikes of pure white flowers and good foliage render it well worthy of more extensive cultivation.

It is often found dotted singly in what is termed the mixed border, where its beauty is entirely lost. If planted in an open bed in a group of from fifty to a hundred bulbs along with other suitable subjects, or in the same way as it is grown in the Royal Gardens, Kew, mixed with the beautiful old Fuchsia globosa, it forms a charming picture. I saw it a short time ago planted in a large group, carrying spikes of bloom over 4 feet high, with fifty blooms on a spike. —J. H.

FLOWER GARDEN NOTES.

Planting flower beds for the winter.—The unusually early and severe frost having quite put an end to summer-bedding plants, the work of replacing such with hardy shrubs, &c., we began at once, and have now completed the same. Though the entire series of beds that are treated on the bedding-out plan have had to be gone over, the work has been by no means formidable, because, when planting for the summer, this winter furnishing is always taken into account, and, as far as possible, hardy plants are used in conjunction with tender plants, and the latter being now removed, their place is furnished with hardy kinds. All Sedums, Saxifrages, Veronicas, Herniaria, Gold Feather Pyrethrum, and small shrubs have been left, the spiral shrubs serving just as effectively as standards for the winter in an undergrowth of Berberis, Periwinkle (Vinca), or small Rhododendron, as they did for Pelargoniums and other flowering plants for the summer, and the Sedums, Herniarias, and other dwarf carpeting plants are of equal service for displaying small shrubs, as they were in summer associated with Alternantheras or Iresines. It is difficult to write a description of the various arrangements, and I shall not attempt it, but from the foregoing readers will be able to form some idea as to what is meant by "planting flower beds in winter." Any who doubt the practicability of the plan are hereby invited to come and view. This system of planting for winter effect, as a matter of course, somewhat hinders the planting for spring effect, and readers must therefore choose between the two. It is possible to combine the two, and this we have occasionally done by planting bulbs thinly amongst the groundwork shrubs, as well as in clumps between larger shrubs, the bare ground over the bulbs being rendered more presentable by covering it with Cocoa fibre, which material also serves as a protector from frost to the bulbs. Spring-flowering plants can also be worked in in the self-same way, but personally I prefer the fullest winter furnishing to this partial style of procuring spring flowers, and very fortunately this only is required of me, and the little spring gardening that we do is therefore wholly of that character.

A garden of small shrubs.—The introduction of numerous species of plants from Japan—notably the Retinosporas, all of which are compact growers, and of every hue of colour between pale yellow and deep green—has made it possible to have an open-air garden in the winter equalling in refined beauty, at that season, the best display of flowers that was ever made. The formation of such a garden occurred to me some seven or eight years since, with the result that there is now a small garden here of these Japanese shrubs, which for beauty, variety, and interest is excelled by no other department of the garden. Preparation for planting others is being made by trenching the ground and applying to it a very heavy dressing of manure, without which these trees only exist, do not grow, nor yet put on those beautiful colour tints for which they are all so remarkable. Those that are doing best here and produce the finest effect are Retinospora plumosa aurea, R. plumosa alba, R. plumosa, R. pisifera aurea, R. obtusa albo-spica, R. leptoclada, R. obtusa densa, and R. squarrosa; Juniperus Berki, Cupressus erecta viridis, C. Lawsoniana argentea, and Thujopsis borealis variegata. All these are compact spiral-growing shrubs, and require a little pruning once a year, cutting off strong shoots only to keep them true to their dense growing character. To keep them in vigorous growth it is necessary to give them fresh soil and manure as a top-dressing about once in three years, and this we do by rolling back the turf as far as it is thought the roots extend, then lightly fork up the old soil and apply the new, after which a thorough watering may be given and the turf then replaced. Were it not for appearance sake the turf would be best left off. An instance of its injurious effects is that of a fine plant of Retinospora plumosa aurea that we have recently top-dressed. The plant had lost the whole of its inside leaves and looked rusty outside, the cause of this being clear enough, for as soon as the turf was rolled back, the soil, notwithstanding the heavy rains of this year, was as dry as dust. As a matter of course, the turf was not replaced till the soil had got perfectly saturated, and in future the plant will be given an occasional watering over the turf. A plant that quickly suffers from the same cause is the variegated Maple (Acer Negundo variegata). If the foliage of this turns brown or looks rusty any time before September, it may safely be assumed that the plant is dry.

Winter quarters for bedding plants.—Like most gardeners, we have never had too much room for the safe wintering of the various sections of bedding plants, so that though the number of bedding plants has been much reduced, we still have to exercise a good deal of ingenuity in respect of ways and means to keep sufficient stock for spring propagation. All roots and tubers of every description that will winter under make-shift contrivances have to put up with that sort of accommodation. Cannas, Fuchsias, herbaceous Lobelias, &c., are stacked closely together in leaf-soil on the floor of a cellar that is frost-proof. Tuberous and fibrous-rooted Begonias are planted close together in shallow boxes of leaf-soil, and they winter well in the same place as Cannas, Lilies, &c. Of soft-wooded plants, except Pelargoniums, only sufficient stock is propagated at this season to ensure a supply of cuttings in spring-time; consequently much space can be utilised throughout the winter for the forcing of French Beans, herbs and small saladings. The plants most difficult to winter, such as Alternantheras and Coleus, are given the lightest and warmest positions in the Cucumber and Pine pits, all other kinds of plants wintering well under ordinary conditions of full exposure to light and a temperature of from 45° to 50°. Heated pits are the most desirable structures, but the shelves in greenhouses and Peach houses afford excellent accommodation where such structures are out of the question. Agaves, Aloes, Echeverias, Sempervivums, in fact all bedding succulents, are most accommodating plants, as they will winter safely in any house or pit free from actual frost if the atmosphere is not over moist. The propagation of Violas, Pansies, and Calceolarias may still be done, frames or hand-lights placed in a warm, dry position, and a shallow cutting bed composed of half leaf-soil and sand and the other half of light loam being all that is required to obtain successful results. W. W.

SHORT NOTES.—FLOWER.

Dahlia Henry Patrick, one of the decorative class, is well spoken of by Mr. E. Morse, of Epsom. He has almost decided to give up growing Constance, which is not so free and beautiful as Henry Patrick.

Lily of the Valley is making a brilliant show this season with its spikes of crimson fruits. We do not remember having seen it produce such a number of berries as this autumn, and these are of the greatest value for decoration.

Oxalis lobata was flowering freely at Broxbourne the other day. It is a quite hardy, dwarf and neat growing plant, with brilliant yellow flowers not unlike those of Linum arboreum, and especially beautiful when seen in the sunlight.

Veronica prostrata.—At the present time (Oct. 10) this Veronica is covered with flowers, and makes the rock garden quite gay. Its low-growing, dark green foliage renders it still more desirable for summer and autumn flowering. It is rapidly increased by dividing the roots at any time.

Aster nanus.—For the front of the herbaceous border at this season of the year there is no more useful flowering plant than this Aster. Its dwarf habit of growth suits this position admirably, as it grows only 1 foot high and flowers freely, the light purple blooms being about three-fourths of an inch in diameter.

Matricaria inodora flore-pleno is one of the best border plants we have for producing white flowers continuously through the summer and late autumn months. A fresh stock of plants should be obtained every year by inserting at once in a cold frame cuttings made from the young growths which have not flowered and planting them out in the borders in April.—S.

Love-in-a-mist (Nigella damascena).—This summer and autumn flowering annual is well worth a place in the mixed border where dwarf-growing plants find favour. It seldom grows more than 1 foot high. Its pale lavender-coloured flowers, surrounded by a frill of green, make it an interesting subject. When once established, it reproduces itself freely.

Early frosts.—Gardeners will doubtless long remember the destructive frosts of the first week of this month, especially that on the morning of the 3rd inst. Whilst other frosts had done but partial mischief, and that chiefly in low-lying districts, the frost of the 3rd literally killed all tender plants exposed to its force, and gardens universally so gay with flowers on one day presented a scene of wretchedness and desolation on the next. The previous day was not only very cold, but very wet, and as a result the frost found all vegetation saturated with moisture. Even ordinarily hardy things suffered considerably, especially in their flowers, so that the denudation of bloom was as general as it was sudden. I do not remember to have seen such a wreck of all tender plants so suddenly produced and so early in the autumn for several years. Except where hardy plants formed the chief feature of garden decoration, there was nothing left but to make a clean sweep of all the frosted things. Out in the fields the harm done to the breadths of runner Beans was of a more serious nature, as these were still in abundant bearing, and promised to give large yields for some few weeks longer. With the runners also have gone the Marrows, for these were utterly destroyed. These, too, were still full of fruit and yielding fair returns. Violets also had begun to bloom well, and were giving considerable labour to women. The plants, of course, are not hurt, but the flowers were for the time destroyed. It is just possible that the mischief being done in one night, we may now have some fine mild autumn weather, but with the destruction of the summer plants practically the winter begins.—A. D.

STANDARD PEARS FOR BRITAIN.

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
13. COMTE DE LAMY.

Early Pears.—Citron des Carmes, Doyenné d'Ete, Williams' Bon Chrétien, Beurré Giffard, Jargonelle, Seckel.

Cooking Pears.—Catillac, Uvedale's St. Germain, Gilogil, Bellissime d'Hiver.

Perry Pears.—Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chaseley Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield, Butt, Holmer, Red Pear, Rock, Bosberry Scarlet, Lumberskulls Marden.

Our readers will remember that last year we raised the question of the needless number of Pears, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on Pears of the highest quality.

WATER SCENERY AT HECKFIELD.

The lakes at Heckfield, though not more than some 6 acres or 7 acres in extent, are naturally situated at the foot of a mound on which the mansion stands, and between two other longer, though less steep mounds, round one of which, as seen from the mansion, the lower lake seems to entwine—in fact, the end of it is not visible; consequently the extent seems longer than it really is—an innocent delusion that, whilst it does nobody harm, is productive of pleasure to the lover of landscape beauty. No part of this lower and most beautiful of the two lakes is visible in the picture, the artist apparently having a greater regard for the fine Oak (the most prominent tree in the picture) than for either the view of the water or the distant landscape. The tree in question is perfection amongst the many perfect Oaks growing in the pleasure grounds at Heckfield. It is perfectly symmetrical, towering to a height of 60 feet, and the bole girths 18 feet at 4 feet from the ground. The other large trees on the same bank are Limes and a grand Aspen Poplar; near this latter, but which is not recognisable in the picture, is a superb specimen of Abies Albertiana. So far as regards the large trees, no picture could possibly more faithfully portray them, but the view by no means does justice to the smaller plants on the banks of the lake, which consist of Bambusa Metake, Arundo conspicua, Pampas Grass, Gorse, white and yellow Broom, and Rhododendrons. The Water Lilies show up well, and so does the Water Iris in the forefront of the picture. To the extreme left of the picture there is an island of Rhododendrons, part of it visible. This island, as seen from the windows of the mansion in the Rhododendron flowering season, looks like a gigantic floating bouquet, and certainly as a water bouquet it is far and away ahead of all that have ever been shown under that designation.



View on the upper lake at Heckfield Place, Hants, the seat of Viscount Eversley.

NATURAL LANDSCAPE *V.* LAYING OUT.

In the *Century Magazine* for October, under the heading of "An English Deer Park," is a paper by the late Richard Jeffries, which has a practical bearing on the landscape gardening of to-day, as well as on the avenue-planting and tree-clipping of the past.

According to tradition, there is no forest in England in which a king has not hunted. A king, they say, hunted here in the old days of the crossbow; but happily the place escaped notice in that artificial era when half the parks and woods were spoiled to make the engraver's ideal landscape of straight vistas, broad in the foreground, and narrowing up to nothing. Wide, straight roads—you can call them nothing else—were cut through the finest woods, so that upon looking from a certain window, or standing at a certain spot in the grounds, you might see a church tower at the end of the cutting. In some parks there are half a dozen such honors shown to you as a great curiosity; some have a monument or pillar at the end. These hideous disfigurements of beautiful scenery should surely be wiped out in our day. The stiff, straight cutting could soon be filled up by planting, and after a time the woods would resume their natural condition. Many common highway roads are really delightful, winding through trees and hedgerows, with glimpses of hills and distant villages. But these planned, straight vistas, radiating from a central spot as if done with ruler and pen, at once destroy the pleasant illusion of primeval forest. You may be dreaming under the Oaks of the chase or of Rosalind; the moment you enter such a vista all becomes commonplace. Happily this park escaped, and it is beautiful. Our English landscape wants no gardening; it *cannot* be gardened. The least interference kills it. The beauty of English woodland and country is in its detail. There is nothing empty and unclothed. If the clods are left a little while undisturbed in the fields, weeds spring up and wild flowers bloom upon them. Is the hedge cut and trimmed, lo! the Bluebells flower the more and a yet fresher green buds forth upon the twigs. Never was there a garden like a meadow; there is not an inch of the meadow in early summer without a flower. Old walls, as we saw just now, are not left without a fringe; on the top of the hardest brick wall, on the sapless tiles, on slates, Stonecrop takes hold and becomes a cushion of yellow bloom. Nature is a miniature painter and handles a delicate brush, the tip of which touches the tiniest spot and leaves something living. The park has indeed its larger lines, its broad open sweep and gradual slope, to which the eye accustomed to small inclosures requires time to adjust itself. These left to themselves are beautiful; they are the surface of the earth, which is always true to itself and needs no banks nor artificial hollows. The earth is right and the tree is right; trim either and all is wrong.

A good deal of the above is quite true, especially the statement that the natural surface of the earth is best, and artificial hollows and banked-up terraces often unneedful. Our best natural landscapes certainly want but little gardening, but it *is* possible to garden them. The least *interference* with Nature always *kills it*, as Jeffries wrote; but then a little assistance—a little enrichment—is sometimes better than the "masterly inactivity" which he seems to recommend as everything. Man likes to adjust himself to Nature, and often must do so, while the true gardener can help Nature wield her paint-brush, and he also will touch the tiny spots and leave "something living" and beautiful wherever he goes. The great landscape gardener merely helps Nature to do her work quickly and easily, and that he can do so is past all doubt. Throwing up unnecessary terraces and scooping out unnecessary ditches over which unnecessary

bridges are thrown is not gardening. If Nature puts a brook or a river, then the bridge is a real human want and may be supplied with good effect; rarely or never can it be done otherwise. It is not in doing things that the landscape gardener's art is most fully illustrated. Some of his greatest triumphs have been achieved by his knowing exactly what to leave alone.

F. W. B.

Rose Garden.

T. W. GIRDLESTONE.

AUTUMN-FLOWERING ROSES.

Certain Roses that in the early days of their existence bloomed but once a year seem to acquire with age the power to flower again in autumn. When Mme. Gabriel Luizet was first seen in quantity as a maiden ten summers ago, the general opinion seemed to be that it was a magnificent addition, but only a summer Rose. The maiden plants, if the leading growth was checked by frost or accident, made an immense growth, but continued flowerless for the rest of the season. The cut-backs their first year bloomed profusely in June and July, and then relapsed quietly into mildewed leafage. But after a season or two, as the plants became established, a few late blooms appeared, annually increasing in number, until at last the variety became recognised as a good and reliable autumnal.

Later, Mrs. George Dickson (Bennett, 1884), although still not one of the freest of autumnals, afforded much the same experience, the plants having been for the first two years practically only summer-flowering; and Gloire Lyonnaise, another Rose of the same year, began as so thoroughly a summer Rose, that a statement to the effect that it was an autumnal bloomer was the cause of a vivacious correspondence in the columns of a contemporary. Nevertheless, last year on established plants a good many blooms were to be found in September, and this year the variety has proved an invaluable perpetual, some plants carrying simultaneously six or eight blooms, and occasionally even one of the strong sucker-like shoots from the base of the plant being surmounted by a flower.

The last addition to this list is the celebrated Her Majesty. So little perpetual in character did this Rose at first appear that fears were at one time expressed about its flowering as a maiden; these fears, however, happily proved entirely groundless, the maiden blooms on Brier stocks proving exceptionally constant. But of flowers in autumn there was no sign until this year, when in a group of plants on Brier cutting stocks no less than five were found in the third week of September to be coming into bloom for the second time. One or two damp days just at the critical period of their development somewhat marred the blossoms, but they managed to expand, and there is no doubt that had the fine weather continued unbroken for three or four days longer, the flowers would have been tolerable examples. It is perhaps just worth while to note further, that on a neighbouring group of plants on Manetti no trace of a bloom-bud was to be found.

This development of a perpetual character in Roses which are at first apparently disposed to bloom but once a year presents an interesting problem. Perhaps the solution of it is to be found in the fact that these Roses make too vigorous a growth in the young or newly propagated state to form bloom-buds, and that it is not until this energy is dispersed over a larger area in a greater established plant that the character of the wood formed becomes adapted to the production of flowers. Be that, however, as it may, it will be worth while to watch closely any Roses that at first appear to bloom only once a year, and if they eventually flower again in autumn, to record carefully the extent and quality of the display, the time at which it was made in reference to the date of the distribution of the variety, the age, size, and form of the plants, and the stocks they are worked on, in order to ascertain in course of time how far it may be possible to deduce any principle for the early estimation of the ultimate value as perpetuals of such varieties.

WINTER PROTECTION OF ROSES.

The longer and later the plants bloom the more tender they become. Several circumstances have combined during the not readily forgotten Rose season of 1888 to produce an abnormally late harvest of Rose blooms. The very accentuated maturity of the wood, the legacy of season 1887, prepared the Roses for precocious blooming in 1888. This was held in check by the wintry summer that followed. Still, the normal season of blossoming—if, indeed, the word can be properly applied to the season about to close—was short-lived. It was short in the twofold sense of not lasting long and being less of it than usual, through the stunted character of much of the growths of 1887; hence, the blossoming was, as a rule, soon over, as well as inferior in quality. There was, therefore, less strain on the resources of the Rose plants than usual. Hardly, therefore, had the Roses ceased from blooming than they essayed to flower again. These flowers, like those that preceded them, have been again held back by the cold, and thus it happens that this year in some gardens there are as many flowers and buds in October as there are in August. Only to-day (the 11th of October) I gathered a beautiful handful of Tea and other Roses, and noted some hundreds of buds showing, all unconscious, of course, of the coming frost, though they had already had a taste of 8° or more.

But these growing and blooming shoots are, nevertheless, exceedingly tender and susceptible of injury. Roses that are among the hardiest in a semi-dormant state are among the most tender in a growing and flowering condition. Hence as the surest means of preserving the blossoms against the frosts that are probably close at hand, as well as protecting the plants from serious injury or destruction, hardly a day more should pass without covering the growing shoots with Bracken or a fringe of Spruce or other boughs. The first is the most perfect of all protections for Roses. It is light, dry, all but impervious, cheap, light of carriage, clean, easily obtained, and specially efficient. An important factor in its efficiency, however, consists in its being applied in time. No rosarian has ever pretended that a fringe of Bracken, a wisp of straw, or a carpet of litter will bring dead Roses to life again, however potent they may be in preserving the life that is in them against the most impossible-looking odds in their struggle with the cold of our climate.

D. T. F.

List of garden Roses.—In reference to "C. J. G.'s" note on page 298 about the list of garden Roses, the absence of the asterisk from the name of Gloire de Dijon was an accidental omission, but Charles Lefebvre, beautiful as it sometimes is early in the summer, is a poor autumnal. The great object of garden Roses is that they should be hardy, vigorous, free-blooming, perpetual, and (unless they are climbers) with flowers not pendulous, but carried erect, in order that they may make an effective display in the garden growing on the plants. Now, the flowers of Marie Baumann are liable to be pendulous and are too few in autumn, and the plant gets mildew, while sometimes lacking vigour; Alfred Colomb is not free enough; Prince Camille de Rohan has flowers weak-necked and not large, and the plant is a perfect mildew-trap; and Xavier Olibo lacks vigour as a cut-back; Comtesse de Nadaillac, the loveliest of all Teas when seen at its best, is neither vigorous nor free enough for a first-rate garden Rose; Catherine Mermet hangs her head and is sometimes shy; Belle Lyonnaise is far too tender, and is well replaced in the list by Emilie Dupuy, which is hardier and has flowers sufficiently near in colour, while at the same time they are much better able to stand bad weather than those of Belle Lyonnaise; and Souvenir d'Elise, grand though the flower is, is not sufficiently perpetual flowering.—T. W. G.

APHIDES ON ROSES IN 1888.

In Mr. Girdlestone's able and semi-judicial summing up of Roses' doings, and friends and foes of Roses (page 313) he simply notes the comparative absence of aphides without any other comment. Over wide areas, however, it was one of the most pleasing features of an untoward Rose season. It would be interesting to hear from such an experienced rosarian if he has any explanation to offer. The dry season of the previous summer, as well as the drought and cold of the late spring, might have been supposed to foster the evolutions of aphides. But they did not, and that is about all that is known for certain on the subject.

That heat is not needful for the production of aphides is obvious to all experienced cultivators. The testimony of experience is so uniform to the contrary, that not a few practical men affirm that aphides come on the wings of the east wind, and we all know to our cost what that is in the spring. Without agreeing with this, it is impossible to doubt or deny that aphides and east winds often come abreast, though this may not prove the cause and effect.

However that may be, the spring was cold enough up to June to bring forth any number of aphides, but yet they did not come; and neither did the sample of summer in the first week of the month of Roses, nor the rain every day, or at least every other day for nearly two months afterwards, bring forth aphides in normal numbers. This is the more surprising, as caterpillars, grubs, maggots, and mildew abounded. In not a few districts, however, the red rust was washed off or drowned out; and on the whole it was less virulent than in 1887 and the usual run of seasons. My experience of red rust is that it is generally worst in the hottest, driest seasons. But then I hail from East Anglia, in which a mixture of fierce sunshine and arid east winds seems specially to foster most insect pests and fungoid foes.

D. T. F.

SHORT NOTES.—ROSES.

Rosa setigera (the Prairie Rose) continues flowering, the large rose-pink petals not spoilt by the cold, and the Rubus-like foliage being very handsome.

Rosa Beggeriana.—It is said of this Rose on page 315 (where, by the way, the name is misprinted Leggeriana) that it will continue flowering until finally stopped by frost. The frost has come, and in good earnest too, but the flowering still continues, the blooms showing very little sign of injury.

Gloire des Rosomanes might have been included in the list of effective climbers in bloom at Michaelmas. The flowers are only semi-double, but they are large, deliciously fragrant, freely produced in trusses of from three to fifteen, and of the brightest crimson colour, most telling among the many light-coloured autumnals. The plant also is hardy, very vigorous, and retains its handsome foliage very late in the year.

Danmark.—The new Rose exhibited under this name at the meeting of the Royal Horticultural Society, on the 9th inst., will be a valuable addition if sufficiently distinct from La France, to which it bears a considerable family likeness. The form, however, is dissimilar if the blooms exhibited were characteristic. It is somewhat strange that for so many years there should have been no other Rose exactly of the character of La France, and now almost simultaneously there appear three varieties—Duchess of Albany, Duchess of Leeds, and Danmark, from totally different sources, all closely following the type.

Flora of the West Indies.—Can you or any of your correspondents give me through your paper any information as to names of any works treating of the

flora of the West Indies, especially of Barbadoes? I am anxious to find a work giving drawings—coloured drawings by preference—of the above and one that is not extremely voluminous.—C. E. F.

Fruit Garden.

WINTER MOTHS AND FRUIT TREES.

The ravages caused to our fruit trees in the early part of this year by the plague of caterpillars have to a great extent been effaced by the summer growth which has been so freely produced, and the appearance of the trees at the present time, full of healthy shoots, is far better than we dared to anticipate when we looked upon the same trees a few weeks since in a bare and almost leafless condition. The change has been favoured by the thorough soaking of the ground, which in many places had become so dry from the drought of last summer and the abnormal dryness of the last two winters, that even now it is rare to find a spot which is too wet. The growth made under these favourable conditions is better than many expected to find, considering the absence of sunshine which has characterised this summer; while the fine weather of the last month or six weeks has further favoured the ripening of the wood, so that after all our fears, the prospects for another season are very promising. The fruit grower, however, must not allow himself to be lulled into security because his trees have so wonderfully recouped themselves; the enemy which has power to work a similar destruction again is now sleeping quietly under the soil. It will not, however, remain there much longer, but by the time these lines are in print will be on the point of awakening to life, to lay the foundation of future trouble to the fruit grower. Those, then, who would take measures to prevent a recurrence of the calamity so much deplored this spring must now commence operations. I do not say we shall suffer again next year to the same extent as we did this, but sooner or later we may expect such another visitation. Those who value their trees, and wish to cultivate them with profit and success, cannot afford to stand still, now that the time is at hand to save them from being devoured by one class—and that one the worst—of their enemies, viz., the winter moths (Cheimatobia brumata, Hybernia defoliaria, and others). The females of this genus of moths are wingless, and it is against these that war must now be waged. I should advise, immediately the fruit is gathered, that any long Grass, leaves, or rubbish of any kind be cleared off from under the trees and burnt, and if a few inches of the surface soil were similarly treated it would prove still more effective, and the charred refuse, mixed with lime and returned to the trees, could not fail to stimulate root-action. Such operations, besides destroying numbers of chrysalides, would do away with the natural harbour for these wingless creatures, and expose them more effectually to the attacks of birds, game, and other enemies. On the first appearance of the male moths, which may be looked for on mild evenings at the end of October, when they will be observed flitting about in the twilight, the trees should be visited with a lantern and the stems searched for the females. For the information of those who have never seen any of these curious insects, I may say they are very unlike moths, more resembling spiders, and might easily be mistaken for them, having long legs and bodies of the same shape as these insects. In colour they resemble the bark of the trees. Once found and recognised, their presence is easily detected.

The task of battling with any of our insect enemies is invariably simplified by possessing an intimate knowledge of the insect, its habits, and the different stages of its existence. Knowing, then, that at the present time our trees are free from this destructive pest, and that there is but one way by which it can reach the branches, the next step must be the adoption of measures to prevent the females ascending the trees to deposit their eggs on the twigs and buds. This can be accomplished by placing a band about 4 inches wide round the stems of trees of composition made of Stockholm tar and cart grease. Mr. J. Masters, of Evesham, who is a large fruit grower, states that he has used grease without the tar and found it equally efficacious, the moths being caught in great numbers upon its sticky surface. This composition is not likely to injure the trees, unless allowed to melt and soak into the bark, and this it will not do until the warm days of spring, when it is no longer required; but in the case of young trees it is wise to take the precaution of first placing a band of thick brown paper or oiled canvas round the stems, on which the mixture can be spread. Canvas soaked in petroleum and bound round the trees would, no doubt, prevent the ascent of the moths, and they would congregate between the ground and the barrier, when they could be easily captured. Of course the trees must be isolated, that is, they must not touch any others that are not operated upon in a similar manner, neither must they remain in contact with walls or buildings. The petroleum will require renewing occasionally, and the composition of tar and grease is said to remain sticky about a week. Attention must also be given to keeping the circle intact and close to the trees, so as to leave no passage by which the moths could creep through. The moths remain out during the months of November and December, but are only active in open weather; during frost they remain in hiding amongst the leaves and herbage at the foot of the trees. I have tried to place this method of destroying this insect thus simply before readers of The Garden in the hope of inducing them to give it a fair trial. The labour required in carrying it out is not one-tenth part of what is required for washing and hand-picking when once the moth has possession of the trees.—A. Barker.

—— The following note from Mr. J. Masters, of Evesham, appeared in the *Standard* of the 6th inst.:—

"Your article to-day is timely and suggestive, as the only time for grappling with the caterpillar blight is approaching. As a market gardener of some experience, having suffered much from caterpillar ravages in fruit plantations—but having been benefited by adopting preventive measures—my experience may not be uninteresting to many of your readers. Some twenty-five years ago great havoc was made by the caterpillar in fruit plantations in this district, and was then supposed to be due to atmospheric influences. About this time some lectures were given by the late Rev. A. W. Ingram, showing that the blight was from the deposit of the winter moth, and that the only effective way of prevention was to secure a mixture of Stockholm tar and cart grease, in equal proportions, and to place a circle of this daub round the stem of the tree. The female moth, being wingless, would, in its ascent up the tree, be caught in the mixture. I was led to adopt this remedy, and I caught as many as two hundred moths on a tree. The following year I was compensated by a large crop of fruit. For years past I have not failed—except by frost—in securing a crop of fruit, and on the same trees that had been fruitless for years. The last few years, instead of using the mixture, I have had the best cart grease only. It retains its adhesiveness longer than the tar; is equally efficacious, is more economical, and not so likely to injure the bark of the trees. I should not recommend any daub to be put upon the bark of young fruit trees. A collar of brown paper pasted round the tree and the daub put upon the paper would be the wisest method, though I have never known any injury done to full-grown trees. It is important that the daub, whatever its composition may be, should be put on thickly and some 3 inches or 4 inches wide, and that it should be attended to so that its adhesiveness may be retained; otherwise the moth would creep through or over it. Some estimate may be formed of the destructiveness of this moth from the fact that each one will contain as many as 200 eggs. I have counted in some 210. The time of applying the composition to the trees should be from the end of October to the second or third week in November. I have always caught the greatest number in the first week in November. It may be easily ascertained whether or not plantations are infested with the moth by going out with a light after nightfall, when the male moths may be seen flying about. Small birds are very helpful. I never allow a nest to be robbed; they amply compensate for their mischief sometimes. I have never known much injury to fruit plantations from the caterpillar where there are plenty of small birds."

OUTDOOR VINES.

Amongst the mischief wrought by the early October frosts specially noticeable, even on southern aspects or warm walls, was the scorching of both leaves and fruit on outdoor Vines. Of course outdoor Grapes would, even if the frosts had spared them a couple or three weeks longer, have been valueless at this season; but if any blow to outdoor Grape culture in this country was needed it has been supplied by the early frosts of the present month. Ordinarily much of the ripening of outdoor Grapes—when there is any fruit worth terming Grapes—and the wood also takes place during the month of October, and it is towards its end that we look for those rich hues of colour found in the foliage of some varieties. Had the frosts spared the foliage to ripen in due course this year it is doubtful whether we should have seen much colour in it, because the wood lacks that firmness and maturity essential to the production of richly coloured leafage. The frosts have thus early injured Vines under all conditions of culture outdoors, and beauty as well as prospective fruit have vanished for the season. It would require considerable hardihood on the part of anyone to suggest the culture of Vines outdoors for fruit production after this last experience. When so badly hit on south walls and warm aspects, it is very obvious that out in the open, trained in any form, but void of ordinary protection, the mischief wrought must be considerable indeed. When our ancestors in the course of their Grape-growing experience met with mishaps of a similar nature to those now referred to, they had at least, stimulating them to try again, the knowledge that they could only get Grapes by so doing. We at least have the satisfaction of knowing that for the poor the vineyards of Spain and Portugal produce abundance at a very cheap rate, and far better than our warmest seasons will enable us to produce outdoors; whilst for the richer consumers glass houses give Grapes so rich and luscious that our ancestors would have regarded as beyond human possibility to produce. Therefore, we have no special stimulus urging us to try again after failure outdoors. The records of the past ten years — whilst perhaps after all but a fair average of seasons—show very poor results with respect to outdoor Grape cultivation. Possibly out of the entire number occasionally decent fruit of the commonest or hardiest kinds may have been obtained such as would sell at about 2d. per lb., and very acid at the best. That is a poor record, indeed, showing that in respect of outdoor Vine culture for the production of ripe Grapes, the game is not worth the candle. Then it would be interesting to learn from any readers capable of affording the information during how many of the past ten years Grapes really fit to convert into wine, or rather to produce a compound which would be classed as decent wine, have

been produced. The standard of ripeness for wine-making seems to be but a moderate one, and therefore stands differently from that previously referred to. It should, therefore, be possible to furnish some fair results from Grape culture for wine-making where so specially cultivated. It is worthy of note, however, that nothing has been heard of certain vineyards for the past few years, the natural inference, therefore, being that all the efforts made to produce Grapes for wine-making outdoors have resulted in failure. Practically, we may advise the planting of Vines, just as we do of Virginian Creepers, to form decorative climbers, or to give sometimes in the autumn pleasing foliage tints, but farther than that it is not now safe to go. Even in cool houses without fire-heat it has been very difficult this year to ripen ordinary house Grapes well, or, if fairly ripened, to preserve them hanging for any appreciable time; and those who trust to such simple methods of obtaining Grapes for table have probably before now wished that they had provided some artificial means of heating, for frequently in all vineries it has been sadly needed. However painful it may be to have to admit failure, it is wiser to face the truth boldly, and to acknowledge that in this country, even in its most favoured districts, outdoor Grapes are no more to be looked for than is outdoor consumable Tobacco. What may be termed the growing peculiarity of our climate is found in cold nights, the temperature at night, as a rule, being, even in the summer time, a long way below that of day. Warm nights at their proper season are indispensable to the production of fully matured tender fruits, and there can be little doubt but that some of the later difficulties incidental to outdoor Peach and Nectarine culture are due to their absence.

A. D.

A PERPETUAL PEAR.

In the *Revue Horticole* of August 16 of last year M. Pynaert, of Ghent, gives the following account of this very singular Pear:—

"The Pear, named Beurré Perpétuel, which is grown in some Belgian nurseries under the erroneous appellation of Duchesse de Brabant, which properly belongs to a different variety, originated at Ghent, where it was raised from seed by M. François about the year 1790. The varietal name 'perpetual' indicates a peculiar characteristic of the tree, which, like some Strawberries, Raspberries, and Rose trees, regularly flowers and fruits a second, and sometimes even a third, time in the year. The term 'perpetual' is not perhaps grammatically exact, but as usage has rendered it horticulturally current in its application to Strawberries and Roses, I do not see why it may not also be applied to a Pear tree.

"The second flowering of the Beurré Perpétuel commences in the early days of June, the flowers making their appearance in groups of three, five, and even eight, at the ends of the shoots. I have also seen them growing from the axils of the leaves at the base of the short thick laterals. These flowers certainly testify to a far greater degree of fertility (thus seeking relief in production) than is observed in any other variety. These second flowers 'set' as well as the first, but their fruit is later in coming to maturity, and is generally only of smaller size, which, however, does not affect the quality of the flesh.

"The second flowering occurs regularly, and the second crop of fruit often comes in to make up the deficiency in the first crop when this has been injured by severe weather in spring.

"The fruit is of a good medium size, of a longish shape, regular, or slightly humped, and with a rather long and entirely woody stalk. The skin is pale green, passing when ripe into light yellow delicately dotted with grey. The flesh is white, very delicate, very melting, very juicy, and very agreeably perfumed. It ripens in the latter half of September. If it was a winter Pear it would be considered first-class; but, such as it is, it is worthy of being included in a collection of select Pears. The tree is vigorous enough in growth. It does well as a pyramid, and also in the spindle or columnar form, and can be specially recommended for espaliers and for forming fruit tree hedges. It is undoubtedly one of the best varieties for planting in sandy soils, in which the fruit acquires a quality which, as regards delicateness and sweetness, leaves little to be desired—a result which does not always occur in the case of varieties which are generally esteemed when grown in more fertile and more tenacious soils."

I do not know whether the experiment has ever been tried, but it occurs to me that the brimming fertility and what M. Pynaert happily terms the *besoin de production* evinced by this second cropping quality of the Beurré Perpétuel might be turned to good account by using it as a stock on which other varieties of established excellence might be grafted with the object of increasing their productiveness.

William Miller.

THE FRUIT-GROWING QUESTION.

With a view to ascertain from one of my neighbours, who is both a successful and experienced market gardener, having also in his early days been associated with the nursery trade, I interviewed him the other day for the purpose of getting from him some reliable information as to what are the relative costs of hardy fruit culture per acre, and what are the relative profits. Now, my neighbour is in a good position to reply to queries of this kind, because he has been for the past twenty years an occupier of land, which during that period has become covered with standard Apple, Pear, Plum, and Cherry trees, and with Currant and Gooseberry bushes, in such a way that the stock can scarcely be excelled. In spite of the fact that a big breadth of several acres of Gooseberry bushes was planted from ten to twenty years ago, the trees are still in wonderful form and literally cover the ground, whilst above them the standard Apples and Pears are as vigorous and healthy as can be desired. Black Currants are in splendid form, grand bushes set in the ground like a thicket, and in good years producing grand crops, whilst Red Currants are thinner, because subjected to such hard prunings. I mention these facts to show that this grower does appear to get from out of his ground in the matter of fruit as much as possibly can be extracted, and therefore he is in a good position to offer an opinion with respect to the profits which arise from its culture. When the ground was first taken, twenty-one years ago, there was not a tree nor bush upon it. The landlord found trees and the tenant found labour and bushes. The entire area was not fully planted until the sixth year of holding had expired, so that the trees vary in age. Still now the entire area of the garden is fully covered with fruit trees and bushes. The tenant raised his own bushes chiefly, and also some of his trees, and it may be of interest here to say that he greatly favours the planting of maidens before trees two or three years old, as he has found the former soon outstrip the latter in respect of growth and productiveness. Now, taking the average of twenty-one years, the period of the present lease just now expiring, and about to be renewed on the old terms, my neighbour estimates his fruit production at £40 per acre annually, and this, be it observed, on heavily cropped land and within easy distance of London. A heavy fruiting season, of course, brings a far bigger return relatively, but then not so much as might be anticipated, because whilst the cost of gathering is very great, the returns are relatively about one-half of what comes back from market during a season of moderate produce, such as the present one is. That is a fact too often overlooked by those foolish people who rush hastily to conclusions as to what the profits of fruit culture may be. Now, on the other hand, my neighbour sets out his expenses per acre as thus: Rent, £5; manure, £5; pruning and cleaning out trimmings, £2; digging in winter, £2; hoeing and cleaning during the summer, 8s. to 10s.; then he pays for the gathering of the top fruit about 3d. per bushel, and for bush fruits, Gooseberries and Currants, 1s. 6d. per bushel, and with a heavy crop the gathering account is a large one, let the market price be what it may. Added to these items we have baskets, marketing, including keeping of horses and vans, rates and taxes, &c., and a very heavy bill is yearly run up, to be absolutely met, let the fruit crops be what they may. Now my neighbour is a very hard-working man, who gives active attendance to his land, and has all his marketing done cheaply through a trustworthy son. He is a very temperate man, and lives in a quiet, unpretentious way, and yet he is far from being rich; in fact he has, with all this great labour and anxiety, only succeeded in making a fairly comfortable living, and if such be his case, how absurd it is to look for enormous profits from fruit culture, such as some would assume are obtainable. Fruit, like other commodities, may return a living, that is to say, will give profits on the average which will pay; but to say that fortunes are to be made from fruit culture is absurd. There is, indeed, no occupation more quickly influenced by alternations of climate and of temperature, and during the past twenty years these alternations have almost invariably been adverse to fruit culture.

Probably no other occupation gives greater anxiety to those engaged in it, and in few is there a greater outlay in labour needed. In that respect it is difficult to conceive a greater blessing to the labourer than the wide diffusion of hardy fruit culture throughout the kingdom. My neighbour is far from being a selfish man, and is far from being reticent as to his views on the fruit culture question, which is just now being agitated. If he were going to plant largely, he would, if possible, select sites which have a south-easterly aspect, as he is assured, from long experience, that the early action of the sun on the trees during April and May is productive of great good, as frost is thus checked an hour before it is so when the bloom is yet in the shade. Sunny slopes on any fairly good soil other than stiff clay will suit nearly all kinds of fruit trees, but those trees which have a deep gravel base as a rule produce the most highly coloured fruit, especially when the aspect is a sunny one. He does not much care about leases, although his land is held under a lease, and would prefer a two years' agreement, always assuming that a landowner's word is to be trusted. There he trenches upon doubtful ground, especially where an estate is heavily encumbered. This expression of opinion, however, only tends to show how deeply the subject of land tenure lies at the bottom of all improvement in land cultivation, especially where the planting of fruit trees is concerned. My neighbour thinks that the landlord might very well agree to supply sufficient trees for so many acres per farm to his tenants, who should plant in rows wide apart so that the soil may be well cultivated as arable land for several years, and after the trees have become strong and cropping should be laid down for pasture. The sorts grown should be hardy, strong-growing, free croppers, rather late in maturing, and such as would pack and travel well, as most of all the best fruit would have to be properly packed and sent to market. He has seen large breadths of the finest Apple land in the west of England given over to the production of wretched cider Apples, so that with Apples everywhere there was seldom one fit to eat. When the dietetic value of fruit is better understood, possibly good Apples and Pears eaten as food will be preferred to vile liquid decoctions termed cider and perry.

Returning to my neighbour's market garden, I found, of Apples, trees of the pretty Yellow Ingestrie fruiting capitally, the sample being excellent. This is one of the metropolitan grower's favoured dessert kinds. Some large trees of the old Sack-and-sugar, which, fruiting sparsely this year, have in some previous years borne great crops, and always give a good profit. Scarlet Nonpareil was carrying a full crop of rather small, but richly-coloured fruits. King of the Pippins a moderate crop, and best on young trees. Blenheim and Cox's Orange Pippins very thin this season, but as with them, so in the case of all other sorts, the wood is full of fine plump buds; in fact, trees never were more crowded with spurs than now. Wellingtons on young trees were also a capital crop, the fruit fine and clear; about 100 bushels are looked for this season. Stone's Pippin, New Hawthornden, Lord Suffield, Keswick, and

some other good cooking kinds are carrying no fruit this year. Pears are in better form; Hessle a big crop, and a few trees of Beurré de Capiaumont full of fine fruit; Williams' Bon Chrétien fair, and Calebasse also, though these latter fruits seem as if unable to swell. All the finer Pears on standards or bushes promise to be very hard and somewhat small. Of Plums, the Gages, especially Crighton Gage, fruit badly, although the trees do well. Victorias fruit finely, and white Magnum Bonums fair. There are fine trees of Washington, but that also very rarely produces fruit. With respect to the general effects of the season upon the growth of the trees, it seems obvious that the anticipated coarse growth has not resulted, and that, on the whole, it is little in excess of that of last year. All the trees have made good growth, and it seems to be, under the influence of the drier weather, maturing well. Bushes have felt the influence of the rain admirably, as Gooseberries, Currants, and Raspberries have all done remarkably well. A. D.

APPLE GROWING OF THE FUTURE.

THE condition of the Apple crop both in orchards and gardens this season demonstrates in the clearest manner possible that a reform in the style of tree to be cultivated is needed. We find many trees very much overloaded with fruit, while others have none at all. In consequence of such a large number of fruits they are individually small, and although they serve as second-class market fruit, it is very plain that they will not realise so much money or command such a quick sale as if there had been only half the number of larger and better formed fruit. I do not say that the standard form of tree to which I am alluding should be discarded altogether, but I maintain that greater care is required in selecting the varieties that should be grown in that form, as some varieties make better standards than others. The number of standard trees should be reduced and dwarfer kinds substituted for them. The trees that are wanted and that will produce good fruit must be more manageable than those of the standard form, or, in other words, they must be sufficiently low in stature to enable the cultivator to thin out the fruit with a reasonable amount of labour. Until timely thinning is more practised our trees will be burdened with a lot of comparatively useless fruit, which is not only an unnecessary tax upon them, but prevents any of the fruit from growing to a useful size. With regard to the best sorts of Apples to grow in the form of standards, the number is not so large as many might suppose. There are plenty of varieties that bear good crops every other year, but these should be avoided. The sorts that are wanted are those which are not so remarkable for the number of fruit they bear as for their large size and handsome appearance. To mention a few of such I may name Alfriston, Beauty of Kent, Blenheim Orange, Cox's Pomona, Dumelow's Seedling, Tower of Glamis, Northern Spy, Mère de Ménage, Bramley's Seedling, Gloria Mundi, and Ecklinville Seedling. I have had many opportunities of seeing these varieties in both orchards and gardens, and I feel sure that they will disappoint no one. As to the best form of tree, we want them with stems from 3 feet to 4 feet high and with the lower branches sweeping the ground. In this form there would be no difficulty in getting at the fruits to thin them out.

It seems hardly necessary to argue the point as to which class of fruit is the best, either for home consumption or for the market. No question has been raised as to the suitability of the climate of England for producing Apples of first-class quality. England possesses not only the climate, but the best land. Besides this we have the sorts and the demand always waiting. All that is wanted is a fresh race of cultivators who will step out of the beaten track and select the form of tree that will produce fruit of the same quality as is now sent here from abroad. J. C. C.

A USEFUL FRUIT ROOM.

THE kind of fruit room here represented and fully described, Messrs. G. Bunyard and Co. use for the storage of their extensive collections of fruit. This useful store is built on a cheap method. The ledge is first built with the usual 4-inch by 3-inch quartering, the rafters being 4-inch by 2-inch. The posts at the corners and every 10 feet at the sides are 6-inch by 6-inch Pitch Pine set with dowels into a sunken stone. The roof is matchboarded outside, and the whole covered at the sides with 6 inches of thatch, that used being the 6-feet to 8-feet Reed of the Medway marshes (Carex). After thatching, the inside may, or may not, be boarded. Stout Wheat or Rye straw would answer for thatching. This is kept in position by the slats of wood, as shown in the engraving. The white sill of the door shows the woodwork and the dark



View of fruit room in Messrs. Bunyard's nursery at Maidstone.

upright the depth of the thatch. This outside frame is formed before the thatch is put on; the dark part below the lower slat is tarred to keep the damp from rotting the Reed, and the woodwork after completion is painted green, giving it a finished appearance. Ventilation is provided in the eaves at each end by an opening protected inside with perforated zinc to keep out the wasps and flies. The roof has holes bored with an auger at suitable distances to pass the tarred string through in thatching, this being done in the same way as barn roofs are thatched. The thatch, about 1 foot thick, commencing at the base, is finished at the top in an angle pattern, or at the fancy of the thatcher. Messrs. Bunyard attach great importance to the fact that the floor of the house is on the bare ground, and this is kept moist, so that the fruit does not shrivel, and a double door is provided. Large collections of Apples, including autumn kinds, have been shown by the firm in February (medals R. H. S.), and about forty dishes were set up at the great Royal Show in the Temple, May 18 last, proving that this inexpensive house will answer all purposes, without the great expense of a brick-and-tile fruit room. The uprights for the shelves rest on the ground and are fastened to the rafters, the shelves being match-board placed flat at convenient distances.

HARDY FRUITS.

A REMARKABLY fine September has done wonders not only for fruit, but also for the trees which have borne it. At one time we thought our best mid-season Peaches would not ripen, but a fortnight later than usual they have coloured and finished up well, the only drawback being a slight diminution in size, owing, no doubt, to the cold which prevailed throughout the summer. The latest varieties, including Prince of Wales, Walburton Late Admirable, the Old Late Admirable, Lord Palmerston, Princess of Wales, Barrington, and Raymackers (a most excellent Peach in the way of Walburton), are beginning to ripen this first week in October, but, unlike the preceding section, they are pale and deficient in size and flavour. If not already done, all the trees, commencing with the earliest, should now be pruned, cleansed, and neatly regulated by close tying or nailing. Not one shoot which can be spared should be left, as the crowding of useless wood and foliage, whilst holding moisture, keeps the sun away from the walls, and in this way prevents the trees from ripening. As we never shorten our shoots, and give preference to moderate growths which emanate from the upper sides of the main branches, autumn pruning is quickly performed, the trees when finished showing an even spread of young growths about 5 inches apart from base to summit. When this work is finished, all prunings and the litter with which the wall paths have been covered is cleared away to the fire, and we then set about root-lifting. The extremities of the roots of all the Peach trees in this garden are shortened more or less every year. We never miss a crop, and the mode of procedure is as follows: Having ascertained the exact position of the past year's semi-circular trench, we take out another close to it quite down to the drainage. All the roots which have passed through the compost placed in the last trench are then shortened back; the best of the old with a little new loam added to it is then replaced, rammed firmly, and the tree under treatment is finished. Our wall paths, now 5 feet to 6 feet in width, have not been disturbed for some years, but we know all the roots in them, trained in the way they should go, are lying in a horizontal position within a foot of the surface; consequently they do not require disturbance, but the wall paths, owing to so much treading when wet, have become unusually pasty and impervious to warmth and air. To put them right and capable of taking water very freely, the whole of the surface will be forked off quite down to the untainted staple and replaced with fresh compost. Root-lifting generally precedes transplanting, especially when the trees are young and vigorous, but so remarkable has been the effect of the past month, not only upon Peaches, but upon all kinds of fruit trees, that I venture to say all who contemplate this work need not lose a single day, as it cannot be performed at a better time. By way of test I have just tried the foliage of an established Peach tree, and find nearly all the leaves might be removed with a switch. I do not, however, practise or recommend this switching movement, but mention this condition to show that it is neither wise nor necessary to defer lifting until after the leaves have fallen. Indeed, Peach trees can be moved at any time from the gathering of the last fruit quite up to the flowering stage, and until this annual check to the roots is accepted as the sheet anchor of continuous success, good crops, as we gather from recently published reports, will be the exception to a much desired rule.

PEARS,

like Peaches, have pulled up amazingly, and, strange to relate, the fruit, although barely of average size, is remarkably clean and russety. A cold, wet season is proverbial for cracked, spotted, and deformed fruit, but the subsoil this year was drier and warmer than the surface; the rain, none too much, barely enough, came just in time to save the crop; consequently an abundance of really useful Pears are now finding their way to the store rooms. Private consumers who wish to eke out each variety should never gather the whole of the crop at once, but rather they should try each fruit by turning it gently upward with the hand, taking those only which part freely at the node and leaving others which plead for more time a few days longer. Attention to this matter, especially amongst autumn and early winter Pears, whilst assisting the trees, ensures a prolonged supply of fruit of the best quality. There is, however, a limit to the hanging period, as we have left very late sorts out until November, but the results invariably have been shrinking of the rind and deficiency of flavour. When late sorts, if not the best often the most valuable, do not become fit for gathering by the middle of October, root-lifting and pruning, root-baring and renovation with fresh compost is the best and only remedy. Young trees on the Quince stock with mops of active feeders near the surface invariably ripen up the finest fruit, and large old trees on free stocks might be greatly assisted by annual attention to the roots. A good wall of Pears is a most charming sight both in spring and autumn, and too many growers, anxious to leave well alone, or perhaps pressed by other matters, are apt to overlook the fact that the roots are continually extending and descending until the balance is lost. They then set about cutting off the supplies, and the loss of one year's crop at least follows. This loss upon neglected trees perhaps is inevitable, but it need not be if they were root-lifted annually or biennially and feeders were coaxed upwards by the removal of the old and replacement with new loam upon the wall paths. Sun and fresh air, no doubt, are the main factors in plumping and ripening up the flower buds, but constant manipulation and suppression of the shoots when the roots are wrong only half meet the case. The roots must be brought up to the influence of these elements, and now is the time to set about the work, whilst the earth is warm enough to force fresh fibres and the foliage is hanging upon the trees. The Pear is by no means fastidious as to soil, provided it is fresh, calcareous, moderately rich, and the borders are well drained. This can be found in almost every district. A little forethought and care throughout the season will be rewarded with an accumulation of old lime rubble and other correctives, which if possible should include a liberal dash of bone-dust. If a whole set of trees has become too strong and infertile I would throw out a trench 6 feet or 8 feet from the wall the whole length of the border, correct and increase the drainage. I would raise all roots having a downward tendency, shorten the strongest, preserve the weakest, and fill up the trench with fresh loamy compost. This material, I may say, should be used in a somewhat dry state; it should be firmly rammed, or when the trench is partly filled, watered home to throw the relaid roots into immediate action. The following year I would fork off the inert surface soil quite down to the main roots, water thoroughly, if necessary, give each tree a little bone dust, and cover, not too thickly, with fresh compost. Loam and bones will induce any quantity of feeders. Manure, as a mulch, and summer waterings with diluted liquid will soon work a change, and swell fine fruit and buds to maturity.

When root-pruning has been brought to a close, it will be necessary to push on at once with planting, as trees put in before the leaves fall make roots before the earth becomes wet and cold, and, as a natural consequence, require very little attention in the spring. Spring planting, on the other hand, especially if the season be dry, necessitates constant attention to watering and syringing, and then not unfrequently the trees make very little wood the first year. October, I repeat, is the best month for moving home-grown trees of all kinds. The first half of a fine November is not bad, but after the end of that month the work is best put off until the turn of the year. I have just been looking over a quantity of Blenheim Orange Apple trees, planted late in April, and the growth they have made is excellent, but then the past summer has been peculiarly favourable to them. In the fruit garden proper, bush fruits of all kinds being the first to ripen, if not to lose their leaves, we generally take in hand first, then follow on with stone fruits, finishing up with Apples and Pears. Currants and Gooseberries like a light, rich, deep soil best, but do not object to a heavy loam if it is well broken up and thoroughly drained to free it from stagnant water. As these bushes are almost invariably propagated in the home nursery, in which a good stock is kept on hand, the best only should be put out, when those left behind will require lifting and replanting to keep them in order for another year. A very important matter is the removal of all stem and underground buds, as these, if left alone, are sure to develop into robbers, which will waste the energies and detract from the shape of the trees.

RASPBERRIES

are gross feeders, revelling in moist, but not wet, deep soil. It not unfrequently happens that Raspberry plantations remain undisturbed, and if really well planted, do fairly well for a great number of years, but, like all other fruits, they fully appreciate a change of ground—a matter which can easily be arranged by planting one or two rows and destroying a like number annually. When preparing the ground for a new plantation, plenty of good manure should be trenched in, but lacking an abundance of this, fresh turf, road scrapings and sidings, charred refuse, and other free, rich materials will be found an excellent substitute. This addition to the soil should be made early in the autumn, as it matters not how early the plants are put in after the old beds are relieved of the old canes. Young plants should be well mulched and tied to short temporary sticks or stakes, but they should not be shortened, as this process lets frost and wet into the pith during the winter. Many growers plant in blocks, row after row, 5 feet or 6 feet apart, and 4 feet from stool to stool; but the most profitable method is planting in single rows by placing single canes 18 inches apart, from north to south, right across an open quarter. The young canes may grow upright the first year, but the following autumn stakes at intervals of 6 feet and opposite each other should be neatly driven to form the foundation of a V-shaped trellis. Two wires tightly strained on each side, one at the top, the other half way down the stakes, will complete the work, and the rods, equally divided, must then be tied out a foot or so apart. When growth commences, the young canes will occupy the centre, and the fruit, having an abundance of light and air, will soon repay the small outlay.

APPLES

on the Paradise stock and Pears on the Quince stock are now plentifully planted in all well-managed gardens. They come quickly into bearing and take up very little room—two important factors where a goodly number of varieties is a consideration. Then, again, they are so easily managed, the pinching of an extra strong shoot being all that is required for several years. If well planted, staked and mulched, they may be grown as close upright cordons, but forming as they do such perfect miniature trees, I prefer letting them extend into nicely balanced pyramids or bushes. At one time owners of light soils gave them a wide berth, and I do not deny that heavier loams suit them best, but, provided they are well mulched and not too heavily cropped, such trees on light soils will give remarkably fine fruit for a great number of years. On deep, heavy soils it is necessary to lift and spread out the roots at the end of the second year. On light soils this small operation may be dispensed with, and the fruit will require much thinning. In small gardens they may be planted in rows a few feet from the margins of the walks and not more than 4 feet apart, but space being plentiful, they may be planted in blocks a row or more of a sort—an arrangement which renders netting in spring and autumn practicable.

THE ORCHARD.

The principal work in this department just now is gathering fruit, an operation which should always be performed when the trees are perfectly dry. In ordinary seasons a great number of varieties are fit for gathering in September, but this has been an extraordinary year, and for this reason all storing sorts should be allowed to hang so long as the weather continues fine and there is no sign of dropping. A little frost does no harm to Apples or Pears, whilst the sun, although weak, adds greatly to the colour of the fruit. The great cry just now is for quantity and quality. The first can be secured by increased attention to planting upon modern principles; the second by selecting the best samples only for storing. The best time to divide fruit into firsts and seconds is at the time of gathering, as perfect samples will keep for months after small, unripe or scabby fruit has passed away. Putting good and bad together shortens the season, but keeping them separate extends it. Where trellis or shelf room is abundant, all choice samples of Apples and Pears should be placed in single layers snout upward, whilst late ordinary sorts may be stored in greater bulk until better accommodation can be found for them. A friend who stores a goodly quantity of fruit for private use takes dry flour barrels into the orchard at the time of gathering, fills them with picked samples, and all varieties of Apples keep not only sound, but full of their natural flavour and sprightly juiciness until long after the same kinds on shelves have become shrivelled or useless. When all the fruit has been stored and the sweating stage is over, the ventilators and windows may be partially, if not entirely, closed, as fruit will not keep well in a room where the temperature is acted upon by external fluctuations. If kept dark and dry, Apples will not suffer in a low temperature, but Pears should be kept at 45° to 50°, otherwise they will be deficient in flavour. Indeed, the best Pears should be placed in a dry, warm room to ripen.

W. C.

SHORT NOTES.—FRUIT.

The Sussex Nanny Apple.—This Apple and the brisk-flavoured, firm-fleshed, long-keeping Forge are both peculiar to the county of Sussex, and both have claims to recognition.

Walburton Late Admirable Peach is highly valued at Wakehurst. A tree in the Peach house is only just ripening up its crop of fine fruit. Mr. Sawyer considers it the best late Peach.

Pears on walls.—Pears do remarkably well at Wakehurst, and the fine samples of Doyenné du Comice and Marie Louise seen here are good evidence that wall space could not be more profitably employed than in the production of the best examples of standard fruits.

The foliage of Vines.—During September and October the foliage of Barbarossa and Gros Colman assumes a highly attractive appearance, as parts of the leaves become bright red, while other parts are deep green. The leaves of Barbarossa are much sought after for the decoration of the dessert.—E.

Domino Apple.—In a paper on "Some Newer Apples" in THE GARDEN for October 6 (p. 326) I mentioned Pomona as one such variety. That was an undoubted clerical error, as I purposed referring to Domino, a really first-rate sort of the Codlin type, a good cropper and keeper, and specially suited for culture in northern districts.—A. D.

Apple Worcester Pearmain.—This Apple has again maintained its reputation for cropping freely, in spite of such a bad season. We have this variety growing here as a standard, and during the last nine years it has not once failed to produce a heavy crop of highly coloured fruit, which is very attractive in appearance and much liked by some people for its flavour.—M.

Madresfield Court Grape is well grown at Wakehurst Place, in Sussex. We noted a vinery half filled with it, the other portion of the house being devoted to Black Hamburgh. The Vines were just finishing off an enormous crop of fair-sized, even-berried bunches. The border is an outside one, yet in spite of its being deluged with rain this season, there is no trouble from cracking. Mr. Sawyer says he is not troubled with cracking, nor does he accord Madresfield Court any different treatment to that received by Black

Hamburgh in the same house, the bunches of which at the time of our visit had not been all cut.

THE GARDEN SELECTION OF APPLES.

Mr. Bunyard, in his remarks in The Garden, Oct. 13 (p. 346), upon the above list, says Flanders Pippin and Mère de Ménage are so much alike, that they are frequently grown as synonyms. When Mr. Bunyard speaks upon Apples all the world listens, but when he states that these two extra fine varieties are alike or nearly so, others besides myself will inquire how it is that our pomological education has been so long neglected. Flanders Pippin, I may say, has been grown in Hereford and Worcester for centuries, and, unless I am greatly mistaken, is as distinct from Mère de Ménage as one kitchen Apple well can be from another. In the report of the conference held at Chiswick in 1883 Mr. Barron says eleven dishes of this fine old Apple were shown; but this, I believe, is a mistake, only one, and that from Worcester, being present. What the others were I am not called upon to say, but possibly they may have been Flemish Pippin—altogether a distinct and inferior Apple—or they may have been Mère de Ménage. Be this as it may, the jurors seem to have got into a fog over an old variety apparently not known in home and southern counties, and this fact leads me to inquire if Mr. Bunyard is quite sure he ever had in his nursery the true Flanders Pippin. If so, and he stored and tasted the fruit when cooked, good as Mère de Ménage is, I fail to see how he could cease growing, using, and recommending it. I might not have noticed his remarks in The Garden, but having had a hand in making the selection, I feel bound to ventilate the question, otherwise many may run away with the idea that experts could not select two dozen sorts from as many hundreds without letting in a duplicate. Mère de Ménage and Flanders Pippin—not *Flemish* Pippin—are neither plentiful nor true to character this season. We have, nevertheless, a scattered crop, and, all well, I shall have a dish of each at the Chiswick conference.

W. Coleman.

The Banana.—The increase in the English demand for the Banana is, perhaps, the greatest recommendation of its worth. To many it is now an article of daily diet. It is nutritious as a food and a success as a medicine. Taken first thing in the morning the Banana is a mild aperient, invigorating and refreshing, preparing the organs of the body for the important functions of the day. The deliciousness of the Banana is of the highest order, containing as it does the mellowness of the Pear with the richness of the Grape. If regularly taken the Banana combines sustenance for both body and mind, aiding mental activity to a remarkable degree. The dangers of many fruits are absent from the Banana, which can be eaten with perfect safety by either old or young. In this respect it is one of the most valuable fruits imported. The Grand Canary Banana especially contains the above properties, being grown in one of the most lovely climates in the world.

Pear names.—Very interesting indeed would be a carefully prepared paper on local fruit appellations, and one which might have been worthily read at the present Chiswick conference. Why sorts are denominated Swan's Egg, Duck's Bill, Bishop's Thumb and similar designations, would doubtless need some considerable inquiry to elucidate. I came across a designation the other day which was new to me. A Pear growing in a market orchard proved to be of such an unusual kind, that I inquired of a labourer what it was termed, and he replied, "We call it the Onion Pear," certainly an odd and by no means savoury designation. Then I asked why it was so called, but he could only tell me that it had been known by that name as long as he could remember. The fruits were of medium size, about as big, perhaps, as those of the Autumn Bergamot, but less shapely; in fact, they exactly resembled the Shallot, or perhaps the bulbs of the old-fashioned Potato or underground Onion, bulging on one side and flattish, with a suture down the middle on the other. The shape seemed, therefore, to give at once an explanation of the odd appellation given to a Pear, and referring to the "Fruit Manual," I gathered from the description of Summer Crassane, that the local Onion Pear and that variety are identical. The stalk is long and set rather on one side, the skin lemon-yellow, thickly sprinkled with brown specks. It is, however, far from being a desirable market Pear, as it is a sparse cropper. The common market Pear Hessle, corrupted generally into Hazel, has given an enormous crop this year, but too often selling for a mere song. Whilst the most prolific of all orchard Pears, its quality is of the poorest. A really fine Pear, as good an orchard cropper as the Hessle, would indeed be a boon to the market grower.—A. D.

Kitchen Garden.

VACANT GROUND.

In most gardens, no matter how well and closely they are cropped, there are plots of ground now vacant, Peas, Beans, Cauliflowers, and various root crops being cleared off during this and the next month. Little or none of this space will be again planted or sown much before February or March, and the question that occurs, or ought to occur, to those in charge is, What is best to be done with the ground thus cleared? Owing to the great variableness of the soil and subsoils, no general rules can be laid down on the subject, and those responsible ought to try various experiments in order to arrive at the best course of procedure. In some instances it is the wisest plan to manure and either roughly dig or trench at once. In others trenching would be unwise or impossible, and digging only be completed now, the manure being added just before cropping; while there are soils that ought not to be dug in any way till near the time for planting or sowing. The garden under my charge comes under the first category—or, in other words, cannot well be dug too early. It is of a clayey nature, but having been in cultivation very many years, various substances have become incorporated which serve to prevent the clay from running and becoming somewhat of the consistency of bird-lime. In all probability, the majority of heavy soils may safely be treated in the same manner as answers so well here. Instead of waiting for a severe frost before the manure is wheeled on to the ground, we take advantage of a dry time in October and get out all the partially rotten manure available, nothing but quite dry straw being rejected. A liberal quantity of this is buried in the deep, wide trenches necessary for well carrying out the work of either ordinary deep digging or trenching, and covered with rough spits of soil. None of the manure thus early buried is wasted during the process of decomposition, and it further serves to keep the soil dry and well exposed to the pulverising effects of frosts, winds, and rain. Peas and Beans invariably leave the ground in a solid, unworkable state, and principally for this reason we keep these as much as possible in one quarter. The ground being roughly dug now, and if need be forked over early next year, gradually becomes well broken down, and rendered quite fit for the reception of the seeds of Onions, Carrots, Beet, and other roots, or for Potatoes.

We find it almost impossible to sow seeds in a proper manner on very late winter or spring-dug ground, this remaining in a lumpy state. On no account should heavy land be meddled with or trampled on when in a wet state, this invariably causing it to bind badly, and not unfrequently spoiling it for two or three seasons. If the manure cannot be carted or wheeled on to the ground while in a dry condition, wait for either a hard frost or a dry time in March before either manuring or digging it. Nor is farmyard manure suitable for heavy land, this of itself being slow in effect and of a cooling retentive nature. Fresh strawy manure is the best for heavy land. There are some heavy lands that must not be manured or touched in any way till near planting time, as they become pasty and unworkable from the effects of frosts and rain. Such soils are the most difficult to manage, and it takes many years of skilful treatment to bring them into anything like good working order. It can be done, however, partly by using good judgment as to the proper time to dig, and partly by the addition of large quantities of burnt earth and other insoluble substances.

Where the subsoil is of a gravelly nature and the drainage quick, it would be simply a waste of manure to dig this in now, owing to the certainty of the greater portion of its fertilising properties being washed away by the autumn and winter rains. The surface soil may be of a nature to need well exposing to the full effect of frosts and winds, and ought therefore to be roughly dug now, the manure being added at a favourable time during the winter, and either forked or dug in. I have seen extraordinary crops taken from land thus treated, and can strongly recommend the practice. Laying up the soil roughly or fallowing it for a time naturally improves its fertility, but garden ground, though closely cropped, usually gets plenty of manure, and the owners do not trust to Nature's rather slow process of restoration. Anyhow, I attach more importance to having the ground in a finely-divided, free-working state in the spring, or when cropped, and would defer digging till then if this answered well. One of the most productive gardens I have had charge of had to be left alone till a few hours before it was cropped. Left in a firm, unbroken state, it kept dry and well drained, but a few weeks' or even days' exposure to all weathers soon rendered it unworkable. Either it baked badly, that is to say, became dry and hard, or the rains left it in a badly saturated state. There are, I am confident, numerous other gardens of much the same constitution. They are not necessarily of a heavy nature, but more often are of a medium character, the peculiar nature of the small amount of clay incorporated with the soil being responsible for the difficult treatment required. Such soils are not so much in need of strawy manure, and we used both cow-yard manure and that obtained from old hot-beds freely.

Light and naturally free-working soils are not much benefited by early digging, nor ought they to be manured in the autumn. In some instances a dressing of clay or marly loam would prove most beneficial, this, when well mixed with the surface soil, giving it a more retentive character, and thus causing it to be more fertile. The clay or loam should be spread over the surface, and, when sufficiently pulverised, be dug or forked into the ground. Now is a good time to collect and wheel on to shallow ground anything of a loamy nature for the purpose of increasing the depth of fertile soil. Road trimmings, old heaps of well limed garden refuse, spent tan, half-rotten leaves, and surface soil from the foundations of new buildings are all suitable for the purpose. Whether this should be dug or trenched in, must depend upon circumstances, and is a matter for further discussion. W. I.

SHORT NOTES.—KITCHEN.

Favourite Lettuce.—For autumn use this is one of the best Cabbage varieties in existence. It produces large heads, which are solid and crisp.—E.

A large Radish.—I would like to know the weight and size of the largest Radish yet grown, as I

have taken from a bed one weighing 2 lb. 1 oz., circumference 13½ inches, and 10½ inches in length. I consider it a most extraordinary one and worthy of note.—H. Squelch, *Windsor*.

Moving large Tomato plants.—It may be useful to some growers to know that large plants of Tomatoes will successfully bear removal. Last May I planted the usual quantity of plants against a south wall, where in 1887 a similar number had fruited remarkably well. This season, owing to the wet, cold, and sunless weather, there appeared every prospect of a failure in the crop. The plants grew strong enough, but they neither flowered well nor set any fruit. I therefore decided upon removing the best of them by transplanting them to the back wall of a Peach house and that of a large vinery newly built. This was in the month of July, by which time the plants which had each three main stems were quite 5 feet high. A week or more before the plants were moved the roots were cut round with the spade about 2 feet from the stem of each and the plants well watered in order to prevent a check. They were then lifted with as much earth as possible, and after being placed in their new quarters, were well watered and shaded from the sun until they had taken root. Beyond a little flagging of the foliage no other injury seemed to arise, for the plants soon began to grow and flowered freely, as well as set a heavy crop of fruit. Manure water has been given them twice a week, and the fruit is now ripening off very satisfactorily.—T. R. F.

KITCHEN GARDEN NOTES.

Tomatoes.

Very few of the fruits grown against the open walls ripened or will ripen satisfactorily. The bunches of the largest or most forward fruits if cut and hung up to ripen or colour somewhat in heat may be fit for cooking, but not for salads or even for making into sauce, and already there is a good demand for fruit grown under glass. Every pains, therefore, should be taken with any plants that may be in pots, boxes, or rooting in ridges of soil. On most of these there are a considerable number of fruit yet to ripen, and in many instances there is no reason why these should not be succeeded by others set later on the same plants. What are apparently nearly exhausted plants will, if transferred from cool houses to those kept at a moderately high temperature, quickly push out numerous back growths, and these being duly thinned and tied in, will not be long in producing flowers and setting a good crop. Plants with roots confined to pots ought to have the surface soil loosened, and then receive a top-dressing of turfy loam and old horse-droppings in equal proportions. In addition they may well be set on a bed of rich soil and manure, into which the hungry roots will soon spread. Plants, if still uninjured by frosts or not diseased, may also be lifted from pits and frames, and even from sunny walls, and transferred to large pots or ridges of good loamy soil. The increased temperature to which they are subjected soon starts them into active growth, and plants thus lifted are likely to prove more productive than quite young seedlings or any recently raised from cuttings. In common with Cucumbers, any Tomatoes intended for winter bearing ought to have a strong, early start, a good crop of fruit being set before the days become short, cold, and dull. In all cases, whether old or young plants are grown, they ought to be trained thinly over the roof of a forcing house, or light, well-heated structure. Trained in any other position the growth is almost certain to be drawn and weakly, and the flowers too young to open or set properly. One or more main branches (plenty of ours have three and four each) may be laid in at the bottom of the trellis or wherever the plants reach the roof, as it is quite immaterial whether the growths be trained up or down the trellis. Keep them fully 12 inches apart, and allow no side branches to form unless another leader is needed to fill up blank space. This leads to the formation of strong bunches of flowers at short intervals, and these ought to be followed by good clusters of fruit. If they fail to set properly this is either the result of over-feeding at the roots, thus causing a gross habit of growth, or, what is more often to blame, from the maintenance of too high temperatures. Tomatoes during the spring months may frequently be profitably grown in company with either Cucumbers or Melons, but seldom are they made to bear well in the same house during the late autumn and winter months. What fruit there may be set on the plants when first placed in strong heat will swell off satisfactorily, but few or no more will set unless more air is admitted than is good for either Cucumbers or late Melons. Not only should air be admitted freely in the daytime to the house containing Tomatoes, but the top ventilators ought to be set open slightly whenever the nights are not very cold nor frosty. The temperature in the daytime may range from 55° to 65° and from 50° to 60° during the night, and if kept a few degrees lower there is all the more likelihood of a good set being effected. Up to the present time overhead syringing every morning is all that has been necessary to ensure the proper fertilisation of all the flowers as they open, and we have sufficient fruit set to last for many weeks. Not till a fairly heavy crop is set should much manure be given, but subsequently it may be applied frequently, or otherwise the fruit will be small. A surfacing of bone meal or the more soluble superphosphate of lime proves most beneficial, and there is no likelihood of too strong a dose of either being given, though little and often is the best way of feeding the plants.

The Mushroom House.

Those who for various reasons prefer to utilise the Mushroom house for keeping up a regular supply of Mushrooms to the more modern method of forming beds in the open will find the early part of October a good time for commencing. Beds formed much earlier are apt to dry quickly, and are seldom very productive. The earliest beds are usually made on the floor, and the later ones overhead on the benches. If this order is reversed and the beds be first formed on the benches or staging, these are almost certain to become much too dry to suit the Mushrooms after the spawn has run sufficiently, while the late formed beds on the floor of the house are apt to get cold and too moist to be profitable. In any case the greatest pains should be taken with the preparation of the horse droppings. On no account ought they to be kept in a very high heap and allowed to become violently hot in the centre. They will more surely become sweetened without the loss of all moisture and fertility by being stored in a rather shallow bed under cover of an open shed. Directly they are found quite hot in the centre turn the heap inside out, repeating this process every four days or as often as necessary for about three weeks. If the droppings become too dry to decompose properly, water must be given, as it is necessary that they be in a moist and comparatively unexhausted state when the beds are formed. They will then generate heat steadily, and for many weeks, the decomposition going on also favouring the growth of the Mushrooms. If the formation of the house favours it, ridge-shaped beds will be found most profitable, these being firmly built a yard wide, and the same in height and about 6 inches wide at the top. Such beds give much the greatest surface space, the ends as well as the sides being spawned. Flat beds may be of any width, not more than 18 inches high at the back with a slope to the front, this being about 12 inches deep or rather less. The manure ought to be very firmly packed together, either by trampling, or, where this is impossible, by being well beaten down with the back of a garden fork according as each layer is distributed over the beds and the surface made smooth and even. Trial stakes should be thrust into the bed and frequently tested by feeling, or regular plunging thermometers may be used. At first the heat will rise considerably, and not till it declines sufficiently to admit of the stake, when drawn out, being held comfortably in the palm of the hand, or the thermometer denote a temperature of about 80° should the spawning be done. Sometimes it happens that carelessly prepared manure over-heats, and unless numerous deep holes are formed for the purpose of letting out the rank heat and moisture, the whole bed will be spoilt. On the decline of the heat to a safer figure these holes may be closed and the beds well beaten prior to spawning. Occasionally it happens that the manure is either already exhausted or too dry to generate heat, and this necessitates reforming and the addition of a good quantity of fresher manure, or, in the case of dryness, of a watering being given, and the manure turned and re-made into a bed. When much old and rather dry manure is used, the beds seldom get very hot, and the spawn ought to be inserted directly it is found the highest point has been reached. The spawn may be broken into pieces about 2 inches square, and inserted just below the surface, 8 inches apart each way. The holes for the spawn should be opened with the hand or a small plunging fork in preference to forming them with a dibble, and after the spawn has been pressed in, the manure ought to be levelled over and well beaten. Where there is little danger of over-heating, the beds may be soiled at once, but otherwise this is a risky proceeding, and should be delayed till the heat of the bed has declined another 5°. Should the heat from any cause suddenly rise considerably or to 90° or more, numerous deep holes must be formed over the bed, these letting off superfluous and dangerous heat. From first to last the beds must be closely watched, a few hours' neglect often ending in the destruction of the spawn or the loss of a crop. It must be borne in mind that casing over the surface of a bed with soil prevents the escape of much heat, and it may therefore be applied too soon or too late. The best fine loam procurable should be used, and failing this, well pulverised garden soil may be substituted. A thickness of 2 inches is necessary, this being beaten down with the back of a spade, but not plastered over in any way, or it will crack badly later on. It is advisable to cover the beds with a thickness of about 6 inches of dry, soft hay or litter, this preserving the moisture in the bed, and further serving to maintain a more equable temperature. Should the soil of the beds appear to be at all dry, damp the litter only, heavy waterings as well as daily syringings being most injurious to the beds. No fire heat ought to be necessary for some time longer, a high forcing temperature doing more harm than good. Carefully exclude all cold winds, and the heat given off the new and old beds will keep the temperature of the house at about 55°, this being quite hot enough at any time. W. I. M.

Garden Flora.

PLATE 671.

DOUBLE PRIMROSES.

(WITH A COLOURED PLATE OF POMPADOUR, OR DOUBLE CRIMSON.*)

The species and varieties of the Primrose family in gardens at the present time comprise a very large and varied group, numbering many hundreds if we include Polyanthus, Auricula, and other florists' varieties of well-known types. The great majority of these hail from or have had their origin in the Alps, the Pyrenees, &c., and although they show a great diversity both in habit and colour of flowers, we know of none in the whole range of species to equal in beauty that of our own modest Primrose. Nestling by the hedgerows, in groves, in open woods, by streams, &c., it presents a charming picture, and in early spring is as conspicuous in our own landscape as the gayer coloured kinds are in the Alps. Such a beautiful flower as the Primrose could hardly be overlooked by Nature's earlier poets, and the "Primrose by a river's brim" of Wordsworth, and "sweet as the Primrose peeps beneath the Thorn" of Goldsmith, show how they too loved our modest harbinger of spring. The double form shown in the accompanying

* Drawn for The Garden by H. G. Moon, from flowers sent by Mr. W. B. Hartland, Cork, May 15, 1888. Lithographed and printed by Guillaume Severeyns.



THE OLD DOUBLE CRIMSON PRIMROSE

coloured plate has, with many more equally beautiful varieties, all evolved from our simple Primrose, and in the olden times, and especially in the northern counties, we are told they were amongst the most admired and attractive of the many curiosities found in the old gardens. At the time when so many of this class of plants were discarded in favour of the bedding system, these would have shared a similar fate but for the enthusiasm of some of the old florists. In many of its native localities the Primrose varies a good deal in colour, and this was doubtless the beginning of the grand forms now in cultivation. These wild varieties we find extremely useful for planting in semi-wild places, requiring less attention than the more developed forms and increasing with greater rapidity. Mr. Hartland, of Cork, who supplied the material for the present plate, writes to us as follows :—

This, the finest, and probably the scarcest, among the many varieties of double Primrose, is still cultivated with some success in many of the cottage gardens in Ireland, cherished, no doubt, with as much devotion by the members of the Society of Friends as were the ancient manuscripts by the Hebrews. Indeed, my present supply was originally the gift of a kind friend and disciple of George Fox, and I have now collected together a good many different coloured forms, but the double crimson and probably the large late yellow are the most capricious, and in the hands of careless people are certain to vanish without much warning. In the south of England I fear the subject of illustration will not succeed, unless it be planted on the north side and on the margins of raised peat beds, having the shade and shelter of dwarf American plants, and where the Primulas will have ample drainage and get sufficient moisture to enable them to resist the broiling summer sun. The finest specimens I have ever seen among all sorts of double garden Primroses were established in most luxuriant masses, and growing some thirty-five years since in a cottage garden near Glenville, in the county of Cork. The proprietor used to lift his plants annually about the month of September, divide them, and replant in burnt earth, old rotten cow manure, and bog mould. In fact, his garden was throughout a black soil, where American plants were quite at home, and the foliage and flower-stems on the Primroses always marvellous. My garden soil being so near the limestone rock, I cannot attempt American plants requiring peat, but in planting the Primroses I use a good portion, mixed with rotten cow manure well rubbed through the hands and burnt earth. Wood ashes, as recommended in the old garden books, is also most beneficial. One precaution I take with the double crimson variety is to lift all the plants in September, and in order to keep them growing all the winter I put them into boxes which are placed in a cold frame near the glass. In this way the stock can be increased rapidly. I plant them out of doors again in March in the same northern position. Hepaticas associated with Primroses forcibly remind me of the children's gardens and their allotments in the days of yore.

Although we also place the double crimson (sometimes called Pompadour and crimson velvet) during winter in frames, we use those the sides of which are pigeon-holed, with the lights always off in dry weather. This enables us in the moist climate of the south of England to bring them through the winter without the loss of a single plant from damp.

Crousse's double is also very pretty, the flowers being plum or light lilac-purple. The plant is of robust habit and easily grown in the border. Cloth of Gold displays its flowers well above the foliage, and is one of the best under the shelter of low shrubs, such as Aucubas, &c., flowers yellow. The double lilac does best in rather stiff clayey soil. The double purple is a small grower, but a very profuse flowerer. Platypetala is the finest and best, flowers bluish purple, not so double as those of the others, but very fine. Double white, double blush, double salmon, and the early double sulphur, which flowers at Christmas, are amongst the best of the old ones. The new ones include Harlequin, a strong grower, lilac ; Brilliant, far superior to the old double purple; and Jacques Lienhart, a great improvement on Croussi, as it blooms later and produces abundance of darker coloured flowers. D. K.

ORCHIDS.

SEASONABLE ORCHID NOTES.

THE month of October came in with a premonition of winter. On the 1st we had 2° of frost, on the 2nd 4°, and on the 3rd 6°—a change indeed from the fine weather we so greatly enjoyed in September. At this time of the year it is very necessary for the Orchid cultivator to be on the alert; he must have an eye to changes of wind, but it is not always safe to predict a low temperature with a north or east wind, and a higher temperature with a west wind. For instance, we had a rather high west wind on the night of the 4th, and the temperature fell lower than it did on the night of the 3rd with 6° of frost, the heat in the pipes being about the same. Snowfalls and high winds will lower the temperature more rapidly than a sudden sharp frost. On a still, clear frosty night the temperature will show a sudden fall at or before daybreak. The man in charge of the fires can tell at 10 p.m. what the night is likely to be, and will bank up his fires accordingly. If the houses should be a few degrees warmer in the morning than was anticipated, sprinkle the paths and side stages a little to counteract the effects of the drier atmosphere. If the temperature should be too low, it is better not to sprinkle water about until the heat has risen sufficiently. Fuel is sometimes worse than wasted in the effort to raise the temperature in the early morning when it is too low, if the stoker is not careful. He will most likely throw on too much fuel in his haste, and the heat will not be up until the sun has risen, and in October it has considerable power. By that time there may be a great body of fire; whereas the right thing is to draw the embers together and put on a small quantity of fuel, which would quickly make a bright fire, and this could be banked up or added to as the state of the weather indicated. We are now very busy rearranging all the houses, for the Chrysanthemums had to be hurried in earlier than usual, but we found time this week to begin with the cool or Odontoglossum house and to rearrange all the plants, for the species of Odontoglossum, Masdevallia, &c., that have to be wintered in the Cattleya house were removed there this week. Having cleaned the glass and removed the blinds for the season, we dip all the plants in soft soapy water to destroy green-fly, which is a more troublesome pest in this house than thrips. The plants are laid on their sides to allow the water to drain off at the ends of the leaves instead of into the axils of them, and thence down to the roots. This soft soapy water, if it is allowed to come into contact with the roots, kills the Sphagnum wherever it touches it, and also injures the plants themselves more than tobacco water does. Many spikes of Odontoglossum crispum and also other species are showing. We have O. Edwardi considerably advanced, and this lovely kind, with its long spikes of violet-purple-coloured flowers, grows freely in the coolest part of the house with plenty of moisture at the roots. It has a tendency to push its roots over the surface of the Moss and the rims of the pots, and they would rather push straight out than turn over to cling to the pot, and in this way a careless man might break some of them off. The points of these roots should be syringed or watered daily. Oncidium macranthum and O. Marshallianum also have this habit. It is an error of culture to have too much moisture in the atmosphere at this season; in fact, we omit the water from the evaporating troughs from now until the 1st of March. Unless the pipes have to be made extra warm to keep up the temperature in very cold weather, the cool house need not be damped up oftener than once a day.

A good deal depends on the position of the house; ours is a lean-to, 60 feet long, against a wall facing north. The last house I had charge of was a span-roofed one, running north and south. I find in a house so long as I have stated, heated from one end, the temperature is as a rule 5° higher at the end where the pipes enter, and this end requires moisture when the other does not. We have very few slugs, as they are persistently hunted whenever they show their presence by eating a flower-spike. A row of sliced Carrot or Potato is also placed along the front of the stage; the pieces are examined every morning and any marauders caught and destroyed. Any plants requiring surface-dressing are also seen to, but we do no repotting at this time, except under exceptional conditions. When this house has been set straight we go on with the

CATTLEYA HOUSE.—There ought to be perfect cleanliness here as well as in the other departments, but it can only be ascertained if the plants are free from insects by carefully examining them. They have all to be carefully hand-washed. The small white scale will soon disfigure the leaves of Cattleyas and Lælias, and perhaps no collection is quite free from this pest. At any rate it is best to thoroughly wash every leaf. It is doubtless a slow process, but no other way is satisfactory. All the light possible should now be admitted by cleansing the glass and raising the plants on inverted flower-pots, if it is thought they are not near enough to the glass roof. It may make all the difference between success and failure in Orchid culture if the plant itself is thus raised from 3 inches to 6 inches higher. I generally use for this purpose inverted flower-pots of various sizes; other growers have a trellis-work fixed at a certain height above the stage on which to place their plants. The object is twofold; it places the plants nearer the glass roof, where they get a greater degree of light, and it also allows of a freer circulation of air amongst the plants. Probably the trellis-work is better than the inverted flower-pots, because the air is admitted into the pot by the aperture at the base; whereas it has not a chance to do so if the pot is placed upon another or on the stage. The above arrangement is most necessary during the ensuing winter months. The few plants now in flower are arranged in a conspicuous position amongst Ferns and the finer class of Palms. Cattleya Gaskelliana has been very useful during the months of August and September, but the plants have now gone out of bloom. I noticed the other day in Messrs. Veitch's nursery at Chelsea that an annexe had been made to the large Cattleya house, in which the collection of flowering plants was placed. A tasteful arrangement of Matlock Bath stone has been made in the form of a rock garden. Crevices and pockets in the rock have been planted with Palms and Ferns, and amongst these the Orchids are arranged when in flower. It is most tasteful, and such an arrangement ought to be carried out in every large collection. The plants need not remain in a day longer than they are in flower. The Cattleyas now in flower are C. Bowringiana, C. bicolor, C. Harrisoni, and the tiny species C. pumila. Lælia elegans in variety is also a stately plant and in great beauty. Suspended from the roof were numerous graceful spikes of Oncidium Jonesianum and the golden O. varicosum. Pholidota imbricata on a prominent ledge of rock was very striking in its way. Many other plants in flower might have been placed in this house, such as Cycnoches chlorochilum, Barkeria Lindleyana, Epidendrum Brassavola, Oncidium microchilum. The recent garden hybrids, Cattleya porphyrophlebia and Lælia Novelty, a hybrid raised by Dr. Harris between Lælia elegans and Cattleya pumila, are also September and October flowering Orchids; not to mention a host of Cypripediums, such as C. grande, C. selligerum, C. œnanthum superbum, C. albo-purpureum, C. vexillarium, and C. Harrisianum in variety.

The only plants we will repot this month are some specimens of Cymbidium Lowianum. This plant is now starting to grow, and is also showing its flower-spikes, which gradually push out to a con

siderable length; the flowers open in March, and remain in good condition until June. Pot in loam, leaf-mould, and a little decayed manure. This species does not thrive so well in peat.

East India house.—The general remarks as to treatment for the other houses apply to this except as regards temperature. Cleanliness is quite as essential; so also is light. We have grown Oncidium Jonesianum in this house, and the plants have produced immense spikes of their lovely flowers. The addition of Angræcum Sanderianum and also Vanda Sanderiana to the occupants of this house have added immensely to its attractions in the closing months of the year. Cypripedium Spicerianum, too, is a great beauty, and has itself become the parent of several hybrids—one, at least, C. Leeanum, quite as beautiful as itself.

The temperature of this house should not fall below 65° at night, the Cattleya house 55° to 60°, and the cool house about 50°. J. Douglas.

Cypripedium Savageanum.—This is the name given to a new seedling hybrid which was recently flowering for the first time in the establishment of Messrs. Seeger and Tropp, Lordship Lane, Dulwich. It fully proves that we have not come to the end of handsome and distinct hybrids of this genus, although the additions have been very numerous during the past two years. It is the result of a cross between C. Harrisianum and C. Spicerianum, the opposite to that from which C. Seegerianum was obtained, and with quite distinct results. The foliage resembles that of Harrisianum, the tessellations being faint, and the leaves, though at present somewhat short and obtuse, may yet increase in size by cultivation. The dorsal sepal is oval and flat, warm crimson from the base upwards, having a broad border of snowy white, especially on the upper part. The petals and lip are somewhat in the way of those of Harrisianum, but the lip is more pointed. It bears the name of an Orchid grower in the United States of America.—W. H. G.

Lælia autumnalis Buchani.—This is a varietal name for a strikingly beautiful form of this species which I recently noted in the rich collection of Mr. H. J. Buchan, of Wilton House, Southampton. In growth it resembles the typical plant. The flowers are nearly 4 inches across, the sepals and petals of a rich crimson-purple, the colour being of the same rich hue to the base; the lip is large, three-lobed, side lobes erect, spreading, the tips slightly recurved, pure white inside and out, the edges of the recurved lobes faintly tinged with rose. The disc is traversed with two raised ridges, which are white, freckled with crimson dots, middle lobe waved at the edges, and of a somewhat deeper hue than the petals; column crimson-purple on the back, white beneath with a few dark crimson spots at the base. It is one of the most charming forms of this Mexican beauty which has come under my notice, and it is destitute of the peculiar odour of the typical plant.—W. H. G.

SHORT NOTES.—ORCHIDS.

Oncidium Jonesianum has been flowering for weeks past, and is still in bloom. There is an excellent variety of it at Kew. The raceme is strong and bears large flowers of excellent substance; the sepals and petals white, spotted with chestnut-brown, and the lip wholly white. When a good variety of it is obtained this is a lovely Orchid.

Cypripedium Spicerianum.—This gem amongst the Slipper Orchids is blooming in profusion in Mr. Laing's nursery at Forest Hill. Here, as elsewhere, I observe this season it appears to have come into flower much earlier than usual; indeed, in the summer months I saw this species flowering in several collections in France, so that this superb plant may yet become an all-round bloomer. I see that it enjoys a cool temperature when not growing.—W. H. G.

Cypripedium barbatum nanum.—This very fine form I recently noted flowering in Mr. James's nursery at West Norwood. As its name implies, the scape is dwarf, but yet sufficiently tall to carry its flowers well above the foliage; the blooms are large, the dorsal sepal being very broad and pure white, heavily streaked. It is a choice variety which should be sought for, as it affords very much more pleasure, and is no more costly to cultivate than an ordinary plant of the type.—W. H. G.

Aerides Southgatiæ.—This belongs to the A. Lawrenceæ section, and may, indeed, be called a gigantic variety of that species with wonderful colour. It is fortunate that this plant did not come first and thus become typical, or very few would have been possessors of the type. The plant in question formerly belonged to Mr. Southgate, of Selborne, Streatham, but at the dispersion of his collection of Orchids it passed into the hands of Mr. James, of Norwood, and is now in the collection of Mr. Measures at Streatham. The plant, which is unique, bears two spikes, each of which is upwards of 2½ feet in length, and bears some forty-two flowers upon each.

Odontoglossum nebulosum.—I have never held this plant in great estimation, but a beautiful variety recently noted has quite raised the value of the species in my esteem. It appears to have been first introduced to cultivation upwards of fifty years ago, but like so many of the earlier introduced Orchids from cold regions, it succumbed to the excessive heat to which all Orchids were subjected in this country. It is a Mexican species, and usually flowers in spring and early summer, and I was surprised to see it blooming with Mr. Tautz in October. The flowers in this variety are large, pure white, profusely spotted with a lively green at the base of the sepals and petals.—W. G.

Angræcum ichneumonense.—Several plants of this species are now in great beauty with Mr. James in his nursery at Norwood. It appears identical with that recently disposed of from the collection of Mr. Day, of Tottenham. The leaves are strap-shaped and acute, pale green in colour, and fleshy in texture. It is very profuse in flowering, but the spikes take nearly twelve months to attain maturity. The spikes are pendent, about 18 inches long, and thickly covered with small white flowers, the spur being much inflated, and sparkle like frosted glass. It is at once a curious and exceedingly interesting plant, which appears to thrive best in a shallow basket well exposed to the light. I believe it comes from the Comoro Islands.—G.

Rodriguezia secunda.—The Rodrigueziagenus is by some authors placed with the Burlingtonias, and R. secunda was recently blooming with its wonted freedom in the Kew collection. It is showy when in full bloom, though individually the deep rose-coloured flowers that sparkle, if caught in certain aspects, like frosted glass are comparatively insignificant. They are crowded on short scapes, that are from 6 inches to 8 inches long, and several specimens give welcome colour just now to the Orchid house. It does well on a block suspended from a rafter in a cool house, and commences to bloom now, continuing through the winter months. It is a native of Trinidad, and was introduced in 1820. Although generally known under the name given here, it is also synonymous with R. lanceolata and Pleurothallis coccinea.

Lælia pumila, L. Dayana and L. præstans.—These plants represent a distinct section in the genus, and the flowers are very beautiful and at this season of the year especially so. It is just half-a-century ago since the typical plant first flowered in this country, and for some years it was deemed difficult to manage. This trouble, however, I believe, came about through the same treatment which caused the loss of so many beautiful Orchids, viz., excessive fire-heat, for since the above-named plants have been subjected to cooler treatment the difficulty of their cultivation has vanished, and I have been quite surprised this season to see the quantities blooming in all the nurseries and private establishments round London. Judging by the quantity of flowers which have been sent me from the country, it is blooming equally well in the provinces. From Mr. Buchan, of Southampton, I have received a flower with the following query from his gardener, Mr. Osborne: Is this L. præstans or L. pumila? To this I may answer it is a very fine form of L. pumila, the flowers being 4½ inches across and very rich in colour. In Dayana the sepals and petals are darker, as also is the lip, saving the white disc; it is the first of the three to commence blooming. L. præstans has a very stout flower and the lip is trumpet-shaped and larger. A short-bulbed form was introduced some two years ago, from amongst which some wonderful varieties have appeared. These plants enjoy an abundant supply of light and air with moisture when growing, but they do not like much soil about their roots, and when at rest they may be kept quite cool, but they must not have the water supply entirely stopped. All three kinds are very desirable plants for autumn flowering.—W. H. G.

Cattleya Bowringiana.—An Orchid grower remarked to me a few days ago that one of the requirements now wanted was a Cattleya to come into flower in the beginning of October, and to my surprise when I called in the next day at the nurseries of Messrs. John Laing and Sons I found this species in full flower and in great beauty. This plant has some affinity with C. Skinneri, and the flowers, also somewhat similar and produced in quantities upon the raceme, are of a very deep rose-purple, the lip deeper coloured with a white throat. If this species proves to be an October bloomer it will be an extremely useful plant, but I think it is only blooming earlier than usual, like so many Orchids this season.—W. H. G.

Cymbidium giganteum.—Of this plant a specimen is now flowering in the Wilton House collection and bearing three strong spikes from one young bulb. It is a very fine form, the sepals and petals being tawny yellow, heavily striped with reddish brown; lip yellow, with a continuous intramarginal band of crimson and a central line of the same colour. Its fragrance and the length of time the flowers last in full beauty should recommend it to all lovers of this order of plants. It is an example of a neglected plant restored to favour. In my earlier Orchid days the plant known by this name was remarkable for the greenness of its flowers, and hence became a castaway. Further search by collectors has revealed the fact that we had originally become possessed of the very worst form of the plant, and this species and indeed the whole genus now stand high in popular favour.

Paphinia grandis.—This is perhaps the very largest and finest of the genus. It is a remarkable flower, measuring upwards of 7 inches across, and continues in a semi-expanded state about a fortnight; the sepals and petals are creamy white, the lower half thickly banded with chocolate, the apical portion being wholly chocolate, with a shade of purple. The lip, which is peculiar in shape, is blackish purple at the base, creamy white on the disc, the side lobes erect and of a chestnut-brown, the front lobe composed of a pair of large, spreading and recurved falcate teeth of a purplish black hue, terminating in a bunch of long, dense, cream-coloured hairs, whilst the green column is tipped with yellow. This is a Brazilian species of great beauty, and at present is of extreme rarity in cultivation. It is a native of warm parts of Brazil, and like the rest of the known species requires strong heat and moisture during its period of growth. Although from its small size a severe drying is injurious to it, yet a slightly drier treatment is beneficial to the plant during the winter months. This superb species I recently noted flowering in Mr. Williams' nursery at Holloway, where I have observed several members of this genus admirably managed growing in small baskets suspended near the roof in a warm house, in which, I believe, they are kept all the year round.—W. H. G.

Cattleya superba.—This magnificent old species that during the past few years has become more plentiful is just now in fine condition in Sir Trevor Lawrence's collection at Burford Lodge. This species grows at a very low elevation, and in consequently much warmer regions than the majority of Cattleyas, and if this matter receives due attention the plants grow more quickly and more vigorously. It also requires a decided period of rest, but care must be taken that the plants are not injured thereby. There are few Cattleyas to sur-

pass this beautiful species, but for want of the right treatment it has been reckoned a difficult plant to manage.—W. H. G.

CHRYSANTHEMUMS.

E. MOLYNEUX.

SEASONABLE NOTES.

The sharp frost which occurred on the nights of the 2nd and 3rd inst. will have injured any flowers that were expanding out of doors without protection, and should act as a warning to cultivators that the plants are not now safe outside without some protection. Indeed, many plants have been entirely crippled by the sudden severity of the weather. It is quite new in my experience to have frost so sharp at such an early date. It will be found that those plants which were grown for producing late blooms will have suffered the most. In cases where the flower-buds were not formed, as, for instance, Mrs. C. Carey and Guernsey Hero, these varieties carrying so much foliage and the growth at the points still being soft, they suffer at once by frost. In the case of any variety which had set the flower-buds the growths at the points and the leaves also quickly become hard and firm, thus rendering them not nearly so liable to injury by frost. Therefore most cultivators will not care to risk their plants outside any longer even with some protection.

When all the plants are placed in their allotted positions in the house, their appearance may be considerably improved by a little timely attention to spreading out the branches as much as possible, so that each bud gets its full amount of light and air. The tallest plants being arranged at the back and the dwarfest in front, they do not interfere with each other. All dead and decaying leaves should be picked off as fast as they appear. Any florets which show signs of damping should be removed at once, as they are liable to cause those nearest to damp also. The recent cold, damp weather having favoured the spread of mildew on the under side of the leaves, the usual means should at once be taken to prevent it spreading. Whatever watering is required should be done in the morning, so that the paths and floors of the house will have time to become dry before night. It is seldom that the plants will require water more than once a day, and in many cases not even this. The pots being placed closely together, air does not pass among them freely, neither does the sun shine on them; therefore the soil does not dry so quickly as when the plants are outside. In damp or foggy weather less air may be admitted, and the hot-water pipes should be warmed during the day, when air can be freely given to prevent the moisture becoming stagnant. During favourable weather air should be liberally admitted both night and day while the blooms are developing.

Any earwigs that may appear should be trapped with Broad Bean stems, cut into lengths of 2 feet, thrusting them in amongst the leaves of the plants, where the earwigs secrete themselves in the daytime. I find this length of stem more favourable to a good catch than the shorter 6-inch lengths, for the reason, I presume, that the larger pieces, being darker than the shorter ones, offer a better hiding place. The readiest means of dislodging them from the stems is to blow down one end of the stem, when they will run out at the opposite end. After dark they should be searched for with a light, when they may be caught feeding on the florets of the blooms. They quickly disfigure a flower if allowed to have uninterrupted liberty. They must be caught quickly. Nothing is better for this than a pair of tweezers. Upon the least shake of the plant they will secrete themselves among the petals of the flower and are not at all easy to discover again. Woodlice are in some places troublesome, as they eat the florets from the under-side of the flower. The damage is not always seen until the blooms are spoilt. Hand-picking is the only remedy, and where the woodlice are numerous this entails much labour, but it must be incessantly carried out. These insects are more numerous when the plants are standing in vineries or Peach houses where the borders have been mulched with manure, which when it becomes dry, as it does in the autumn, affords a fine harbour for woodlice. Slugs often disfigure the flowers by crawling over them, and in some cases they eat them. Where any trace of them is seen during the daytime they are almost sure to revisit this particular spot the next night. Lay on the top of the pot some bran, which will serve as a bait; in this manner they can be caught after dark.

Specimen plants will shortly need their final tying and staking of the branches. Thin stakes painted of a colour resembling the branches and leaves are the best. Secure the branches carefully to the stakes, leaving space for the peduncles to swell, as they thicken considerably at this stage. The plants should be arranged as near the glass as possible, so that the growths should not be drawn up weakly. Allow plenty of space between each plant, while an abundance of air should be given on all favourable occasions, so that the foliage may be preserved as fresh as possible.

Bush plants will need staking finally now that the buds are formed. Place a stake to each main stem of the taller growing varieties; those of a naturally dwarf kind will do if one stake be placed in the centre of the plant, and all the branches separately, yet loosely tied to it. If a few larger blooms upon each plant be required, take off all the buds except the centre one on each branch, but where a mass of flowers is preferred there should be no disbudding, and the stems will be clothed with flowers in abundance.

Dwarf cut-down plants intended for grouping will soon need staking. When the blooms commence to unfold their florets then is a good time to finally stake them into form. Thin wire stakes are better than those made of laths or Hazel rods, as they are less prominent, and for exhibition this is to be avoided. Another reason why wire supports are superior to the wooden ones is that sometimes one flower does not come into the right position; whereas if a wire support is used it can be bent into the form required to fit that part of the group at the time of arranging.

Chrysanthemum Leoni Lasalli.—This is a capital variety for producing an abundance of white flowers during the latter part of September and the commencement of October. This sort is what might be termed a semi-early variety. Its blooms, rather larger than those of the ordinary Pompon, are full and of rounded form; the centre petals show a faint green tint during expansion and change to snow-white when the flowers are fully expanded. The advantage of this variety is that heads of bloom can be cut with stalks 9 inches long loaded with flowers, thus rendering them suitable for the decoration of vases of any form. The best results are obtained by striking the cuttings in a cool house towards the end of December, growing them on with one stem only until the first natural break occurs, after that allowing all branches to grow away at will, neither thinning the shoots nor disbudding the flowers. In this way plants 3 feet to 4 feet high, smothered with blooms, will be obtained. Two plants in pots 10 inches in diameter succeed capitally. This is one of the few varieties that possesses a pleasing fragrance when the blooms are fully developed.—E. M.

NOTES ON CHRYSANTHEMUMS.

Many plants are at the present time in a backward state, owing to the breaks having been made so late that the buds which were depended upon for blooms are now so small that much fear is entertained by some growers that the flowers will not be ready by a certain date. Sulphate of ammonia applied frequently in a liquid state to the plants will much assist their growth. All those who contemplate using sulphate of ammonia should make certain that the plants to which it is to be given are well supplied with roots, or much injury will result from an injudicious use of this manure. It is much better to use it in a liquid state than that of laying it on the surface of the soil and afterwards watering it in. The roots next to the surface are almost sure to be killed by contact with the ammonia; this means a serious loss to the plant at a time when all roots obtainable are of such service in developing large richly-coloured flowers. To 1 gallon of water, to which has been added sufficient liquid manure to render it the colour of brown brandy, add half an ounce of sulphate of ammonia, thoroughly stirring to dissolve the ammonia, and with this mixture saturate the soil, repeating the dose twice a week. When the plants need water between the times of giving the sulphate, give doses of warm liquid manure and occasional doses of soot water.

When all the plants are housed and arranged in their proper quarters, much may be done to improve their appearance. When the plants are tall, space may be gained amongst the branches by what is called pegging out. Short pieces of stakes are cut square across and fixed from the inside of the pot to the stem of the plant; the branches can thus be made to lean outwards as required. If anyone who has not tried this plan will give it a trial he will be pleased with the results, both for the welfare of the plants and their improved appearance. More air is admitted to the plants than otherwise, which means a longer continuance of the foliage upon the plants than would be the case when the plants are so packed together that air cannot freely circulate amongst them. Those varieties which have weak peduncles will need support, or the increasing weight of the buds and flowers afterwards will often break the peduncles 2 inches or 3 inches below the bud. This is annoying, and might have been prevented by a little forethought. Small stakes cut from builders' laths into lengths of about 6 inches or 8 inches, according to the length of the peduncle, are the best, as they are more easily fastened to the plant than round ones. About 3 inches should be allowed below the junction, so that the support may be tied to the stem among the leaves. The point of the stake should fit underneath the bud, and with a single tie, not too tight to prevent the stalk from swelling, the bloom is made secure and any accident avoided in this way. Princess of Wales, Novelty, and Princess Beatrice are very liable to suffer in this way from weak peduncles. War needs to be still waged against earwigs, as they are still present in considerable numbers, although the recent frosts may have diminished them; nightly searchings for them with a light and trapping them during the daytime with bean stalks are still the only remedies.

Side or lateral growths are still being freely made on some plants, particularly those of the Queen type. Attend to the removal of these growths as fast as they are seen, because they weaken the plants and only tend to interfere with the foliage, preventing the admission of light and air.

Suckers are now pushing up freely from some sorts. Where any particular variety is required for extensive cultivation next season, the forwardest cuttings may be inserted singly in small pots, so as to allow more space for the smaller ones to develop later on.

Any sort of which the stock is plentiful should have the bulk of the suckers removed, or all of them will be rendered weak by crowding. Attention to these seemingly trifling details will be found to pay later on when the stock of plants is needed for next year's growth. As each variety and every plant of it develop their blooms, note should be taken that each one bears its proper name. Much confusion will be saved later on and possibly annoyance to others. Nothing is so annoying as that of growing carefully for eleven months plants which are supposed to be some particular kind and then to find them perhaps worthless.

Plants growing at the base of walls should have the branches finally secured to the wall. The flower-buds are swelling rapidly in some instances. A good soaking of water will be of much advantage to the future development of the flowers, as the recent dry weather combined with the hot sun tended to render the plants dry at the roots.

Specimen plants should be finally staked out now that the flower-buds are all formed and swelling. Stakes painted a light green are the most suitable, being the least conspicuous among the foliage. Some growers fix at the point of each stake a short piece of wire, and to this tie the bud. The object of this is that the shoots can more easily be bent where needed to fill up a gap. In any case early staking of the branches is desirable so that the leaves may right themselves before flowering time. Any plants that are backward should now be placed in the warmest part of the house, thus doing away with the necessity of hard firing later on. Timely attention to late plants will repay any outlay in this direction. The same remarks apply with regard to the final tying out of standard and pyramid-grown plants. E. M.

Chrysanthemum leaves curling. — Will strong manure water or too ripened wood cause Chrysanthemum leaves to curl up? This has occurred to mine during the last few days. The stimulant that was used consisted of about five gallons of cesspool water, which drains from a stable, &c, and was mixed with forty gallons of pure water. The plants were checked by an overdose of liquid manure about May. They picked up again after the final potting, but never filled the pots properly with roots. Will this check the blooms?—B. J. C.

*** It is difficult without seeing the plants to state as clearly as one would wish the exact cause of the leaves curling up so suddenly, as some sorts, for instance, the whole of the Queen family, also Cherub, are sometimes thus affected. From your letter I presume that in all cases your plants are affected. I do not know why your plants received stimulants so early as May, before they were even placed in their flowering pots. I fear you have not paid strict attention to the instructions given in The Garden, or you would not have fallen into the error of applying stimulants to plants before the pots in which the plants are to flower were full of roots. As long as plants have plenty of root room they cannot exhaust the soil; therefore do not require stimulants. The fact of your giving them a dose a short time since, knowing that the pots were not filled with roots, was a great mistake, and no doubt is the cause of the leaves curling. This you could ascertain by turning a plant out of its pot, choosing one most affected for inspection. Examine the roots, and if they are brown they are dead; if white and alive the cause is not from the stimulant. If the roots are killed the blooms must necessarily be affected, as good blooms cannot be produced from plants which have a scarcity of healthy roots. I am certain that the wood cannot be too ripe this season, unless great neglect has been practised in supplying the plants with water when needed. If the plants had plenty of roots at the time they received the last stimulant, the strength you describe could not have seriously hurt them. The cause is more likely to be found in the application of liquid manure to the plants when they were so sparsely supplied with roots after the final potting. I should advise you to examine the roots, and if they are burnt they will be of a brown colour. In that case shade the plants lightly from bright sun, watering them only when they really need it, and this with clean water only, being careful not to keep them in a soddened state.—E. Molyneux.

Chrysanthemum Sam Henshaw.—Anyone requiring a large-flowered variety of the Japanese section to flower at the end of September and the beginning of October should try the above-named kind. It belongs to the broad-petalled section with incurved florets after the style of those of Comte de Germiny. Grown under the large bloom method of cultivation, strong plants will produce half a dozen blooms, each from 5 inches to 6 inches in diameter. The colour of the florets on the outer side is a pleasing shade of lilac, while the inner surface of the florets is purple-rose.—E. M.

Trees and Shrubs.

W. Goldring.

Flowering Trees and Shrubs.

(*Concluded.*)

Wistaria.—So beautiful and so popular a climber as the Wistaria needs no description nor praise. It is justly regarded as one of the loveliest of all hardy climbers, for what can rival it when wreathed in early summer with its abundant pendent purple clusters? The common Wistaria is W. sinensis, and is the finest of the few species in gardens. The typical form has pale purple flowers, but there is a pure white variety, and another with very long racemes named macrobotrys, which is of great beauty. The double variety (flore-pleno)—see illustration—has not been a great success in this country, it being pronounced as worthless, and little can be said, at present, in favour of the variegated-leaved variety introduced two or three years ago. Other eastern species of Wistaria in cultivation are W. multijuga, from Japan, which is in the way of its Chinese relative, W. sinensis, the flowers being pale purple, and borne in racemes of great length, often 2 feet or more. It is also known as W. grandiflora, and though it has been in cultivation for some years, is yet rare. Another Japanese species is W. japonica, described as a twining shrub, with racemes of white flowers; of this I have no personal knowledge beyond the specimens so labelled in the Kew arboretum, which show but little tendency to climb or twine, but make most graceful standard bushes. The North American species, the only Wistaria in the West, is W. frutescens, a very old garden favourite, and popularly called the American Kidney Bean Tree. In growth it is smaller than W. sinensis, has smaller foliage, but pinnated in the same way, and the flower racemes are both shorter and denser, the colour being a deep purple, but varying to white in the variety alba. It is a very hardy shrub, and may be grown as a standard in most parts of England, and as it flowers some time after the Chinese species, it has its value. It need scarcely be added that the Wistarias are invaluable wall climbers, and when they thrive well the branches will run for 60 feet or 80 feet. For arbours, trellises, pergolas, they are equally suitable, and in southern or mild localities they may be grown as standards on a lawn, an open trellis or frame-work only being required to support the branches. All good soils are suitable for Wistarias, but they prefer those that are light and warm, and the only attention they require is an annual pruning away of useless wood. A sunny spot should always be selected for them. On the Continent the Wistaria is generally known under the generic name, Glycine.

Xanthoceras sorbifolia.—A beautiful, but little known Chinese tree, introduced about twenty years ago. It is said to attain the size of a small tree, but the largest plants in English gardens are as yet mere shrubs. It seems to be perfectly hardy, but not a rapid grower. The leaves are elegant, being long, pinnate, and of a pale green. The flowers are said to be white, marked with red, and are borne in erect clusters terminating the shoots. The illustration of it recalls the flowers of the Horse Chestnut. It may prove a valuable flowering tree in the future. It is said to grow from 5 feet to 15 feet high. Most of the plants I have seen were growing against a wall, but in the Coombe Wood Nursery it is fully exposed in the open.



Xanthoceras sorbifolia.

Xanthorrhiza apiifolia (Yellow Root).—A North American shrub, growing about 2 feet high, and having divided foliage and clusters of small, dull, purple flowers. Of not much value as a flowering shrub, but when planted thickly makes a pretty undergrowth to large trees or shrubs not too dense.

Zauschneria californica (Californian Fuchsia).—Though really a shrub, this charming little plant is usually classed with herbaceous perennials. It is a slender plant, having wiry stems and whitish silky leaves. Its flowers are tubular, about 1½ inches long, bright red, reminding one of those of some of the Fuchsias. It flowers from midsummer to late autumn, and is an invaluable rock-garden plant. Being a native of California and Mexico, it is not one of the hardiest; therefore should be planted on light soils in an elevated, well-drained spot. Where it thrives it spreads very rapidly, and is difficult to eradicate. It is very easily propagated, and a reserve stock should be kept in a frame in case of the open-air plants being killed.

Zenobia speciosa.—One of the choicest and most beautiful shrubs in the Heath family and indispensable to every garden where the soil is at all suitable for it. It is a dense growing shrub, about a yard high when fully grown, and has small, roundish leaves of a pale green, but which in the variety pulverulenta, which is preferable to the type, are almost white, being covered with a mealy glaucescence. The flowers, white and wax-like, are in form like those of Lily of the Valley, and produced abundantly in loose drooping clusters in summer. A well-flowered specimen of the Zenobia, especially of the pulverulenta variety, is most charming, and it lasts some weeks in beauty. Where the soil is peaty or of a sandy loam this shrub will thrive. It prefers a damp root-run in mild districts, but it is advisable to have a well-drained soil as a rule, as then it is less liable to injury in winter. It comes from the Southern United States; therefore is not among the hardiest

shrubs. In nurseries it is known under the names of Andromeda cassiniæfolia and A. speciosa, and the variety pulverulenta as A. dealbata and A. pulverulenta.

Magnolia Soulangeana in bloom.—Until the sharp frost on October 3 we had a number of good blooms of this Magnolia; indeed quite a succession was kept up for nearly a month. So profusely did a specimen here flower, that if it could be induced to behave every year in this manner, it would indeed rank high among autumn-flowering trees and shrubs, but its behaviour this season is very different from that of any preceding year. It is probable that the peculiar summer we have experienced has had something to do with the autumn display of bloom, for it flowered last spring just as profusely as ever. Of allied kinds, M. purpurea bore two or three blooms, but I did not observe any at all on the Yulan (M. conspicua).—H. P.

Moving Evergreens in summer.—That it is practicable to transplant Evergreens during the hottest months of the year I have had ample proof. I have seen tall Bays, Conifers of various kinds, and Laurels transplanted in July do well. The weather was not like what we had this year in that month, but just the reverse. It is needless to say that all the trees were well watered in and they were not allowed to become dry afterwards, being also well sprinkled twice a day. Some of them were put on a sloping bank, but they did as well as the rest. As regards Conifers, I am inclined to think that August is the best month in the year to transplant them if one wishes to make them absolutely safe. The warmth in the soil and the higher temperature cause the quick formation of a quantity of fibres that make several inches of growth before winter sets in. A tree thus provided is nearly, if not quite, as well able to withstand frosty winds as one that has not been moved. Planting at that time, of course, necessitates attention in watering for a time, but if the middle of August is chosen not for long, as September soon brings good rains, one or two nights of which render the plants safe. In some parts of the Continent the custom of transplanting Conifers and other Evergreens in August prevails, for the reason that the climate being so trying for hardy exotics generally, it is absolutely necessary that they get good root-hold before winter sets in. Each tree on being taken up has its roots enveloped in wet litter. The water-cart attends and a thorough watering is given, a couple of inches of dry earth serving as a mulch. In a general way no more water is given; the trees take their chance, some dying if the season happens to be very hot, but never enough to make the operation risky. It is not likely nor perhaps advisable that much tree planting be done in the summer in this country, but I have known instances where it would gladly have been done to a certain extent but for fear of failure, and as "J. C. C." has referred to this subject in connection with a wet summer, I thought it not amiss to give my experience of the work in dry seasons. —J. Cornhill.



The double-flowered Wistaria.



Zenobia speciosa.

THE LARGE-SPIKED BUCK-EYE.

(PAVIA MACROSTACHYA.)

During the latter half of August and the beginning of September this is the most ornamental occupant of our shrubberies. Though beautiful in foliage and flower, this easily managed and perfectly hardy small growing tree is far too seldom seen in woodlands and on lawns, and it might well take the place of many a less favoured subject. The tufts of Aralia-like leafage are produced at the tips of the branches, rarely along the stems. The spikes of white flowers are borne in the richest profusion, and are rendered more conspicuous by the pinky tipped stamens. The contrast between the reddish leaf stems and the pure white flowers is distinct and attractive. This Buck-eye assumes the habit of a large and wide-growing shrub, though occasionally it attains to 20 feet in height, but always with a branch-spread disproportionate to its length. Nowhere, perhaps, does this Pavia look better than when planted close to a big specimen of the common Rhododendron. If the branches of both run together they are wonderfully harmonious, especially when the pinky white flowers rise just above the dark glossy foliage of the Rhododendron.

I fancy that a warm gravelly soil is most congenial to the growth of Pavia macrostachya, but it must have an abundance of moisture. All our

largest specimens at Holwood are growing where there is abundant moisture at the roots.

In stiff clayey loam in the pinetum here there is a noble specimen of this tree, its flat, Cedar-like head rising 16 feet from the ground, while the far-spreading branches cover a space of 31 feet in diameter. This Pavia may be increased readily from layers, for if the outer branches are pegged down or even covered with a spadeful of stiffish loam, they root freely enough and soon produce stout stocky plants. Suckers, too, are freely sent up.

I strongly advise those who wish their shrubberies to look bright and gay in autumn to plant the above tree freely, and by choosing damp soils and sheltered sunny situations the plants will soon become well established and give no further trouble. This Pavia bears pruning with impunity; therefore the plants can be kept to almost any size.

Two or three other kinds of Pavia are perfectly hardy in this country, and amongst them special note may be made of the big Buck-eye (P. flava), the flowers of which are yellow, but not so showy as those of P. macrostachya. The brownish red flowers of P. rubra are interesting and also beautiful. A. D. Webster.

NOTES FROM THE ARNOLD ARBORETUM.

Cornus paniculata (the Panicled Cornel), a tall, spreading shrub, often 10 feet or 12 feet high, with cymes or panicles of pure white flowers, which are produced in the greatest profusion, and quite cover the plant at this season. The handsome fruit is white. This is a very common and widely distributed northern plant found along the borders of streams and abounding on the margins of low-land woods and thickets. No shrub is more easily cultivated, and none is better suited to grace a park plantation in the Northern States. Cornus stolonifera (the Red Osier), with its bright red-purple, annual shoots and long, pale foliage, is a useful plant for general planting. The flowers are pale yellow, produced in small, flat cymes, and have the merit of appearing later than those of most of the Dogwoods. The fruit is whitish or lead colour. It is a very common northern shrub, found in the wet borders of swamps and in low woods. The habit of this plant of spreading by prostrate or subterranean shoots, and thus quickly forming broad clumps, which sometimes reach a height of 6 feet, makes it a useful plant for covering rapidly the ground among trees or larger growing shrubs, while its brilliantly coloured branches add interest and variety to a plantation in winter. But by far the handsomest native shrub now in flower is the common Elder (Sambucus canadensis). It is such a familiar object in every northern landscape that few persons realise that the Elder possesses all the qualifications of an ornamental plant of the very first class—hardiness, vigorous and rapid growth, good habit, pleasing foliage, handsome and conspicuous fragrant flowers, opening at a time when nearly all trees and shrubs have passed the blooming period, and fruit even handsomer and more conspicuous than the flowers which precede it. Few plants are better worth growing in a large garden or park, and yet, with the exception of the ugly yellow-leaved variety, it is seldom cultivated; and most gardeners of the modern school would consider it a weed to be exterminated if by chance it should spring up along fence lines, where birds often sow it, and where, if the ground is moist, it soon forms splendid masses of shrubbery. There is a form with deeply cut leaves which will interest persons fond of novelties, or of plants of peculiar or abnormal growth.

The very latest of the Thorns to bloom here is an American species, the so-called Washington Thorn (Cratægus cordata), now in full flower. It is a handsome small tree, sometimes 25 feet high, and perfectly hardy here, although it is a southern plant, not found growing spontaneously north of Virginia and Kentucky. In the mountainous parts of these States and of those further south it is a common inhabitant of rich woods. It bears small, but very showy, bright scarlet fruit, which hangs until the early winter. The autumnal colouring of the foliage, which does not change until very late, is brilliant and beautiful. Cratægus cordata is one of the most distinct of the American Thorns, and one of the best small trees which can be planted in northern gardens and shrubberies. It blooms only a few days later than Cratægus tomentosa, an Alleghanian and western species, which must not be confounded with some of the pubescent forms of C. coccinea, to which many recent writers upon American botany have improperly referred this Linnean species, which does not occur in the Northern and Eastern States of Western New York. C. tomentosa may be readily distinguished from any of the forms of C. coccinea, not only by the fact that it flowers many weeks later, but by the pale grey branches, almost entirely destitute of thorns, by its thicker and more pubescent leaves, without glands, gradually contracted into a stout margined petiole, and densely pubescent on the under side, as are the calyx and stems of the inflorescence. It may be distinguished, too, from forms of C. coccinea by its broader and looser corymbs, and by the extremely disagreeable odour of the flowers, and by the smaller, oblong, upright fruit, which does not ripen until long after that of C. coccinea has fallen to the ground. C. tomentosa is perfectly hardy, making in cultivation a small, handsome tree, with spreading branches and rather a flat top. The orange tints which its leaves assume in late autumn are attractive.

It is hopeless to undertake to unravel the confused synonomy of the multitude of garden forms of Philadelphus, or even to refer them to wild types, so mixed has been the blood of the different species through years of cultivation, and so unstable are many of the characters depended on to separate the different species. It is well to record, however, that the earliest to flower in the collection, by ten or twelve days, is the Manchurian and Japanese plant known as P. Schrenki, and now considered by Maximowicz as one of the varieties (var. Satsumi) of the very variable and widely distributed P. coronarius, the common Syringa of gardens. By far the handsomest of the early flowering Syringas in the collection, however, is that known in gardens as P. speciosus. It is a tall, erect growing plant, covered with large, pure white flowers, and evidently a hybrid or a variety of the American P. grandiflorus.

One of the most beautiful of our native Roses now in bloom is Rosa nitida. It is rather a rare plant, found from Newfoundland to Eastern Massachusetts, and although distinguished and described long ago and even introduced into Europe early in the century, it has been but little known in this country, and has, until quite recently, been confounded with other species. It is one of the most distinct, nevertheless, of the American Roses, and may be known always by the red shoots, thickly beset with slender red spines, barely stouter than the red prickles. The leaves are bright green and shining, and make a charming contrast with the bright, rose-coloured or red flowers, 1½ inches to 2½ inches across. Rosa nitida inhabits damp swamps and other low, wet places, but transferred to the garden, like most of our native Roses, it grows freely, soon making a broad mass of foliage and flowering with the greatest profusion. There are few shrubs better worth a place in the garden.—*Garden and Forest.*

Clethra alnifolia.—Intending planters of this charming shrub should be careful what sort of soil is used for the plant to grow in. It will not succeed in soil largely composed of chalk; neither will it thrive in soil which is of a heavy retentive nature. The plants refuse to grow at all in soil of the latter class and quickly assume a pale sickly colour in the leaves. Peat soil, to which is added some decayed leaves, suits it best.—E. M.

Hedera Rægneriana.—For covering bare walls quickly in any position this Ivy is one of the best. It generally assumes a deep green colour, and the larger the leaves the more effective is its appearance. In one season growths 3 feet long will be made, when the point of each shoot should be pinched out, thus causing numerous side branches to start from the axils of the leaves. In this manner the wall is quickly covered. This Ivy, like all other wall climbers, enjoys copious supplies of water to the roots, also thorough drenchings over the leaves after a hot day.—E.

Late-flowered Spiræas.—In The Garden (p. 304) there is a note taken from the American *Garden and Forest* in which Spiræa tomentosa is spoken of as the last of the Spiræas to flower, but in this country I should be inclined to give S. callosa alba as the latest blooming of them all, for there are several heads of flowers on it yet to expand. Without being particularly sheltered, though not far from London, I have had in past years blooms up to November. It is a dense, compact growing bush, differing in many particulars from the typical S. callosa, so much so indeed that it would seem to be a different species.—H. P.

THE FIELD MAPLE.

(ACER CAMPESTRE.)

This may be regarded as the only truly indigenous Maple in England, but it is not supposed to be a native of Scotland nor Ireland. Kent and some others of the southern English counties, particularly in chalk or limestone districts, may be considered as the headquarters of this handsome, small-foliaged tree, and where, unless under peculiarly favourable circumstances, it rarely attains to much more than shrub size, or from 8 feet to nearly 20 feet in height. Occasionally, however, one meets in with goodly-sized specimens, that is when allowed plenty of room for perfect development and growing in rich, partially drained land, trees of 40 feet in height and girthing from 8 feet to 12 feet in size of bole, but such are more the exception than the rule.

As an under shrub it is usually seen in our Kentish woods and copses, and enters rather largely into the materials for crate and hurdle making, the wood being of fairly good quality, not too brittle, and when matured of a lasting nature, at least as compared with that of other trees when grown under similar conditions and for like purposes.

The timber of large trees is occasionally of great value, but that is when it has the much-sought-after "bird's-eye" grain, and this is not by any means common even in trees of large proportions.

As an ornamental tree or big-growing shrub the Field Maple is unquestionably a neglected subject, for rarely indeed do we find it planted, the majority of specimens being such as have sprung up naturally in our copses and hedges, and where they cannot and do not receive that amount of attention that their merits as ornamental trees entitle them to. Few trees, native or foreign, amongst our perfectly hardy species can vie in point of beauty of leaf structure with this particular Maple, while it is not every one that retires to rest during the first weeks of winter with the same russety coat. The leaves during spring and summer are of a desirable rich bronzy hue, which as the winter gradually steals on become of the most glorious yellow imaginable. Then they lie so closely together on the twigs and branches that they present a surface, particularly when the trees are incorporated with others in our hedgerows and subjected to an occasional pruning, as neat and compact as a bank of Ivy.

Few persons have any idea of how well suited for hedge formation the Field Maple is, for when kept in bounds by a bi-annual trimming, the fence procured is as neat and dense as that of our best form of Privet. Not for one moment do I wish it to be understood that this Maple is at all suited—at least, when used alone—for farm purposes, it being hardly sufficiently resisting in its nature to turn back a herd of cattle. Many a Kentish hedge, however, and to which farm stock generally have access, is formed largely of this Maple, intermixed at close intervals with other and better known fence plants. Let me advise anyone who wants a neat garden fence of moderate proportions to give this neglected wilding a trial, not alone, but with Quicks and Privets, and the results obtained will be far from disappointing.

But few soils would seem to come amiss to this Maple. Generally speaking, however, it seems to prefer that of a calcareous nature, and

grows to perfection where but a few inches of soil overtop the chalk. In such soils, too, it is reproduced very freely, which shows that under such conditions it must be quite at home.

A. D. Webster.

Stove and Greenhouse.

FORCING LILY OF THE VALLEY.

The Lily of the Valley is such a general favourite that various means are resorted to in order to lengthen its period of blooming, and so readily is it forced that good blooms may be obtained even before Christmas, provided the necessary appliances are at hand and suitable treatment given. The most important item of all, however, is the condition of the crowns themselves, as for early forcing it is absolutely necessary that they be thoroughly well ripened, otherwise failure is certain. Enormous numbers of Lily of the Valley roots are imported every year for forcing, and they consist of two totally distinct kinds, viz, a large shallow-flowered variety principally sent from Germany in the shape of single crowns, and a form with the blooms more contracted at the mouth, which is largely grown in Holland and imported in the shape of masses or clumps. Now, where Lilies are largely grown for flowering, the single eyes are mostly used for the earlier batches, and as the season progresses, the clumps are employed for the later crops. The reason of this is that the single eyes coming generally from Germany are ripened off earlier than those grown in Holland, while as the new year progresses and the sun gains strength, these last are preferable, as they do not flag so easily as the others. Where flowers are required by Christmas, the crowns should be potted as soon as received, which generally will be about the early part of November, as if they then start freely, there will be plenty of time to have them in bloom before Christmas. For forcing, it matters little whether they are potted or put into pots, pans, or boxes, but in a general way pots are more convenient. In the directions for forcing Lily of the Valley one often reads that a certain soil is necessary to their well-doing, but as they do not root at all before flowering, it really matters little, provided it be moderately fine, in order to be more conveniently worked in among the crowns. About twenty crowns in a pot 5 inches in diameter will be sufficient for the purpose, and in potting, the crowns should, as far as possible, be placed at an equal distance from each other, and at such a depth that the top of the crown is just above the surface of the soil. When potted, a good watering must be given, sufficient, in fact, to moisten the whole of the soil, and the pots may then be placed for a few days in a structure that is maintained at a temperature of not less than 60°. After remaining there two or three days they must be plunged in a steady bottom-heat of 80° to 85°, and the crowns covered up sufficiently to exclude the light and to keep them moist. One of the best of all places for forcing the Lily of the Valley is a propagating case in the stove, and, as a rule, it will be but little needed just at the time it is so useful for forcing. If the plunging material therein is Cocoa-nut refuse, a very good plan is to plunge the pots up to the rim and then cover the crowns with about an inch of the refuse. When this is done another good watering through a fine rose must be given, as it is essential to keep everything moist; indeed, the soil in the pots should not be allowed to be dry from the time the crowns are potted till they flower. The lights of the propagating case should be shut close, with the exception of an hour or so each day, till the buds are just on the point of opening, for in the earliest forced specimens the spikes are apt to come somewhat stunted, and the lights help to draw them up, which is an advantage. Though the lights are removed directly the first blossoms expand, the pots should not be disturbed in any way, as they must be allowed to remain plunged till the plants are in full flower, when removal to a lower temperature (but at the same time free from draughts) will tend to prolong their period of blooming. Where a succession has to be maintained weekly or fortnightly batches should be introduced into the forcing house, as it is far better to have the flowers in a fresh state than to keep them after they are fully expanded. In the case of the clumps, which, as a rule, are not forced till later in the season, all that is then necessary is to pot them in whatever size pots are suitable for them, and introduce them into heat as required. The same precaution must be observed in the case of these against letting them get too dry. Crowns that come into bloom in December, as a rule, throw up but few leaves, and as the foliage from the clumps is better than that from the single crowns, it is sometimes policy to introduce a few clumps into the forcing house, if only to supply some leaves. Though nearly all the Lily of the Valley forced in this country comes from abroad, there is no reason why this should be, for English grown roots flower equally well with the foreign ones, as may be seen in the case of one or two of our cultivators who make a speciality of them. To grow good single crowns they must not be allowed to form a tangled mass and simply starve each other, but should be planted in rows and liberally treated. The soil must be of a good loamy nature, but open in texture, while a moderate dressing of manure should be well incorporated with it before the roots are planted. The spot must be fairly moist, but at the same time in no way water-logged. Though the Lily of the Valley will do well in the shade, those required for early forcing should be grown in a sunny spot, as they are then ripened off earlier than if they were in a shaded position. H. P.

Tropæolum Hermine Grashoff.—A coloured plate of this beautiful double-flowered Tropæolum was given in The Garden for Oct. 15, 1881, and though at that time but little known, it rapidly advanced in favour, and promises now to maintain its position for some time. Among other purposes for which it is suited is that of growing in pots for the winter and autumn decoration of the greenhouse, where under favourable conditions it will flower for months together. For this purpose the cuttings may be struck at any time during the spring or summer, and the plants shifted on as required. In addition to the above-mentioned variety, which has blossoms of a bright scarlet, there is another double-flowered kind with yellow blossoms, which forms a very desirable companion to the other. Besides these, some of the climbing Tropæolums, such as the variety Ball of Fire, if trained up a rafter or two in a warm structure, will yield a supply of bloom throughout the winter.—T.

Lilium Harrisi.—This variety of L. longiflorum has been the means of considerably lengthening the Lily season, for it may be forced into bloom earlier than any of the others, and the second crop, which is borne from August onward, extends the blooming season till within a couple of months of Christmas. The only other Lily that blooms at so late a period as L. Harrisi is the Himalayan L. neilgherrense, which will produce an occasional blossom till nearly the end of the year, but the Neilgherry Lily is very difficult to cultivate, while L. Harrisi both grows and increases rapidly. Where this Lily is grown in pots and flowered during the early part of the summer, they should (if autumn blooms are desired) after blooming be as carefully attended to in the matter of watering, &c., as before. Then when fresh stems appear at the base of the old one, it (the old stem) should be cut down nearly to the soil and the young growth encouraged as far as possible. Even then the second crop will be much weaker than the first, but still a few blooms of the tube-flowered Lily are especially valuable about the month of October, and at this season they retain their freshness much longer than is the case when they bloom about midsummer. Where bulbs of L. Harrisi are required for early flowering they should be potted without delay, though in the case of those wanted later on the potting of them may be put off yet a little longer if the buds are still dormant. When potted those that are intended for blooming as early as possible should be placed in a greenhouse, and when well above ground, say about Christmas, a little additional heat will be of service. L. Harrisi is of American origin, and every year immense numbers of it are imported into this country from the States.—H. P.

GREENHOUSE PLANTS IN AUTUMN.

Although a good many hard-wooded greenhouse plants are benefited by being placed in the open air for a few weeks in summer, it does them harm when they are left out too long. Early autumn frosts and drenching rains do them a considerable amount of injury. It is impossible to mention any particular time when the plants should be taken under cover, as much depends upon the weather. Generally the middle of September is the latest time that they should be exposed in the open air. If the weather is stormy the plants will be better under cover, or there is a danger of the soil becoming so saturated with moisture as to be injurious to the health of the plants. Those that have been recently potted will suffer greatly. Such delicately rooted plants as Heaths and Epacris should have the first attention, because in an average season the weather is so unsettled that it is not safe to leave them out of doors after the end of August. The next to have attention should be the Chorozemas, Correas, Croweas, Eriostemons, Mitrarias, and Pimeleas. These are delicate-rooted plants, and the young growth is tender, and any excess of moisture to the roots, or exposure of the young growth to a low temperature, may end disastrously. Azaleas suffer more from a low temperature than many people think. I know of a good collection of well-grown specimen plants that had nearly all their flower buds killed by frost on Sept. 13, 1886; yet it is not unusual to find collections of greenhouse plants in the open air after that date. When they are obliged to remain out, it is desirable to have some protection ready at hand to afford the needful shelter. A covering of tiffany or canvas would be sufficient to protect them from slight frost. Coronillas, Genistas, and Habrothamnus are perhaps the hardiest of greenhouse plants that are usually placed in the open air, but it is not good practice to expose even these too long. Seeing that the plants have been continually exposed to the air for some weeks, when taken indoors the house should not be closed for a time. For the first week at least the whole of the ventilators should be left open night and day. After that time, the amount of air given must be gradually reduced until the usual routine of the winter treatment is arrived at. Owing to the peculiarly exceptional season, with its absence of sunshine and moisture-laden atmosphere, the condition of greenhouse plants that have been exposed is unsatisfactory. They have made less growth, and it is not so well ripened as it should be. The question of housing them earlier than usual, in view of a continuation of the same weather, is therefore an important one, demanding attention by those who have choice plants under their charge. By a judicious course of treatment, much may be done to harden and mature the growth, which is now more succulent than is desirable. Looking at the present condition of the plants and the advanced stage of the summer, there cannot be a doubt that the present time is not too early to get the stock under cover.—*Field.*

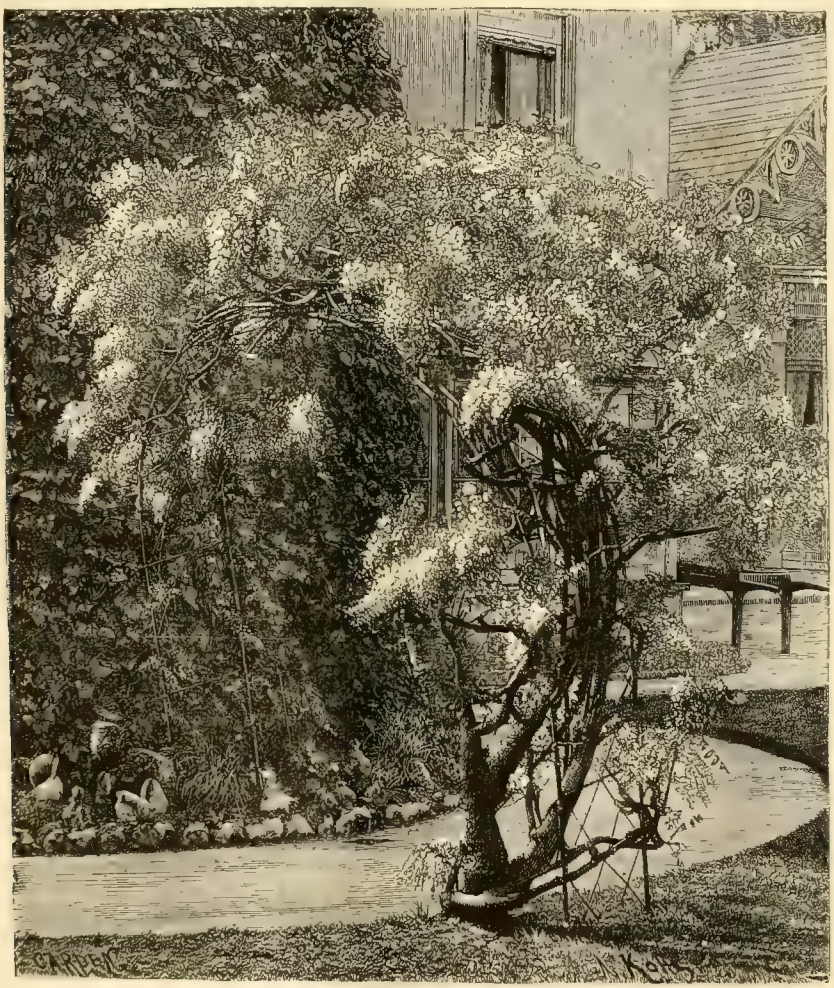
Tydæas in bloom.—The blossoms of these beautiful, but quaintly marked gesneraceous plants always attract attention at whatever season they are produced; but at no time are they more valuable than during the autumn months, and it is by no means a difficult matter to have them in bloom at that time. To ensure this, the cuttings should be put in or the seed sown early in spring, and the young plants encouraged to grow freely. At the same time they must be kept as cool as possible, and during the summer an ordinary garden frame will suit them. The result of this will be that by August the plants are just in a condition to flower if given additional heat, so that they may be gradually shifted into the temperature of an intermediate house or cool end of the stove, when the blooms

will rapidly open and a display be maintained for some time. As they are rather shallow rooting plants, good drainage must be ensured when potting the Tydæas.—T.

WORK IN PLANT HOUSES.

Greenhouse.—Herbaceous Calceolarias.—Herbaceous Calceolarias that have been raised from seed sown in August will now be large enough for pricking off. They may either be put at once singly into small pots or shallow boxes and allowed to get larger before being potted. By putting them into boxes for a time the plants will grow faster than in pots, and they will require less attention in watering. If boxes are used the soil must be free and open, so that when the plants require potting they can be lifted without injuring the roots. If, however, the material is heavy, the roots cannot be got away from it without being injured. The loam should either be sifted or broken finely by hand, and leaf-mould added according to the nature of the loam. Some rotten manure also passed through a half-inch sieve with sand should likewise be mixed with it. Drain the boxes sufficiently and press the soil slightly down. Put the plants in about 2½ inches apart, and give enough water to settle the soil about the roots. A low pit that stands in a light position, with the means of turning on the heat necessary to exclude frost, is better for the plants through the winter than an ordinary greenhouse. In the former they will be nearer the glass, which is requisite to have this section of Calceolarias in good condition, as if they are at all drawn it spoils them. If the plants are at once put into pots and wintered in a greenhouse they should be stood on a front stage or a shelf over the path, with some moisture-holding material for the pots to be on, as Calceolarias do not like anything approaching a dry atmosphere. It is necessary to see that the plants are quite free from aphides, which if present will soon destroy the bottom leaves, after the loss of which their appearance is spoilt. When these troublesome insects appear, it is best to dip the plants whilst they are small, as the leaves under which the aphides take shelter lie so close to the soil that to reach them it often requires the fumigation to be more severe than the foliage will bear.

Shrubby Calceolarias.—The flowers of the shrubby sorts of Calceolaria are not so showy as those of the herbaceous varieties, and there is much less variety of colour amongst them; but the shrubby kinds, however, bloom so continuously, that this makes up for their shortcomings in the individual flowers. The yellow-flowered sorts, especially when well managed, are among the best of soft-wooded subjects for greenhouse decoration. Cuttings should now be put in; they do best in a cold frame with enough covering to keep them from being frozen. Put them in light sandy soil, so that when they require potting off they can be taken up with their roots entire. Give enough water to moisten the soil fairly, and do not admit so much air as to cause the cuttings to flag. Old examples of the yellow shrubby varieties make a much finer display than younger stock, and with ordinary attention they will keep on thriving and blooming profusely for a number of years. Plants that have been flowering during the season should now be cut back freely, after which all they require is to be stood where they will get a fair amount of light in a greenhouse or pit, where, with enough water to keep the soil fairly moist, they will make fresh growth through the winter. Early in spring the plants should be turned out of the pots and have a portion of the old soil shaken away, giving them pots 2 inches or 3 inches larger than those they have before occupied. By potting once a year in this way and keeping them free from aphides, they may be grown into dense bushes 2 feet or 2½ feet through. They will keep on flowering during the whole of the summer.



Wistaria sinensis on an archway. (See p. 372.)

Tuberous Begonias.—These are naturally such continuous bloomers that they will keep on producing flowers as long as any growth is made; but when the plants were started early in the year they usually get bare of leaves at the bottom, and look shabby by this time. When in this state it is better to withhold water so as to help them to go to rest. As soon as the tops die down the bulbs may be taken out of the soil and put away for the winter. They may be put in boxes and kept where they will be safe from frost. Before this the tubers should be kept quite dry. Plants that were started later in the spring and are yet in fair blooming condition may be kept going for some weeks longer.

Fuchsias.—Where there is a roomy conservatory to keep furnished, it is necessary to have a sufficient number of big flowering plants for the purpose. During the summer Fuchsias play an important part in keeping up the display. Young plants are preferable to old ones if, as advised, the cuttings are struck in summer and kept on growing during the autumn and winter in an intermediate temperature. Plants that were struck about July and are now in small pots should be moved into others some two or three sizes larger. Good turfy loam, with a little leaf-mould, some rotten manure, and sand mixed with it, is the best material to grow them in. The leading shoots may be pinched out, as during the dull season the plants do not branch so freely of their own accord as in the spring. Stand them through the winter where they will get all the light that is available. Syringe overhead once a day; it is necessary to do this, though red spider is not so active in winter. I have known Fuchsias that have been managed in this way get badly affected with the parasite. If possible the pots should be stood on some damp material. This will not only tend to keep the plants free from insects, but will materially assist their growth. Old Fuchsias that have been flowering through the summer and autumn should now be kept so far short of water as to cause them to partially shed their leaves, after which they may be cut close in. The side shoots may be shortened to three or four joints, and the leading stem reduced to half its length. They can then be put away for the winter out of the reach of frost. If they are to be kept in a dark place, the soil should be quite dry, so as to discourage all growth, but if a corner in a house or pit can be spared for them where they will have a moderate amount of light, the soil may be kept in a half moist state.

Stove.—Eucharis amazonica.—Plants of this Eucharis that have made good growth since they flowered may now be prepared for blooming early in the new year by keeping them comparatively dry at the roots for a few weeks, and subjecting them to less heat. From four to six weeks' treatment of this kind will usually suffice to induce them to bloom, when they are again given more heat and the roots well moistened. In some cases growers of this plant find a difficulty in getting it to flower freely, even when the course above advised is followed. It is not unlikely that when the plants refuse to produce flowers after undergoing a brief rest in the way described, the reduction in heat and moisture is made at a time when they are in full growth, that is when they have a number of young leaves that are only partially formed. When in this state it is scarcely to be expected that they will give a full crop of flowers. There is another method of getting Eucharis to bloom that I have never known fail when the plants are fairly strong and in good condition, and this is to turn them

out of the pots, shake all the soil away and repot in new material. When any difficulty has been experienced in getting them to flower and there happens to be a good stock of specimens, a few might be treated in this manner, but I should not recommend too many being subjected to this treatment at this time of the year, when there is naturally less disposition in most things to move freely after being disturbed. When large examples are treated in this way it is best to reduce their size, separating the largest bulbs from the smaller ones, and putting the whole into smaller pots. Another word of warning may not be out of place to those who have a healthy stock of E. amazonica, that is, to avoid adding to it by the introduction of plants either of the old kind or the newer sorts that have lately been introduced, Though the added plants may appear healthy and free from the mite, there is no certainty of their being so. To anyone who has a large demand for this favourite flower, it is a severe loss to have their stock affected with the disease, as it is wellnigh incurable, to say nothing about the trouble and vexation attending the attempt to get rid of the pest. It may not be generally known that Amaryllises are affected with the mite similarly to Eucharis; consequently, it is equally necessary to keep clear of affected plants of these bulbs.

Fibrous-rooted Begonias.—Many fine varieties of this section of Begonias that have appeared in recent years will flower almost continuously in winter as well as in summer so long as they have enough warmth to keep them growing. Amongst the best for winter blooming may be named Ascotensis, Carrieri, multiflora, undulata, Dreigi, nitida, and semperflorens. If a sufficient stock of any or all of these kinds was propagated in spring, and has since had the required attention, with enough pot room to keep the plants growing freely, and occasional stopping, they will now be nice specimens, and will afford quantities of flowers if kept in an intermediate temperature. The plants should be stood sufficiently near the glass to have the growth sturdy and short-jointed. T. B.

Books.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S NEW CATALOGUE.

If there were any necessity to produce evidence as to the vitality of the National Chrysanthemum Society or spirit of enterprise for which it has, not undeservedly, gained a reputation in the horticultural world, the contents of the schedule for the current year, and the revised edition of its official catalogue, recently published, would in themselves be conclusive. To anyone who has watched the increase of the ardour in Chrysanthemum culture during the past ten years it is a matter of no little surprise to find that so universal a favourite cannot boast of anything approaching the name of a literature. Beyond a score of unimportant pamphlets in which the authors, whose very names are almost forgotten, have been content to discourse upon a few simple cultural details, and that in the briefest manner possible, nothing has yet appeared worthy of the name of a book, unless we reserve and except the works of Mr. John Salter, Mr. Burbidge, and Mr. Molyneux. And this is all the more incomprehensible when it is remembered that at no period of its history has the Chrysanthemum been grown so extensively or with the same degree of excellence and success as now. The appearance therefore of any new claimant for public favour in the bibliographical part of the subject must consequently prove welcome to the Chrysanthemum growing community, and especially coming from such a source.

Upwards of seven months have elapsed since the National Chrysanthemum Society appointed a special committee to proceed with the compilation of a new edition of its catalogue. The work, judging by the length of time it has taken, has been great and probably tedious, and in the form in which it is now presented is not so much a revised edition of the old catalogue as it is an entirely remodelled work. The present issue is the third of its kind and an improvement on its predecessors in more ways than one.

Of the first little need be said. It was not received with that amount of satisfaction anticipated by its compilers, and was soon forgotten.

With the second issue of the society's catalogue, which was published about this time two years ago, the case was rather different. It was creditably prepared and tolerably accurate in most of its details, and although it was subjected to a lively and even acrimonious share of criticism in certain quarters, the time was not long before its good points become manifest, and there is little doubt but that it was as trustworthy a Chrysanthemum catalogue as had ever appeared up to the time of its publication.

What the present edition will achieve in the way of success, time, and those whose business it is to use it, alone can tell. But I do not hesitate to affirm that there is more than a remote probability of its becoming generally regarded as the standard of Chrysanthemum orthography and general information. And this good opinion is justified because the present production is not the result of the necessarily limited experience of a few, but is the joint work of a number of eminent Chrysanthemum specialists in every part of the country.

It would, of course, be impracticable to attempt to give the contents in an article like this. There are sixty-five pages of closely printed matter without reckoning the preface, in which is given an account of the procedure adopted in preparing the work for the press. Immediately following the preface it has very properly been deemed advisable to set forth the names of all those persons who have assisted in the work. A perusal of this list is a sufficient guarantee that so far as efficient aid was concerned no stone has been left unturned to secure it.

A concise sketch of the history of the Chrysanthemum comes next, and then we have the selected lists of the best exhibition varieties grouped in their several sections. The premier position is, of course, occupied by the incurved. There are eighty varieties fully described under this heading, and the chief characteristics of the section occupy a paragraph immediately preceding the list. The most noticeable fact in connection with the incurved flowers is the age of the leading varieties; they are nearly all of many years standing. The most modern are Bronze Queen, Perle Précieuse, Charles Gibson, Lord Eversley, and Mrs. Norman Davis. Without these and a few others distributed during the present decade the first section may be said to consist of flowers from twenty to thirty years old.

In section 2, which embraces the Japanese, the converse is forcibly demonstrated. The number is about the same as in the foregoing list, but it is made up chiefly of novelties. Nearly all the selected Japanese varieties are of so recent introduction, that it is questionable whether there is a score which were in general cultivation ten years ago. Indeed, so very apparent is the newness of some that I am disposed to think that the votes recorded in their favour must have been given not on the strength of the voter's experience, but from hearsay.

Five of Messrs. Laing's seedlings and nine of Messrs. Cannell's novelties have succeeded in finding a place. Duke of Berwick and Mr. Garnar, two new varieties of Délaux's, which scarcely had had time to get into the hands of the general body of cultivators, also appear in this list.

The experimental subdivision of those Japanese kinds henceforth to be classified as reflexed Japanese forms section 3. The varieties of this character are still admissible in the ordinary Japanese classes, but where they are specially stipulated for the names here given will be a useful guide. There is some likelihood that this section will require reconstruction before long, as if Elaine is to be the accepted type, some forms now enumerated must eventually be expunged.

Sections 4 and 5 contain the ordinary reflexed and the old-fashioned large Anemones respectively. The names in each list are mostly well known with just a few new comers.

The next division—Japanese Anemones—makes up section 6. Fourteen sorts are described. A few years ago it would have been a matter of extreme difficulty to have made up a board of twelve blooms in eight or nine varieties, and it is pleasing to see this modern race hitherto designated "hybrid" slowly increase in numbers. They are very quaint, and at present wanting in colour.

Pompons form section 7. Pompon Anemones section 8.

After each of the sections shorter select lists of good varieties are furnished in the order of merit determined by the number of votes, the best indication, as we are informed in the preface of their general value.

The concluding sections 9 and 10 are devoted to early and late flowering sorts, and these complete what may be termed the first part of the catalogue. Up to this point the mode of description is, name of the flower, raiser, date, synonym, colour, size, season, habit and occasionally origin. The kinds most suitable for growing as specimen plants are indicated by an asterisk, and throughout the lists numbers are consecutively attached to the names of the flowers, so that growers may number their tallies to correspond instead of writing the names. A convenience of this nature is too apparent to need justification.

From page 32 to the end is an alphabetical list of Chrysanthemums of all kinds, but in this the system adopted in describing them differs from the preceding. The names of the flowers, the section to which they belong, and brief indications of colour are here considered sufficient. At a rough computation there must be over 2000 varieties catalogued, inclusive of synonyms and cross references. It will be a convenient catalogue to consult in cases of rare or unknown sorts turning up. The revisers have only acted rightly in excluding any sorts which may be of doubtful or unknown classification, and it certainly is not necessary to apologise for excluding the new Chrysanthemums of the present year until they are known to be distinct.

Typographically, the work is executed in a neat and satisfactory manner, although it may be noticed that some of the accented vowels are of a different fount from the rest. Chrysanth.

Societies and Exhibitions.

CRYSTAL PALACE FRUIT SHOW.

Oct. 11 to 13.

Fruit is poor everywhere this season; it is under the average in size, badly coloured, rough, and often specked. Our reports, gathered from every part of these islands, told us this, and it was also evident at the Crystal Palace exhibition, held from Oct. 11 to 13. We missed the brilliantly-coloured and splendidly-developed fruits so marked in 1887; but though the Pears were, as a rule, wretchedly small and rough, amongst the larger kinds of kitchen Apples were some surprisingly fine specimens. It would be hard to eclipse the magnificent fruits of the variety Emperor Alexander put up by Messrs. G. Bunyard and Co., of Maidstone, even in the best of seasons. Such varieties as Peasgood's Nonsuch were also excellent for finish, size, and smoothness.

The first prize for the best exhibition of Apples was won by Mr. J. Cranston, King's Acre, Hereford. It was an excellent collection of fruits, especially of such kinds as Cox's Pomona; Tyler's Kernel, a fine, well-shaped, and handsome fruit resembling a conical Blenheim; Cornish Aromatic, Yorkshire Beauty, conspicuous for its beautiful flush of crimson; Red Astrachan, King of the Pippins, Jefferson's, Duchess of Oldenburg, Peasgood's Nonsuch, Kerry Pippin, and Irish Peach. Hereford Apples also carried off the second prize, Mr. John Watkins, Pomona Farm, Withington, coming second, though very little, if anything, in front of Messrs. G. Bunyard and Co. In Mr. Watkins' col-

lection were excellent fruits of Loddington, Sack, an Apple of exceedingly brilliant colour; Crimson Costard, a notable Herefordshire variety; Beauty of Kent, Lord Grosvenor, Worcester Pearmain, College Apple, fine for colour, but of its quality we cannot speak; Gravenstein, and Lord Derby. The best Apples from Maidstone were The Queen, an Apple that is coming more to the front; Emperor Alexander, already referred to; Schoolmaster, a medium sized, conical, and excellent kitchen sort; and Lady Sudeley, brilliant crimson and yellow. The best six Apples came from Mr. J. McKenzie, gardener to Mr. T. S. W. Cornwallis, Linton Park, Maidstone, amongst them being fruits of The Queen, Emperor Alexander, Jefferson's, and Gascoigne's Scarlet, an Apple that is poor this season, though famous last season for its lovely crimson colouring. A word of praise must also be said for Mr. A. Waterman's twenty-four Apples. Mr. C. J. Goldsmith showed the finest twelve.

Pears we can scarcely say a good word for. Some of the larger varieties, as Duchesse d'Angoulême, were of average merit, but the fruits had very little finish, colour, or size. Mr. James Butler, gardener to Mr. A. J. Thomas, Orchard Lane Gardens, Sittingbourne, had the best exhibition of Pears, and it is scarcely necessary to say that the fruits were far better than those generally shown. Mr. Butler is famous for his skill in Pear culture, and his fruits of Fondante d'Automne, Prevost, green, flushed with red; St. Michael Archange, a fruit of intense crimson colouring; Bishop's Thumb, Napoleon, Duchesse d'Orleans, Duchesse d'Angoulême, and Brockworth Park were remarkably good for the season. Messrs. J. Cheal and Sons, of Crawley, were second, and the best fruits exhibited were those of Beurré Hardy, Marie Louise d'Uccle, and Brown Beurré. Mr. C. J. Goldsmith had the finest twelve dishes of Pears, exhibiting in excellent character Pitmaston Duchess, Beurré Bachelier, Williams' Bon Chrétien, Doyenné Boussoch, Louise Bonne of Jersey, Beurré Superfin, and Durondeau. The well-flavoured and handsome Louise Bonne of Jersey was the best exhibit in Mr. W. H. Chisholm's collection of twelve dishes. In the classes for Pears and Apples especially there were many exhibitors, showing that the interest in exhibitions of this kind is as keen as ever.

An interesting class was for a collection of dessert fruit, the prizes being offered by the Veitch Memorial trustees, and here Mr. J. H. Goodacre, Elvaston Castle Gardens, Derby, showed his marked skill in fruit culture. The bunches of Gros Colman, Muscat of Alexandria, and Gros Maroc Grapes were faultless, and almost as much may be said for the other fruits. Mr. W. Pratt, gardener to the Marquis of Bath, Longleat, was second, showing good fruits of the Magnum Bonum Plum.

This is the finest season we have had for years for vegetables, and we naturally expected an excellent show, nor were we disappointed. The produce in the first prize exhibits was of splendid quality, especially the Brussels Sprouts and vegetables of similar character. We can scarcely see the usefulness in devoting three classes to Gourds. They are picturesque, sometimes ornamental, but more often exceedingly grotesque and ugly. One class, we should think, would be quite sufficient for things of very little utility.

The finest show of vegetables was made by Mr. A. Waterman, who had splendidly grown vegetables of all kinds; and in competition for the Turner Memorial prizes offered for twelve dishes, Mr. C. J. Waite was the most successful. For twelve dishes, Mr. W. Pope, gardener to the Earl of Carnarvon, Newbury, was first. Messrs. Sutton and Sons, of Reading, offered prizes for the best collection of vegetables, Mr. T. A. Beckett, Cole Hatch Farm, Amersham, winning the first prize, and Mr. C. J. Waite second. Special prizes were also offered by Mr. T. Laxton, of Bedford.

Miscellaneous exhibits were numerous, and comprised an excellent collection of Potatoes, including tubers of Stachys tuberifera from Messrs. Sutton and Sons, of Reading. Messrs. H. Cannell and Sons, Swanley, and J. Laing and Co. had double and single-flowered Begonias, and Messrs. J. Laing and Co. also showed a collection of fruits from trees grafted on the Paradise stock. Messrs. G. Bunyard and Co. exhibited splendid fruits of The Queen, Pott's Seedling, Schoolmaster, Grenadier, and other notable Apples. Bramley's Seedling, a variety well spoken of, was shown in its true character by Mr. H. Merryweather, Southwell. Mr. W. Taylor, Hampton, had excellent fruits of The Queen, Schoolmaster, and other varieties.

Conference.

On the first day of the fruit show a meeting was held to inaugurate the British Fruit Growers' Association, the outcome of the fruit conference held on September 8, the rules, &c., of which were published recently in The Garden. There was a good attendance, the chair being taken by Mr. Francis Rivers, who in the course of his remarks said: "One of the aims of the association would be to place pomology in the rank it should occupy as a science of high economic value, instead of being regarded as harmless and rather twaddling. Other objects of the society would be to invite discussion, to hear papers read, and to organise meetings in different parts of the country, in order that a special knowledge of pomology might be diffused as widely as possible, and intending planters furnished with information which would lead to success instead of failure." Mr. G. Bunyard, in moving the adoption of the scheme drawn up by the committee for the establishment of the association, referred to a statement lately published to the effect that nurserymen as a rule grew 99 "rogues" to one good fruit tree; this was absolutely false, and he said he could give several instances in which nurserymen, by persistently "hammering away," had induced people to grow finer varieties of fruit. A paper on "Profitable Fruit Farming" was read by Mr J. Wright, and also one on the "Practical Fruit Growers' Association" by Mr. D. Tallerman. About ninety members have so far been enrolled.

FRUIT CONFERENCE AT CHISWICK.

This is an age of conferences of all kinds. The greatest stir has been in the fruit world, and the keen enthusiasm displayed by growers throughout the country ought to bear useful results, as much practical information has been tendered on what ought to be a profitable and well-worked British industry. Readers of The Garden need not be told that our fruit culture is deplorably bad, as this has often been pointed out, and the lists of Apples and Pears that have been published and will be improved upon have been to assist in placing matters on a sound basis. Much has also been done by conferences, and the one now being held at Chiswick is one of the most successful of all. Those who have an interest in fruit will remember the great congress of 1883, when much useful work was accomplished in correcting the nomenclature, which we need scarcely add was then almost hopelessly confused. The present conference is based on similar lines, with the addition that papers are read by leading fruit growers, which was not the case in 1883. On this occasion also it has been the object of the committee not to secure the representation of every variety of Apples and Pears in cultivation, as at the last congress, but fruits that are considered thoroughly worthy of culture. Much of the nomenclature has been revised, so this exhibition will have a practical bearing upon fruit culture in this country. We have here the finest varieties, not an assortment of every kind, whether good or bad. The spacious conservatory, illustrated in The Garden of March 3, 1883, presents the same brilliant appearance as it did on that interesting occasion, and although the display does not exceed that of the first congress, yet there are thousands of dishes and about one hundred exhibitors. It would scarcely be credited that this is one of the poorest fruit seasons on record from a glance at this exhibition, but a closer inspection tells us that many of the fruits are under sized, specked and rough. But though there are bad examples, there are many surprisingly good dishes; so fair, fresh, and unspotted are some of the fruits, that we are inclined to regard them as samples grown under glass. If such is the case, this fact ought to be noted on the label, so as not to give the impression that they are from the open ground. In many instances the fruits are well labelled, the stock, quality of the variety and other particulars being given. This is an excellent method, and we wish all would adopt it, not only at a representative exhibition like this, but also at every show of the kind that is held.

The conference commenced on Tuesday, and was opened by Sir Trevor Lawrence. The main exhibition, comprising solely Apples, was in the conservatory, and here are very large collections from all parts of England. They are not arranged, as on the previous occasion, in counties, but in classes. One of the most useful is for twenty-four varieties best adapted to the exhibitor's district. It is noticeable in looking through the collections that the French Paradise stock is coming into greater use. No better example of its thorough usefulness could have been had than in the Royal Horticultural Gardens at Chiswick. The trees were over-weighted with fruit, and the quality of the productions can be judged of from the specimens exhibited. This dwarf stock has been frequently recommended in The Garden, and will, we feel sure, take precedence to a great extent over others.

The largest class for Apples is that for fifty varieties most worthy of culture, and there are about twenty-five exhibitors, comprising most of the leading fruit growers. In such a season as this it is interesting to note what varieties show up well, and these are, judging from the present exhibition, the large-fruited kitchen Apples of the Keswick Codlin type. The dessert varieties, with a few exceptions, are below the mark, though we could note a few instances that prove exceptions to a general rule. Mr. T. F. Rivers, of Sawbridgeworth, has a remarkably good display of clean fruits, and samples of the old Ribston Pippin, and the delicately flavoured Cox's Orange Pippin, that it would be hard to eclipse. There are also fruits of the American variety King of Tompkins County, an Apple as here presented of large size, brilliant colour, and exceedingly handsome. There is generally an absence of colour in the fruit this season—a natural result of a dull, miserable summer. But the Hereford Apples, and especially those of Mr. J. Watkins, are extremely well coloured, especially a dish of Crimson Costard variety, that does well in Hereford, and is said to possess sterling merits for the kitchen. It is large, smooth, conical, and strikingly handsome. The variety Emperor Alexander is conspicuous everywhere, but none are better than the remarkable specimens of Messrs. G. Bunyard, and as shown here we have the beauty of this lovely Apple in perfection. Excellent collections come from Messrs. J. Veitch, of Chelsea; Mr. W. G. Pragnell, The Gardens, Sherborne Castle, Dorset; R. Veitch, Exeter; Dickson's, of Chester; C. Turner, of Slough; Wm. Paul and Son, Waltham Cross; Paul and Son, Cheshunt; T. Bunyard, Ashford; J. Cheal, Crawley; H. Lane, Berkhampstead; Charles Lee, Hammersmith; and C. G. Slater, Exeter. The same varieties occur repeatedly as the best in the several collections. Cox's Pomona is generally of fair merit, so is the handsome Cellini, and also the delicious Fearn's Pippin. There are few bad dishes of Lord Suffield, but the fruits of Blenheim Orange, also those of Ribston Pippin, a variety that seems on the decline, are generally small. Peasgood's Nonsuch is exceedingly fine, though not so large as in 1883, when its size and beauty were so marked. Worcester Pearmain was naturally the brightest of all, as it seems to suffer little from an absence of sun, while Duchess of Oldenburg was, as a rule, surprisingly good. Such large-fruited kinds as Warner's King, Grenadier, Lane's Prince Albert, shown in exceedingly fine character by Messrs. H. Lane; Pott's Seedling, Flower of Kent, Gloria Mundi, Ecklinville Seedling, Golden Spire, Stone's, Manks Codlin, and Yorkshire Beauty were as fine as we have ever seen them, even in the best of seasons.

In the class for twenty-four varieties best adapted to the exhibitors' districts there were some ad-

mirable collections, the number of exhibits being about twenty-five. Several kinds included in THE GARDEN lists predominated, but there were many poor fruits which ought to be thrust out as worthless. There are many better Apples than some of those shown. Duchess of Oldenburg, Ecklinville Seedling, Worcester Pearmain, Golden Spire, Yorkshire Beauty, Stone's, Lord Suffield, and most of those enumerated above were included. There are some very fine fruits also in the class for six and twelve varieties of both cooking and dessert Apples, and practical information can be gleaned from the classes, in which the fruits shown must be from certain kinds of trees as cordons, &c. A most interesting class is for new, recently introduced, or little known varieties of merit, and here we can single out some Apples that will be the varieties of the future. Such a dessert Apple as Lady Sudeley is coming to the front. Bismarck, an excellent cooking variety, is an acquisition, and the many fine samples of the Schoolmaster variety show this to be an Apple that we ought to know more of; Pott's Seedling, a yellow, conical and excellent cooking kind, and The Queen, are also worthy of mention, especially the last of the two, which is as handsome and smooth as Peasgood's Nonsuch, the fruits of Messrs. Saltmarsh, Chelmsford, showing brilliant colouring. Domino, yellow, spotted with grey russet; Lord Grosvenor, a handsome Apple of the character of Lord Suffield; Sandringham, a fairly well-known variety, with a smooth skin and regular shape, well suited for the kitchen; Tyler's Kernel, excellent everywhere; Bramley's Seedling, King of Tomkins County, and Niton House also deserve recognition. The last of this list is a medium-sized fruit, deep green flushed with red. The great Somerset Apple, Tom Putt, was shown fairly well; and a variety that is of great beauty is Councillor or Red Hawthornden, which is as beautiful as Yorkshire Beauty in its flush of crimson. Of the quality of the foregoing we are not prepared to speak, but their appearance justifies giving them a thorough trial, as a few of them seem to be constant in different counties.

The Scotch Apples are not equal to those from English counties, nor can this be expected. Messrs. Dicksons, of Edinburgh, show a small and fairly satisfactory collection, in which the best fruits are those of Hawthornden, Lord Suffield, Stirling Castle, Ecklinville, Worcester Pearmain, Old English Codlin, and Twenty Ounce. Those from Mr. Dunn, of Dalkeith Gardens, are finer, and include many of those enumerated above, besides such sterling kinds as Lord Nelson, Dutch Codlin, Yorkshire Greening, and Pott's Seedling. Mr. McDonald, of Perth, also exhibits an interesting collection, in which Peasgood's Nonsuch, Cox's Orange Pippin, Lady Henniker, and Blenheim Pippin stand out well. The exhibits of Messrs. W. Drummond and Sons, of Stirling, N.B, comprise Scotch Apples of local repute, as the Dunmore, Cardross Green, and Ochiltree. Mr. J. Day, Galloway House, Garlieston, N.B, has also sent Apples.

The Pears naturally occupy less space than the Apples, and are shown in two tents. The classes are much the same as in the case of the Apples, and are fairly well filled, especially that for thirty-six varieties. As there are not Pears of every kind, from miserable, worthless varieties to the finest type of all, as on the last occasion, we have a show of extremely handsome, well-developed fruits, such as one would not expect in a season like the present. We also here suspect that a few have been gathered from trees under glass. The complexion and delicate beauty of the fruits tell this. The same varieties occur throughout, as noticeable for their size, beauty, and finish in a poor season, and by having an exhibition in such a year as this we are enabled to judge of varieties that show up well under adverse circumstances. Beurré d'Amanlis, Fertility, a Pear that will become more popular than it is now; Marie Louise, the best of all for flavour; Pitmaston Duchess, Louise Bonne of Jersey, and Forelle are exceedingly fine, and there are here and there good fruits of Beurré Bachelier, Beurré Clairgeau, Durondeau, Beurré Hardy, Doyenné Boussoch—shown well by many exhibitors—Doyenné du. Comice, Beurré Diel, Marie Louise d'Uccle, Emile d'Heyst, Calebasse Grosse, Easter Beurré, Fondante d'Automne, and Brockworth Park, or Bonne d'Ezée, as it is now called. The favourite, Louise Bonne of Jersey, was remarkable for its colour, and a note should be also made of the fruits of Pitmaston Duchess, Beurré Clairgeau, Doyenné Boussoch, and Beurré Superfin from Messrs. J. Peed, of Streatham. Doyenné Boussoch and Pitmaston Duchess were also exhibited in great perfection, while the frequency of Williams' Bon Chrétien, although it is now late for this variety, testifies to its popularity.

There were several exhibitors in the class for twenty-four, and here again the same varieties occur as in the larger class. Mr. Smee showed some splendid fruits of the King Edward Pear, which is of large size, rich crimson in colour, and of pyriform shape. The most useful classes are for twenty-four, twelve, and six varieties best adapted to the exhibitors' districts, and here we find the fruits recommended in THE GARDEN list often occur—Doyenné du Comice, Beurré Superfin, Fondante d'Automne, Louise Bonne of Jersey, and Jersey Gratioli; the samples of Glou Morceau, Marie Louise, Bonne d'Ezée, and Beurré Superfin are worthy of note. Mr. Wildsmith, of Heckfield, shows a clean collection of fruits, amongst which figure most of those already mentioned, together with Fertility. The Scotch Pears are fair, the best fruits, and those from Mr. Dunn, of Dalkeith, being Louise Bonne of Jersey and Williams' Bon Chrétien. There is also a good show of cooking or stewing Pears, and we naturally find that such kinds as Beurré Clairgeau, which is of unusually high colour in several instances, Uvedale's St. Germain, Catillac, Gilogil, and Grosse Calebasse occur most frequently.

Messrs. Bunyard, of Maidstone, and Messrs. W. and S. Wills, Hounslow, were the exhibitors in the class for market Pears, and the varieties were Fertility, Pitmaston Duchess, Durondeau, Beurré Clairgeau, Louise Bonne of Jersey, Doyenné Boussoch, Beurré Diel, Souvenir du Congrès, Doyenné du Comice, and the poorly flavoured, but prolific Hessle. With the exception of one or two sorts, these are useful simply for their handsome appearance; of their quality the less said the better.

Rev. W. Wilks, Shirley Vicarage, Croydon, showed some fruits gathered from trees grown in pots. The fruits of Pitmaston Duchess were splendidly coloured, and other good sorts exhibited were Beurré Baltet Père, Doyenné du Comice, Beurré d'Anjou, and Josephine de Malines. A good collection also came from Mr. W. Allan, Gunton Park Gardens, Norwich.

This exhibition, which closes to-day (Saturday), should be visited by everyone interested in fruit culture, and from Wednesday until Friday papers bearing upon the subject have been read by leading growers. In several instances there has been considerable discussion, and we give in this issue a paper read by Mr. G. Bunyard, of Maidstone.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE second annual dinner of this society took place on Thursday, October 11, at Cannon Street Hotel, and though a bold step to take by a society that until now has been exceedingly unostentatious, is likely to bring useful results. The chair was taken by Dr. Hogg, and there were also present Messrs. H. Veitch, Wm. Paul, J. Laing, H. Cannell, &c. The chairman reviewed the past history of the society, which has until recently kept itself quite in the background, with the result that it has not made that progress which one might expect, considering it has been in existence for twenty-two years. But now that its great advantages are becoming known and it has become the custom to have an annual dinner, members are increasing, and the list of honorary members also shows a steady advance. There are now 270 benefit and 30 honorary members, five of the last-mentioned section having joined on Thursday evening, while two life members were also added. We are confident that if the society continues to do as at present it will extend greatly. This society is unique in its way. By paying 6d. weekly, or 26s. a year, a sum of 10s. 6d. per week is provided in times of sickness, and by paying 9d. a week a sum of 16s. per week is paid. A small payment is made yearly to the benevolent fund, and also 2s. 6d. to the management fund, and the secretary receives no remuneration, except any balance that may remain over from the management fund at the end of the year. A sum of £4000 is invested, and each of the three funds—benefit, management, benevolent—shows a prosperous condition of things, thanks in a great measure to Mr. Collins, the secretary, and Mr. James Hudson, the treasurer.

We are sure everyone must have left on Thursday evening with a pleasant impression of the society. The tables were splendidly laid out, and there was music, as at the annual dinner of the Gardeners' Royal Benevolent Institution. We wish the society prosperity, as it thoroughly deserves the sympathy of all connected with horticulture.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE ordinary October general meeting of the members of this society was held on Monday evening last at Anderton's Hotel, Fleet Street. The president, Mr. E. Sanderson, occupied the chair. The hon. sec. having read the minutes of the last general meeting, which were confirmed without comment, announced that by the death of one of the society's judges, Mr. Woodbridge, it had become necessary to elect another in his stead, and that Mr. Miles, who had been chosen, had consented to fill the vacant place.

It was also announced that the Midland Ry. Co. would convey exhibits at the owner's risk to the grand provincial show at Sheffield at single rate for the double journey, provided they remained the property of the exhibitor, but that the company would be unable, on account of their agreements with the other railways, to run a special train or make any reduction in the fares for members going to and fro from the show.

The list of prize-winners at the September show was read, and also the names of those exhibitors who had been awarded medals. The money prizes, amounting to £70, had been paid over. The show was considered a success in every way, but some of the Dahlia growers had intimated a desire for certain changes to be made in the schedule for next year. These are to receive attention when the new schedule is in course of preparation.

The chairman then called upon Mr. Harman Payne to give in his report on the new catalogue. He stated that the committee had worked readily and well together, and that to nearly all the members the revisers were indebted for much valuable help and useful suggestions. Several trifling discrepancies had been pointed out, but, considering the magnitude of the work, he hoped it would be judged not by its defects, but by its good points, which, he felt confident, must preponderate. Mr. Holmes then moved that a special vote of thanks be accorded to the members of the catalogue committee, that it be lithographed and a copy dispatched to each, and that the silver medal be awarded to Mr. George Gordon, Mr. Lewis Castle, and Mr. Harman Payne for the services rendered by them as revisers. Mr. Gordon and Mr. Harman Payne replied. It was then resolved, in the interests of the society, that the committee be constituted a permanent one. Sixty-one new members were elected and two Fellows, making a total now on the books of the society of 573.

Gardeners' Orphan Fund.—Of the many efforts on behalf of this fund, one of the most successful was a *soirée*, held at the Vestry Hall, Chiswick, on Wednesday evening last. If we may judge from the numbers present, a satisfactory sum ought to have been realised, as everything had been done to ensure a good company. The hall was well decorated by gardeners in the neighbourhood.

Ivy on walls.—On referring to THE GARDEN of the 22nd ult., I find it stated that Ivy is not destructive to buildings. I should much like to know if this refers to wooden as well as those of stone. I

have a lovely silver Ivy at the base of a large bay window which now is showing signs of running up the supports of the window, which are of wood. I am very anxious to know if the Ivy would rot them. The aspect is north.—H. M.

APPLES FOR PROFIT.*

THE commercial growth of Apples for market is frequently entered upon in a wrong manner, because many begin the undertaking without sound information. Beginners fight shy of the growers of trees for sale, under the unfair notion that they would recommend those kinds of which they held a stock; then they procure the "tip" from the salesmen in the various markets, who, as far as they can (and in good faith), give them the names of the kinds that sell well, fruits, so to speak, which dispose of themselves by their names or appearance. Many of the choicest Apples produce but a small crop, or are so long in coming to a state of profitable production, that planters get discouraged; others are recommended which are very slow growers, or rarely make good orchard trees, and thus land is not fully utilised. As the markets are supplied from a large area, the salesmen have but a general idea of the suitability of sorts to a district, and hence much valuable time is lost. In the short time at my disposal, I propose to give a few hints as to the formation of a profitable Apple orchard, or plantation, where the return shall be speedy, and yet in the future for a century shall yield a good result. The first operation is the procuring of suitable land. In a district where little fruit is grown an idea can be gained, from the growth of the few fruit trees in the cottage gardens, and perhaps the orchards near gentlemen's seats. If the Apples show a kindly and clean growth, with an absence of Lichen and canker, and if Elm trees flourish, it will so far be favourable. Exposure to prevailing winds is to be avoided either by shelter planting, or better still by taking advantage of existing woods or hedges, and a slope to the south or west is to be preferred, but in order to secure a permanent orchard, care must be taken to get deeply cultivated or rich deep soil, or a few years of fertility will only be the precursor of decay and disappointment.

Having settled on suitable land, the tenant or purchaser next proceeds to put the land in order for planting, either by steam cultivation or by thorough digging or trenching—the latter, though expensive at the start, is of permanent benefit. This operation is best done before the frosts set in, that the land may be purified and sweetened by exposure. The ground should then be set out, and standard trees, on the Crab or free stock, of the following sorts planted 24 feet apart, requiring seventy-five to an acre:—

APPLES FOR STANDARD VARIETIES ON WARM, LOAMY SOILS.

Dessert, to pick and sell from the tree.—August: Devonshire Quarrenden, Sugar-loaf Pippin. *September:* Lady Sudeley, Yellow Ingestrie.

To store.—October to Christmas: King of the Pippins, Mabbott's Pearmain, Cox's Orange, Blenheim Orange.

Kitchen Apples to sell from the tree.—August and September.—Early Julien, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Councillor, Grenadier, Ecklinville.

To store for sale.—October to December: Warner's King, Schoolmaster, Lord Derby, Golden Noble, Tower of Glamis, Waltham Abbey.

To keep from January to May.—Wellington, Winter Queening, Norfolk Beaufin, Lady Henniker, Bramley's Seedling, Annie Elizabeth.

If the soil is cold, but rich, substitute Lord Grosvenor for Lord Suffield, and omit Cox's Orange and King of the Pippins.

So far for the top crop, the space between being utilised by placing three two or three-year-old dwarf trees between each standard, others at 6 feet apart, which less seventy-five for standards, will be 1135 per acre, until the plantation is filled up. These dwarfs will produce the best fruit from trees on the Paradise or surface-rooting stock, and may consist of the following:—

Apples for bush or free pyramidal style to be grown on Paradise stocks.

Dessert kinds to sell from the tree.—Early: Gladstone, Red Juneating. *September:* Col. Vaughan, Duchess Favourite, Worcester Pearmain, Duchess of Oldenburg, Yellow Ingestrie.

To store for sale.—October to February: Cox's Orange, Cox's Pomona, Peasgood's Nonsuch, Gascoyne's Scarlet, Beauty of Kent, Baumann's Reinette.

If the soil is cold omit Cox's Orange and Worcester Pearmain, and if very rich and good warm land add Adams' and Hubbard's Pearmains, Ross' Nonpareil, and Gipsy King, while for very late keeping Golden Knob, Sturmer, and smaller fruit of Mignonne are useful.

Kitchen Apples of large size to sell from the tree (on dwarfs).—Lord Grosvenor, Ecklinville, Manks Codlin, Golden Spire, Pott's Seedling, Stirling Castle, The Queen, Small's Admirable, Grenadier, Councillor, Stone's.

Fine kitchen Apples to store (on dwarfs).—Lord Derby, Murfitt's Seedling, Lane's Prince Albert, Bismarck, Winter Peach, Dutch Mignonne.

The list of fruits given is more extended than is advisable, but it may only be possible to obtain a part of the sorts given in the planter's locality, the fewer kinds used the better.

In six years' time the trees immediately beneath the standards can be transferred to other land, and will, if removed with care (in October or early in November), suffer little from lifting, and in the second year will produce heavy crops. After the sixth season the orchard should be left with a permanent crop of dwarf Apples, and standards at 12 feet apart. The dwarfs at some future time could be cut away and the standards, which would then be established and strong, should be laid to Grass, and thus fodder for sheep and a top crop of Apples could be secured annually. Until the 6-feet trees cover the land, Potatoes may be grown between the rows, or Lily of the Valley, or Daffodils. But if land is cheap the space may remain without a crop, and the roots will benefit greatly from the run of all the land. Weeds must be kept down, and if standards only are planted no Corn crop must be taken, but in this case soft fruit may be placed between them. The plantation should be dug in December or January each year, and be broken down with a prong hoe in March.

Oxen and horses should not be allowed in young orchards. Shelter can be quickly obtained by planting Damsons or bush Plums (the latter a Kent sort) with Crawford or Hessle Pears as an inner line at 12 feet apart, and this screen would pay its way. If desired, Plums, Gooseberries and Currants could be placed between the Apple standards, omitting the dwarf Apples. If the land is properly prepared the Apples should need no manure for some years, as the use of stimulants while the trees are young is prejudicial by inducing a sappy, unripened growth which lays the trees open to damage by frost. When the trees are carrying a heavy crop, mulching may be carried out in June, or liquid manure can be used with advantage in the growing time. Such a plantation as described would commence to bring a return from the dwarfs in two years, and the fruit with a little care in thinning would command a ready sale, because when grown in this manner it is cleaner in appearance and much larger in size. In three or four years the standards would commence to fruit, and a much larger return would annually be made, and if properly managed, at the end of fourteen years the crop would buy the fee simple of the land outright.

In order to make the highest price, all fruits should be "graded," as the Americans say, and be of an even sample throughout, be properly named, and packed carefully, so that the baskets open clean and bright at the market. In the case of choice dessert kinds it would probably pay to pack them in light card boxes, such as those introduced by Mr. Tallerman for Cherries, &c., and manufactured by Messrs. Johnson. In fact, we should take a leaf out of the French books, and put up our produce in an attractive form. The pruning of the trees in February or March is of the simplest. They should not be pruned the first year of planting. For the first two years commence to form the standard trees by taking out all the inner wood to attain a bowl shape, and cut back the young growth to four or six eyes, to a bud pointing outward, the fourth or fifth year shorten the wood of the current year to 6 inches or 12 inches, and keep the centres clear, and after that time let them grow as they like, merely shortening the tips to procure an evenly balanced head, and taking out any crossing pieces of growth. The dwarfs can be cut in to form pyramids or basins, as desired, for two years, and after that be allowed to grow freely. Other matters, such as securing the limbs in a heavy crop and staking the standards, will have to be attended to, and the stakes must be removed from the standards in the winter as soon as the trees can do without support, as the ties are apt to cut into the bark and produce canker.

For Apple growing, land need not be contiguous to a railway station, as the fruit will travel well if carefully packed. Storing enables a grower to realise a high price at a time when good Apples are scarce. Where proper stores, such as the Hop oasts of Kent do not exist, a frost-proof shed will do, and if care is taken to store all sound fruit, a thick covering of straw will effectually exclude frost, and keep the fruit plump and heavy. If 1100 trees bore half a gallon each, at three years old the crop would be about 70 bushels per acre, which at 4s. nett (carriage and salesmen's charges deducted) would give a return of £14 per acre; at five years 1 gallon each would double the produce; and so on. When the top and bottom crop come to be picked, an average of half a bushel per tree would give a return of about £120 per acre. The risk of loss by wind is small with dwarf trees, and the cost of picking is less than in tall trees, while the fruit can be readily thinned and attended to.

A word as to old existing orchards. My text is —Woodman, spare that tree. If such old trees are well manured, in two years they would be either producing good fruit, or, if cider Apples, they would so benefit from the improved culture that they would pay for re-grafting with superior kinds. I believe much may be done in this way, as the roots soon respond to generous treatment, and the foundation of success rests upon them. Suitable kinds for grafting old trees would be—Stone's, Lane's Prince Albert, Small's Admirable, the new and splendid Bismarck, or the smaller dessert Apples, such as Duchess Favourite and Yellow Ingestrie.

* A paper read at the Chiswick National Apple and Pear Conference, October 17, 1888, by Mr. George Bunyard, Nurseryman, Maidstone.

NOTES OF THE WEEK.

The Chrysanthemum season has begun, and we learn that the display in Finsbury Park will be open to the public to-day (Saturday). The Chrysanthemums in the Temple Gardens were opened to the public on Thursday last.

National Auricula Society and National Carnation and Picotee Society.—We learn that the annual general meeting of the above societies will be held in the room of the Horticultural Club, Hotel Windsor, Victoria Street, on Tuesday, October 23, at four p m.

Picea Veitchi.—I send you a branch of Picea Veitchi with cone. The tree is 11 feet high, with a diameter of 11 feet. I am not aware of its having coned before in this country; in that case it is worth noting. It was planted in the garden here ten years ago.—A., *Castlewellan, Co. Down.*

The common Melilot (Melilotus officinalis).—I enclose a small spray of Melilotus officinalis. The effect of a plant 10 feet high, grown in rich ground, is peculiarly light and graceful. As a single plant, or in groups waving in the wind, it might be an effective hardy plant for many situations.—C. M. OWEN, *Gorey.*

Hardy flowers.—These increase in popularity. When recently at Calwood, Lord Justice Bowen's charming Sussex residence, we noticed that the old kitchen garden which was near the house was being levelled and turfed, large spaces being left for the formation of simple beds to be devoted solely to hardy flowers and Roses.

Marechal Niel Rose in bloom.—At the present time several nice flowers of this Rose are expanded on a plant growing at the base of a south wall. During

the summer it developed a fine ot of blooms of splendid quality, and afterwards made a free growth. Is it not unusual for this variety to flower at this date?—E.

A large Blenheim Orange Apple tree may be seen in the gardens at Borde Hill. When the present kitchen garden was made, part of an old orchard had to be sacrificed. Several of the trees were left, and amongst them the one under notice. Mr. Inglis says that one year he measured the produce of this tree, and it amounted to 39 bushels.

Schizostylis coccinea.—This is largely grown in pots in Muntham Court, and Mr. Conway says it dislikes repotting, and flowers much more freely if left undisturbed. We saw a batch that had been in their pots for several years, and the quantity of flower-spikes they were throwing up fully bore out Mr. Conway's statement. He advocates a plentiful supply of water.

Pulmonaria saccharata.—Some large clumps of this are now a great feature in my garden. Owing to the wet summer they have grown well, and put forth large masses of green leaves, which are blotched and marbled with grey. Now that the frost has destroyed so much blossom in the open air, the Pulmonaria does good service in making the borders look gay. —R.

Physianthus albens.—This is generally regarded as a stove climber, but recently there were sent from Pendell Court to a Royal Horticultural Society's meeting some splendid, profusely-flowered wreaths of it, grown in a greenhouse. We were, however, agreeably surprised when at Offington to see it upon the open wall not only growing, but flowering freely, its trailing shoots being wreathed with the crisp-looking ivory-white blossoms.

Fremontia californica.—Several notes have appeared in The Garden during the past summer in reference to the flowering of the above-named shrub. I am pleased to add that it has not been without flower here for five months, and now at the 12th of October it has still a few of its golden blooms expanded.—W. O., *Fota, Cork.*

—— This is now in flower upon a wall at Offington. Major Gaisford says that the specimen has not been without flowers since April last. The flowers, borne on short twigs, are of a clear yellow colour and somewhat cupped, while, owing to their thick fleshy petals, they remain in beauty for a long time. This is one of those choice shrubs that all who have a wall should find a place for.

Hamiltonia lanceolata.—Seeing this uncommon shrub in bloom the other day in the temperate house at Kew, it struck me as being a useful plant for the autumn decoration of the greenhouse. It reminds one of a Bouvardia in growth and flower; indeed, it belongs to the same Order. It has clusters of small pure white Bouvardia-like blossoms. It is presumably a native of China or Japan, and therefore may be grown in quite a cool greenhouse, requiring no heat like a Bouvardia.—G.

Dahlias from Cork.—I herewith send you a few Dahlia blooms. They are the most popular flowers seen in my windows from the ladies' point of view. It is a semi-double variety, but very beautiful and wonderfully free-flowering. The name is Coup de Soleil. The flowers were picked from the open, as we have had no frosts yet.—W. B. Hartland.

*** Apparently a very useful variety, especially for its cheerful colour.—Ed.

Two valuable early Chrysanthemums are Mme. Desgrange—which everyone knows—and the new sort named Mons. W. Holmes. The two go well together and make a charming group. The newer sort has large and full blooms with reflexed florets. The colour is a rich chestnut-crimson (if it may be so described), with a velvety lustre, while it pales towards the centre. It recalls the very fine sort Cullingfordi, which does not flower till later on. These two sorts make at the present time a most striking group in the greenhouse at Kew, the yellowish white shaggy blooms of Mme. Desgrange serving as a foil to those of W. Holmes. Like most early sorts of flowers, these October Chrysanthemums are most serviceable, for coming as they do before the crowds of November sorts, they are most useful.

Billbergia thyrsoidea splendens. — This truly splendid Bromeliad quite enlivens the otherwise almost flowerless stove at Kew with its bright clusters of bracts and flowers, the whole inflorescence being of a carmine-pink, except the flowers, which, though purplish, are not themselves so conspicuous. When Bromeliads become popular garden plants, and we are expecting they will sooner or later, this will be one of the select kinds to grow. The long time that most Bromeliad flowers keep in perfection place them on a par with Orchids which have won a good deal of their popularity on that account.

Autumn Crocuses make excellent bulbs for pots, furnishing beautiful flowers for the house at a time they are difficult to obtain. C. speciosus, nudiflorus, the delicately beautiful pulchellus, and other kinds were in full beauty recently in the hardy plant house at Kew. Such lovely things as these should be used much more than they are at present on the rockery, wild garden, and in the greenhouse.

Lælia Perrini alba.—This is a gem of the first water, and I believe the plant now flowering in Mr. Measures' collection at Streatham is unique. In habit of growth it resembles the typical plant, but the flowers are the largest I have ever seen produced by the species, and are pure white throughout, without spot or shade of colour of any sort. It is a fine plant, and is now carrying fourteen of these exquisite blooms.—W. H. G.

Cymbidium elegans.—A superb example of this species is now bearing nine spikes of bloom in Mr. Measures' collection at Streatham, the flowers being soft yellow and very distinct; the plant in growth somewhat resembles C. Mastersi, which is also now in flower in the same garden. This genus is very popular here, a large house having been erected purposely for them, and is well filled with, perhaps, the very finest specimens of C. giganteum and Lowianum in the country.

Rhynchospermum jasminoides.—This good old Jasmine-like plant is rarely seen now, although at one time it was largely used as a pillar climber in conservatories. At Offington it covers a large space on the open wall, growing so profusely as to effectually conceal the bricks, while all over this mantle of green may be seen the numerous clusters of pure white, sweetly-scented flowers. We recently noted Lapageria alba flowering upon the open wall at the same place.

Choisya ternata.—Although somewhat tender, this shrub appears to thrive in many Sussex gardens, and if it never flowered it would be worthy of cultivation for the sake of its glossy green and distinctly shaped leaves. In Major Gaisford's interesting garden at Offington, near Worthing, it flowers twice a year, in spring and autumn. A large specimen clustering against the end of a glass house was very striking. At Wakehurst it has reached the top of a wall 6 feet high, and at Lydhurst there are several thriving specimens both in the open and against a wall.

Lapageria alba.—On paying a visit last week to the well-kept gardens of Mr. J. E. B. Cox, Moat Mount, Mill Hill, I was much struck with two plants of the above—by far the finest specimens I have ever seen. They were planted out on the north side of a large span-roof house. They were in the best possible health, and literally covered with flowers of great substance. Mr. Brown informed me he had just taken thirty-six dozen blooms from them, and as many more fully expanded flowers might easily be cut at the present time.—Edwin Beckett, *The Gardens, Aldenham House, Elstree.*

Notes from Shirehampton.—None of your correspondents have sung the praises of Clematis Viticella alba. Mine is on a trellis, and began to flower early in July, and is still blooming freely; certainly 1500 blossoms could be counted upon it at any time during August and September. The blooms are small, nearly pure white, and tinged on the outside with blue. C. Jackmanni often vexes me with its heavy clumps of bloom and bare stems. Romneya Coulteri has grown into a big bush. It is three years old, but as yet has not bloomed. Schubertia grandiflora is blooming in a greenhouse. I am not sure that everyone will like the fragrance of the Schubertia. Ipomæa pandurata, though it has grown freely, has quite failed to bloom here this year both in the greenhouse and against the wall. Belladonnas as yet show no bloom in the open, though with me they usually accompany the hardy Cyclamens, which are very lovely just now. Should the former be watered considering the drought we are passing through? I have a fine lot of seed of Sparaxis pulcherrima to give away, and much desire a few seeds of the white kind. Rose Macartney is blooming well, and close by Schizostylis coccinea, though rather premature. Frosts have done no harm here, and Dahlias and autumn Crocuses are very fine. I have also a lot of seed of Iris Milesi to dispose of. Brugmansia, white and yellow, are now in bloom, and the large, white, sweet Funkia. In the greenhouse I found, to my dismay, a box of Gladioli that had escaped planting last March, and know not what to do with them now. Iris Kæmpferi quite failed to bloom with me this year. I fear I must find a sunnier spot, as they could hardly have lacked moisture this summer. —C. Miles.

Laxton's Omega Pea.—I send you a few pods of this Pea that should be grown largely in the south of Ireland for late picking. I am never without my dish of green Marrows all through October from sowings made on trenched, well-manured ground in June. We shall have them for the next fortnight. The whole secret is thin sowing and trenched ground in sheltered places. A man having a few acres at this time of year should get a fair profit. The addition of lime in soil at time of sowing would help to warm the ground, and the action of lime on all the Pea family is well known as regards well-filled pods. — W. B. Hartland, *Temple Hill, Cork.*

Bessera elegans.—This charming little Mexican bulb is now in great beauty in the Cape house at Kew, where it is treated as a pot plant in a frame or cool house. It has small bulbs, long and narrow Grass-like leaves, and slender flower-stems rising about a foot high, each carrying a loose umbel-like cluster of flowers. The blossoms are about 1½ inches across, with the six sepals forming a shallow bell. They are of a bright scarlet colour with white lines running through each sepal, while the tuft of stamens is tipped with blue anthers. There are few autumn bulbs that rival this little known plant for elegance or bright flower colour, and as it is easily cultivated and lasts long in bloom, it is certainly worthy of more popularity than it possesses in private gardens. It is half hardy, though in southern gardens it may be grown in a warm border against a south wall. It was imported in quantity a few years ago by Mr. Ware of Tottenham, and now is more plentiful, but previously it was rare. It was first introduced in 1850, and a beautiful coloured plate of it may be found in The Garden, Jan 19, 1884.

Making a lawn.—I am about to make a large tennis lawn, and have been advised by several friends to place 3 inches or 4 inches of fine coal ashes upon the hard clay, and nothing but a thin layer of turf, without any additional soil, upon this. I shall be glad of the opinions of any of you readers who have adopted this method. The situation is light and sloping, and the lawn will be levelled, the soil from the higher half being placed upon the lower.—E. F.

Making Mushroom spawn. —Will any reader give me a little instruction on the making of Mushroom spawn?—J. T. N.

E. P.—Low's "Table Decorations" may be had from our office for 6s. 3d., post free.

Names of plants.—*C. W. P.*—1, Pteris cretica; 2, Phlebodium decumanum, not easy to tell from such a scrap; 3, Doodia media.——*Georges Mantin.*—1, Oncidium Forbesi; 2, Lycaste Skinneri; 3, Lælia Perrini; but another time please pack properly; the specimens sent were flattened almost beyond identification.——*Marsh.*—One plant is Althæa frutex, and the other Gilia tricolor. Please number another time.——*E. M.*—1, Passiflora macrocarpa; 2, Genista corymbosa(?); 3, Chrysanthemum coronarium.——*J. Tallack.*—Oxalis corymbosa.——*George Splotton.*—1, Rhus Cotinus; 2, Tecoma grandiflora.——*W. Fox.*—Heliopsis lævis.——*A. Chapman.*—1, Hypericum androsæmum; 2, Lonicera sempervirens; 3, Hypericum patulum.——*H. L. O.*—Anoda hastata from seed. ——*Flowers in small box.*—1, Æschynanthus splendidus; 2, Sanchezia nobilis.——*F. G. Tadman.*—Oncidium incurvum. ——*W. Sharp.*—Flower too shrivelled, send again.——*H. C.*—Next week.

Names of fruits.—*A. P. Thornley.*—Pear Calebasse. ——*Chr. Jorgensen.*—The black Grape is Lady Downe's Seedling; the white variety was quite rotten, and it was impossible to determine the name.——*W. Sharp.*—Pears, next week.

WOODS & FORESTS.

FELLING TIMBER.

Felling timber and preparing it for market form important branches of the woodman's work, and may now be proceeded with at any time, as most species of trees have now matured their growth for the season. Large trees cannot be felled with the axe alone without wasting nearly a foot of the best part of the trunk, and in all cases where economy has to be studied the saw should be used. It is right to chop and dress off the swell of the roots with the axe around the base of the stem to the level of the ground, in order to remove the bark and any gravelly matter that might prove injurious to the teeth of the saw as well as to form the butt into uniform dimensions all round the base. The saw is then introduced to finish the operation, and thus there is no waste of timber, and, in addition, the wood is much more marketable and actually commands a higher price than such as has been solely felled by the axe. The reduction of a few inches in the length of a butt end of a large tree often renders it unsuitable for many purposes for which the highest price is to be obtained for wood of a certain length and diameter, so that in some cases the wood wasted by felling the tree with the axe is not a correct estimate of the loss sustained. In felling trees of large size particular care should be taken not to allow them to crash into other trees in the vicinity, and in many cases it is advisable to attach a rope to the top to guide the tree in its fall and prevent injury. It is also necessary in some cases to cut off some of the larger sized branches to render the felling of the trees easier. The cost of felling timber varies considerably according to the price of labour in the district and the species of trees to be felled, as well as the quantity of branches to be cut off; but I have had average sized timber cut and prepared in a very efficient manner by contract, at the rate of 1s. 6d. per ton, and as it takes about 25 cubic feet to make a ton, the contractor may be paid by weight or measurement, as per agreement. When the trees are to be sold by public auction, they should, if possible, be left at full length, in order to give purchasers an opportunity of cross-cutting them into lengths suitable for their requirements, but in all cases they should be arranged into lots at the most accessible parts of the plantations to afford facilities for their removal, and purchasers should be bound to remove their timber within a given time from the day of sale. The lots should be numbered consecutively, and the number and species of the trees, as well as their value, should be recorded as a guide to the vendor on the day of sale.

Some people mix the good and inferior timber together, but this I think is a mistake, as purchasers generally put little or no value upon inferior wood, and in proof of this I have often seen them leave the inferior timber to lie and rot in the plantation. In arranging the trees into lots it is desirable that they all should be of about one size and of one species in each lot. When this cannot be attained, the trees may be mixed as circumstances may direct. In some districts branches can be turned to good account for Pea stakes and other purposes, but any rubbish that cannot be disposed of had better be collected and burned up to prevent the lodgment and breeding as far as possible of insects injurious to tree growth. Sometimes trees are sold as standing timber by private bargain, and in this case the purchaser has to cut and remove the trees at his own expense, but the vendor, before receiving any offers, should number and value all the trees in order to ascertain if a fair price has been offered. This system of sale has this advantage: that when the owner does not receive a fair offer for his trees, he can allow them to stand for a time, as they will always be adding something to their cubic contents, and when the market takes a more favourable turn a sale on better terms can be effected. In all cases the purchaser should be bound down to damage as little as possible the wood left upon the ground in the course of felling and removing the trees. In the course of thinning Fir plantations, all trees below 6 inches in diameter at the base may be felled with the axe, but all those of a larger size had better be cut over with the saw. Clean-grown spars fit for mining and other purposes, and from 8 inches to 10 inches in diameter at the butt end, are sometimes felled by contract, and I have had the work done in this way at the rate of 4s. per 100 trees. This plan answers very well on estates of medium size where there is not a regular staff of woodmen, as the proprietor has only to get his trees marked and valued by a competent person and then send a careful man to see that they are cut and removed without damaging in any way the plantation and within the time stipulated in the agreement. To prevent mistakes, the contract should always be in writing, and each party should retain a copy. J. B. Webster.

DISEASES OF FOREST TREES.

It would certainly be a great help to the successful culture of trees if the agents that engender disease were known, but so long as the cause or causes of the disease are simply supposition, there must ever lie more or less of doubt and perplexity about any theories various writers may advance, whilst at the same time there may be some truth in the various causes they may propound.

The ulcerous disease of the Scotch Fir in wet situations and in soils where the soil and subsoil are both extremely poor is not the kind of ulcer which commonly affects the Scotch Fir in conditions the most propitious to the growth of the tree. The cause of the ulcerous disease in the Scotch Fir mentioned by Mr. Webster, and which grew "on a patch of Heather ground in the centre of a quagmire," was probably due to its being drowned and starved to death in stagnant, insalubrious water. Very likely (unless the soil had been all the more inferior), if the tree had been set in the same soil and place, with the ground dry and the water running by, there would have been no signs of the ulcer which Mr. Webster found upon it. The sort of ulcer spoken of by Mr. Webster is a running ulcer, which, as he observes, eventually dries up, leaving on the outside of the tree a white, alum-like crystallised resin. This, however, looks to me more as a sort of accidental disease brought about either by the unfavourable conditions in which the individual tree has been planted, the wind, or by any other natural agent. This kind of ulcer is not to be found, I believe, among Scotch Fir trees when the conditions are in keeping with the requirements of the tree. On the other hand, the ulcerous disease common to the Scotch Fir, and common to it in every position and in every stage almost of the tree's existence, might be some sort of fungoid parasite, or it might be constitutional.

My observations do not altogether coincide with those of Mr. Webster regarding the thickness and thinness of Scotch Fir bark. Mr. Webster says that trees in belts and in small plantations produce strong, thick, corky bark, with which they are clad, as it were, with a coat of mail. My observations show that trees with the thickest and coarsest of bark will be found in the centre of the largest plantations as well as in the smallest belts. The nature and quality of the bark of trees are due rather to the several kinds of the same tree than to any external circumstances. Trees with the finest, smoothest, thinnest, and most silky bark will be found in belts and in the marginal parts of all sorts and sizes of plantations, and thick and thin bark is not a casual, but a natural constituent of the tree. Admitting that some of the vessels of the stem of the tree are ruptured during a severe gale, does Mr. Webster affirm that out of such ruptures the disease called ulcer proceeds? If so, it might be inferred that anything which would cause a rupture of the vessels of the stem would cause ulcer. Hence, for instance, taking a slice with any edged tool off the side of a tree might be expected to cause ulcer. Does it do so?

I have seen the tender growth of the Larch, Spruce, Silver Fir, and many others of the Coniferæ damaged by frost, but in all my experience I do not recollect once having seen the Scotch Fir thus damaged. The point at issue between Mr. Webster and myself is this: He maintains that the combined action of wind and frost is the cause of the ulcerous disease of the Scotch Fir, and I say it may be some sort of fungoid parasite, or it may be constitutional disease. Should the disease be caused by frost and wind, it would be hopeless to think of any cure being found to counteract their attacks. If, on the other hand, the disease be parasitical or constitutional, there is still some hope left that by deeper and more searching inquiry there may yet be a remedy found. J. F.

The Lentiscus-leaved Ash.—Fraxinus lentiscifolia, although introduced to this country a century and three-quarters ago, is by no means a common tree in gardens, although it is certainly one of the most elegant of all the Ashes. A few years ago we were agreeably surprised to find a good sized specimen in a garden close to a large cotton factory in a northern manufacturing town, and it seemed to suffer less from the proximity of the forest of huge chimneys in its immediate vicinity than a host of commoner trees, native and introduced. It is a native of Syria, and attains a height of from 30 feet to 50 feet. A weeping form is also in cultivation; this has slender pendulous branches, and is one of the most elegant of weeping trees. F. lentiscifolia is sometimes met with under the names of F. xanthophylla, F. tamariscifolia, and F. oxyphylla, &c.

The Weeping Beeches.—It may not be generally known that there are two thoroughly distinct varieties of the common Beech, very different in size and habit, and yet both very desirable trees. One forms a most picturesque tree, generally of very bold, irregular outline. There is a very noble specimen of this form in the Knap Hill Nursery of Mr. Anthony Waterer. In many places on the Continent, notably in some of the old gardens in Holland and Belgium, very fine examples exist. One of the most noteworthy trees in the Botanic Gardens at Leyden is a noble specimen. At 5 feet from the ground, the trunk is of such a thickness that a man with outstretched arms can barely clasp it. At Meynell Langley, near Derby, there is a still finer tree. The second form of the Weeping Beech to which we have alluded is more fitted for covering arbours, rustic seats, &c. It grows somewhat like an umbrella in shape, and neither attains the size nor assumes the boldly picturesque and irregular aspect of the other.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

ROSES AFTER THE FROST.

IT was feared that the severe frost on the night of the 2nd of October had destroyed the chance of any further Rose blooms out of doors this year, but it has been a pleasant experience to find that a fair number of varieties have been able to recover from the cold sufficiently to continue the expansion of the many buds still undeveloped at the time of the sudden change from summer to winter at the beginning of the month.

Some sorts, including not a few of those flowering most freely at the time, such as La France, Mme. Berard, Sombreuil, Mme. Gabriel Luizet, and practically all the Teas, except Marie Van Houtte, collapsed completely from the floral point of view, every bloom and bud appearing shrivelled and spoilt. Perhaps the worst in the garden were two Roses which previously had been among the brightest and most attractive of all, namely, Ulrich Brunner and Gloire Lyonnaise, whose petals were reduced to the colour and texture of wet packing paper, and even the quite close young buds seemed to be deprived of all vitality.

The first to recover were Baroness Rothschild and Marquise de Castellane, of which a good many pretty blooms were cut about ten days after the first frost. The brilliant crimson of Lady Helen Stewart and of Glory of Cheshunt soon attracted attention, and their flowers seemed to have lost comparatively little in quality, while on the 13th a handful of Captain Christy included one bloom of conspicuous size and colour. William Allen Richardson, contrary to all expectation, afforded quite another crop of orange buds and flowers, and from Reine Marie Henriette also there have just been cut (18th inst.) about a dozen bright-coloured half open blooms. Both these Roses looked deplorable for the first day or two after the frost, but appeared to recover some growing power with wonderful rapidity. On the 14th inst. capital blooms were cut of Crown Prince, Beauty of Waltham, Jules Margottin, which seemed very little affected in any way, Princess Mary of Cambridge, the Hybrid Perpetual Jules Finger (not to be confused with the rose-coloured Tea of the same name), an invaluable autumnal in the way of Captain Christy, not so good early in the season, but more vigorous, and in autumn far freer and brighter in colour; Louis Doré, a very handsome rosy red flower of great size and beauty of form, very constant in autumn, and though a dwarf grower, very hardy and free, and well worth cultivating on its own roots; Marguerite de St. Amand, Souvenir de Mme. Robert, a light pink variety that blooms abundantly and deserves to be more frequently seen; Miss House, a new blush Rose which has been pretty throughout the autumn, and is likely to be useful as an improved Bessie Johnson; Boule de Neige, whose expanded flowers were stained by the frost, though the plant seemed otherwise quite uninjured and has been very attractive since; and freest and best of all the reds, Mme. Isaac Pereire. This vigorous Bourbon hardly seemed to feel the 8° of frost at all, and the leafy plants are still (Oct. 18) carrying numbers of bright carmine flowers. It would probably be worth while in cold districts to grow this Rose on a wall, as from its rampant growth it makes a fine climber, and it would afford an invaluable supply of bloom late in the season in situations where less hardy varieties would not thrive. The same might also be said of Gloire des Rosomanes, which is equally hardy and vigorous, and is still very bright in the garden, and whose flowers, though only semi-double, are of the most brilliant velvety crimson colour.

The miniature Polyantha Roses were but little damaged by the cold nights, and lately Mignonette, pink, and Perle d'Or, orange, have been very pretty, although both excelled by Gloire des Polyantha, Guillot's new seedling from Mignonette, which it surpasses in every way, the trusses being larger and the flowers brighter in their pink colour than those of the parent.

The crimson Chinas and the pale Bourbon Armosa (or Setina) continue full of bloom, and of the species Rosa Beggeriana, pure white; Rosa setigera, bright pink; and the ever-blooming blush white Rosa indica still unfold their petals in the pleasant October sunshine; but these comprise all the Roses that can be said to be conspicuously in flower after the severe check of the frost (not reckoning, of course, varieties that may be just carrying a bloom or two here and here), with one exception. The best and most beautiful has been left till last, and again, as so frequently before, proves to be the ever-faithful Marie Van Houtte. The blooms of this lovely Rose not only excel those of all other kinds in the garden at the present time, but those of all its sister Teas as well. The petals of Mme. Lambard are shrunk and textureless; Rubens is soiled beyond all recognition; Catherine Mermet, Anna Olivier, and numberless others are all stuck together, and not a few, in addition, are almost leafless; but Marie Van Houtte, still clothed with abundant handsome foliage, carries dozens of blooms of characteristic form and fresh in colour.

With good plants of even only Mme. Isaac Pereire and Marie Van Houtte there need not be a lack of Roses out of doors in fine October weather, even after two or three frosty nights when some 8° below freezing is registered.

Garden Roses.—"T. W. G.'s" explanations of his reasons for leaving out in your list of the best garden Roses some of the loveliest Roses grown hardly satisfy me. I omitted mentioning one other Rose he had left out, and to which none of his present objections apply—Madame de Watteville. Why does he leave this Rose out? Charles Lefebvre is not here a bad autumnal; it is up to September always good. If you saw two plants of my Belle Lyonnaise Rose, you would hardly call them tender; one is a standard and the other a dwarf, and they are both immense and strong plants. I never heard of Emilie Dupuy, and the Rose is not in Cant's list. I grant the objections to Marie Baumann and Prince Camille de Rohan, but in any good collection of the best garden Roses they should be grown; also Comtesse de Nadaillac and Catherine Mermet, the two last being absolutely indispensable in any good collection. "T. W. G." has probably seen the *Journal of Horticulture* of October 11, with a list of the principal prize-winners, &c., at the National Rose Society's shows 1886-7-8; there Catherine Mermet comes out first, and, in my opinion, rightly so, as it is when perfect the loveliest Rose grown. I think that, now you have given the Apple and Pear growers a good "hearing," you might have a Rose election, and allow all those interested in the queen of flowers to have a good discussion on the best sorts, mode of growing suitable sorts, &c., in your delightful and most excellent journal.—C. J. G.

ROSA RUGOSA.

NOW that planting time is coming on "R. D." does well to draw attention to the varieties of Rosa rugosa as garden plants. The handsome foliage, flowers, and fruit all combine to enhance the value of these striking Roses, and their flowering being continued during the fruiting time renders their appearance exceptionally characteristic.

Judging from "R. D.'s" remarks on Messrs. Sutton's famous hedge at Reading, the seed in that case was sown where the hedge was intended to stand, an arrangement which, though no doubt calculated to afford a very strong fence, sounds rather extravagant, and perhaps from a gardening point of view would be less desirable than sowing the seed in beds, and subsequently planting out the seedlings at a reasonable distance apart to ensure their handsomer development laterally at any rate. This, of course, would only apply to hedges planted for ornament and where an impenetrable barrier was not the first consideration; but the growth at the base of these plants is always so dense that a single line of seedlings soon makes a very thick hedge.

The flowers of the white variety are far more beautiful, but unfortunately the plant seems a less vigorous grower than the red-flowered type; it might be worth while, however, in an ornamental hedge to bud the white-flowered form upon the stronger growing red kind here and there.

There are two double-flowered varieties that are worth growing, and which appear as vigorous and as perpetual as the species. These are Comte d'Epremesnil, a handsome, rich purple-crimson flower, deliciously fragrant, and Mme. Georges Bruant, pure white, beautiful in bud.

It has been frequently suggested that for hedge or woodland planting the allied species Rosa kamtschatica should be employed. It makes even more abundant and stronger growths than R. rugosa, and is really the most ferocious of all the Ferox Roses. It is at this time of year especially that its great value as a landscape plant is conspicuous, for while the foliage of R. rugosa always dies off a uniform clear yellow, the leaves of R. kamtschatica assume the most varied and beautiful autumn tints. At the present moment the most striking object in the Rose garden is a large bush of this unhappily-named Rose clothed in almost as many colours as leaves—a mass of all imaginable shades of red and brown and gold, producing a most bright and cheerful effect in the October sunshine. T. W. G.

Rose Her Majesty.—With reference to the Perpetual character of this Rose, I may mention that I planted three plants last spring. They are on the Manetti stock, and all flowered fairly well in July. Since then they have made satisfactory growth, but only one has flowered the second time, and then only a solitary flower has been produced. My first estimate of the capacity of this Rose to resist mildew is every year proving to be correct, for there are few more liable to be disfigured by it than the one in question.—J. C. C.

The weather in Scotland.—When one reads of the snowfall and its harmful effects in the northern counties of Scotland, and the great devastation caused by early and severe frost in some of the southern counties of England, we, in the favoured county of Stirling, are (October 22) enjoying the finest autumn weather I remember during a period of about thirty years, except one autumn, I think in 1859, while residing in Suffolk. For about seven weeks rain has not fallen in sufficient quantity to damp the surface of the soil, and the transplanting of shrubs and trees is being carried on. I never saw the soil so dry at this season of the year. Outside flowers, such as Sweet Peas (they were kept topped and have done well), Mignonette, Carnations, and Picotees, Roses of Hybrid Perpetual class, Dahlias (dwarf kinds are loaded with flowers), Pansies, Violets, Calceolarias, Gladioli, Clematis Jackmanni are still abundant.

Ampelopsis Veitchi is finer on old walls and other buildings than I ever remember seeing this charming creeper. Among vegetables Cauliflowers are very plentiful. Peas yield useful pickings; some of those kinds which had to be closely topped during July and August are now full of pods and flowers, which I fear will not be of any service, and the foliage is unusually green. Beetroot is still growing, and we never had the foliage so finely coloured. Such plants as Lettuce, Spinach, young Onions and Cabbages are becoming gross, and will be liable to suffer should severe weather set in. Many kinds of Apples, such as Cellini, King of Pippins, Stirling Castle, Worcester Pearmain, and Seaton House, are improving in appearance daily. Red Currants netted are in fair condition, and it is pleasing to note that the wood of all fruit trees and bushes is well ripened. Dwarf Apple trees which were root-pruned between the months of June and September, when in their young state, are bearing best and are most promising. Plums, generally, were unusually late, and some of the best kinds had to be ripened in vineries.—M. Temple.

Orchids.

W. H. GOWER.

CATTLEYA BOWRINGIANA.

This beautiful plant is an introduction of the Messrs. Veitch, of Chelsea, by whom it was named in honour of a celebrated grower and lover of Orchids. It has only been known in this country for four years, and during that time I have heard many adverse opinions of the plant, but all such opinions will have to be cast on one side, as I believe that this Cattleya will prove to be one of the most popular species in the genus. It has a free habit of growth, and produces quantities of highly-coloured flowers at a time when they are much appreciated, as they tide over a dreary time of the year in the Orchid houses, viz., from the middle of September until the end of November, when C. Percivaliana commences to fill up the void before those of the Trianæ section put in an appearance. I am induced to speak thus strongly of this species from an inspection of the stock of Mr. Sander at St. Albans, where I recently observed many hundreds of fine plants which are now developing their flowers, and others which have been in flower for a considerable time, some bearing as many as forty and fifty spikes of bloom. When it is borne in mind that in some instances as many as ten flowers are borne on each spike, some idea of the marvellous beauty of this species may be had. The flowers resemble those of C. Skinneri in shape, but the colour is richer, the sepals and petals being of a uniform rosy purple with darker veins, lip rich purple, with a deep maroon band at the base, the throat white. The individual flowers are about the size of those of C. Skinneri.

Another form of C. Bowringiana which I saw blooming in Mr. Sander's establishment is called lilacina, in which the whole of the flowers are of a rich lilac saving the band in the lip, which still remains a rich deep maroon. Another variety, named vivicans, is also very beautiful, the flowers being of a bright crimson-purple saving the maroon band. These are two distinct and handsome forms of this valuable species well deserving varietal distinction, and I trust C. Bowringiana will be found to yield many more variations of like excellence. This species is a native of British Honduras, where it grows upon moist rocks, and is almost always exposed to a damp atmosphere. At St. Albans it is treated to a fair amount of heat and moisture, and the plants are potted very firmly. This they appear to like, as the pots are full of roots and they have made quantities of growths, in some instances as many as eight new shoots in a 6-inch pot. It is often said that thrips attack this plant with great virulence; but I think this arises from too dry an atmosphere, for I did not observe the slightest trace of thrips on this fine batch. I hope to have something more to say in favour of this species, but I feel sure that everyone who can appreciate C. Skinneri, which blooms in spring, will be fairly enchanted with the autumn-flowering C. Bowringiana.

Catasetum Bungerothi.—This plant is just now one of the great features in Mr. Sander's nursery at St. Albans, where innumerable spikes are now in full beauty, the large, ivory-white flowers being very attractive. These flowers, however, do not appear to vary much in size, although they appear to differ in colour to some extent, and one or two varieties have already been named. At St. Albans I noted the form originally figured and which became typical, its large ivory-white blooms being distinguished by a stain of orange-yellow which appears to line the whole interior of the spur. I also noted forms in which this was absent, and also another variety in which the orange is replaced by a charming light green. This grand plant cannot fail to become a universal favourite. At St. Albans it appears to grow vigorously and to flower profusely when grown in baskets near the glass in the temperature of an intermediate house.—W. H. G.

Oncidium Jonesianum is a plant with a great future, and as grown by Mr. Sander it is a beautiful Orchid. The plants, which are kept in strong heat and watered freely, grow vigorously and bloom profusely, the flowers being entirely distinct from those of any other species. This kind was figured in The Garden, Feb. 12, 1887, but since that time wonderful varieties have appeared amongst them. These plants growing in small baskets hung close to the glass present a much better appearance than when upon a plain piece of wood. I may also observe that the plants are freely syringed over the leaves and thrive well under the treatment. It may be that if kept cool and thus watered the leaves might be seriously affected, but I have never seen any ill effects where a sufficient heat is maintained.—G.

Cyrtopodium cardiochilum.—This genus has been much neglected, but I am pleased to see the interest in the various species reviving, because I feel sure that everyone who encourages the growth of these truly grand Orchids cannot fail to meet with great reward. In the earlier days of Orchid culture C. punctatum was highly appreciated, and it is still able to maintain its position as one of the finest ornaments of an Orchid house. C. Andersonianum is a very handsome plant, but a somewhat shy bloomer. More recently we have received C. St. Legerianum and the species here named at the commencement of this note, and which is said to be a tall-growing plant with Palm-like leaves and clear bright yellow flowers. I recently noted a form flowering in Mr. Sander's establishment at St. Albans, which by its flowers I took for cardiochilum, but if it is really that species it must take rank as an extremely free-flowering variety, as its pseudo-bulbs were not more than a foot high; thus it will not be cast out of any collection for want of space, and I would provisionally name the plant C. cardiochilum nanum.—W. H. G.

Lælia anceps Dawsoni.—This form of the well-known anceps still remains one of the grandest and rarest of the white-flowered varieties. It is now upwards of twenty years ago since this variety was sent home by Tucker, one of Mr. Low's collectors, and to the best of my knowledge it has never been sent to Europe by any other person, and it consequently still maintains a high price, as it is always in demand. The sepals and petals are pure white, the latter very much the broader; lip also white, the convolute lobes on the interior being stained with purple and streaked with radiating lines of deeper purple; the front lobe bears a large rich purple blotch with a white border, the disc being yellow. It is now flowering in Mr. Sander's nursery at St. Albans, and, like many other Orchids this year, appears to be out of season, but such gems are ever welcome.—W.

Odontoglossum Insleayi splendens.—Some very grand forms of this plant are now cropping up and appear to be the result of extended cultivation. Some forms were recently flowering with Mr. Tautz at Shepherd's Bush, in which the whole flower is of a rich deep yellow, but the spots of red are still to be found round the edge of the lip. All the forms of this plant are valuable for their late blooming.

Dendrobium album.—It is now nearly fifty years since this fine plant was introduced from India by the Messrs. Loddiges, of Hackney, but it has always remained very rare in cultivation and I was pleased to recently note a good variety flowering at St. Albans with Mr. Sander. The plant has somewhat the habit of D. chrysanthum, and the flowers are of about the same size as those of that plant. They are, however, of the purest white, saving the disc of the lip which is yellow. It requires good exposure to sun and light and an abundance of water when growing. It would appear to be a welcome addition to late autumn-flowering Orchids.—W.

Cattleya aurea.—I think the very grandest form I have yet seen of this plant is now flowering in the gardens of Mr. Connell, Bushy Down, Tooting. The spike bears five very large flowers, the sepals and petals being of a clear soft yellow, the lip intensely dark in front, the remaining part being netted with golden lines quite to the edge, and also in the portion which envelops the column. It is little wonder that lovers of the beautiful become enraptured with the infinite variety of form and splendid combinations and contrasts of colour which are depicted in the flowers of orchidaceous plants, and this plant and its near allies may be reckoned amongst the most gorgeous of the autumn-flowering species.—G.

SHORT NOTES.—ORCHIDS.

Cœlogyne speciosa viridis.—This is a very distinct variety which was recently flowering in the nursery of Mr. Horsman at Mark's Tey. It is very large and brilliant in colour.

Lycaste Skinneri alba.—Some very fine forms of this chaste and elegant plant are just now in flower with Mr. Sander. The white appears to be pure in all the forms we have seen, but the size and shape of the blooms would appear to differ almost as much as do those of the typical plant.

Epidendrum Randi.—This appears to be a fine and a distinct species, recently introduced to cultivation by Mr. Sander, of St. Albans. The flowers, however, when we saw the plant were just passing away, and, moreover, these blooms had opened in the case during the journey home, so that it is but reasonable to suppose that the flowers will be finer from established plants. We anticipate for it a front place in the genus.

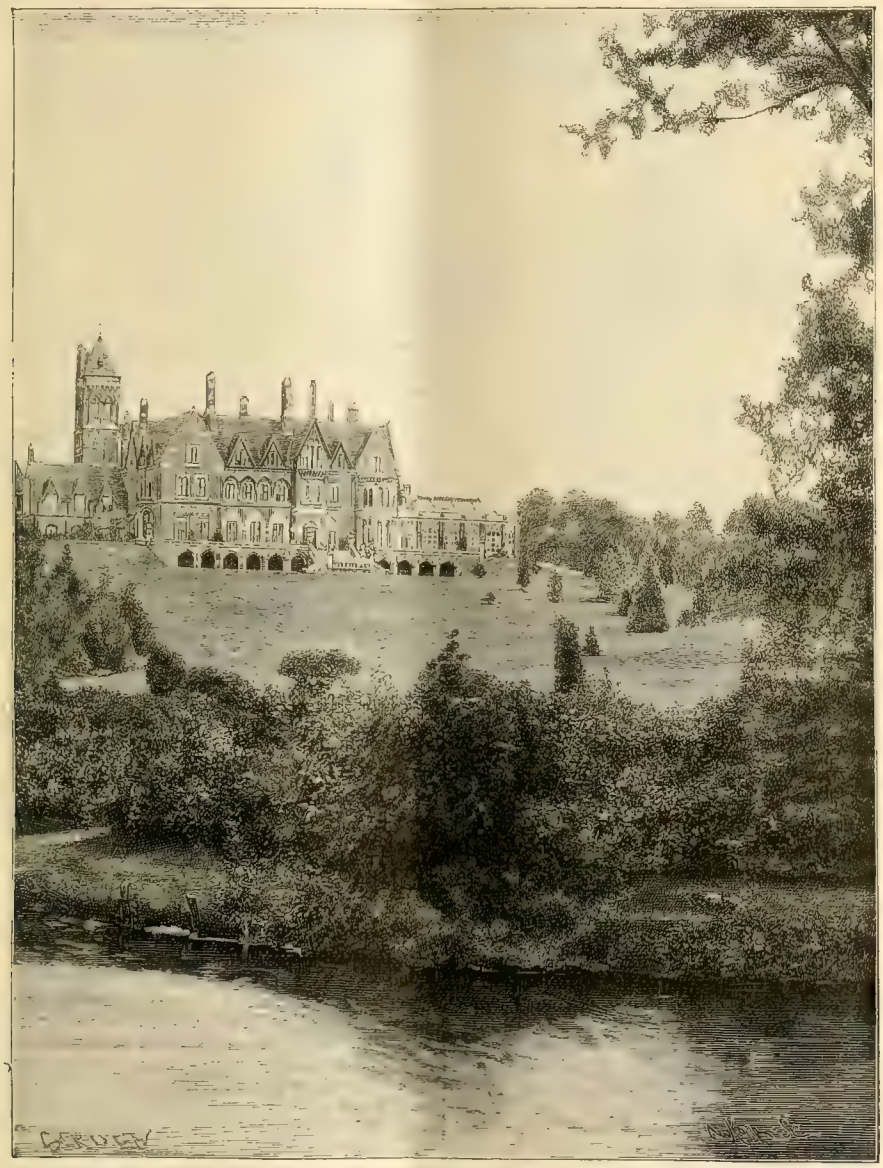
Cypripedium Harrisianum superbum.—A splendid form of this variety is now flowering in the nursery of Mr. Shuttleworth at Clapham. The colour of this form is very rich and intense, thus showing that this, the first hybrid Slipper Orchid, still maintains the first place among the numerous species and varieties now in cultivation.

Vanda cærulea.—This beautiful species still retains its high repute, as one of the most beautiful of the Orchid family. Especially was this impressed on my mind when recently visiting the St. Albans Nursery, where numerous excellent varieties are now displaying their charms. This species, like the whole collection, is in the highest state of health, and no great heat is maintained in any of the houses.—W.

Lælia Dayana and L. pumila.—These plants are flowering in profusion at St. Albans, and some very excellent varieties there are amongst them. It is quite enjoyable to find how well these plants are now doing. In the earlier days one could not see a single flower, where now a hundred can be found. For this we have to thank the skill of the cultivator. Such valuable plants specially recommend themselves to the amateur with limited space.

LEIGH PARK, HAVANT.

It is not often one finds all the elements of beautiful scenery so happily combined as at Leigh Park, the picturesque residence of General Sir F. Fitzwygram. From the front of the house the scene is of the most varied description. To the left the eye wanders away over field and meadow to where the cliffs of the Isle of Wight stand out conspicuously against the horizon. To the right, starting in the foreground and stretching away as far as the eye can reach, is an enormous Oak wood covering



Leigh Park, Havant, the residence of General Sir F. Fitzwygram. Engraved for The Garden from a photograph by Messrs. J. Russell and Sons, Chichester.

700 acres. In front the Portsdown hills, several miles away, mark the limit of the scene. The house stands on sloping ground, and a narrow gravel terrace has been raised to serve as a promenade. The arches on which this small terrace is built have, since the photograph was taken, been wreathed in climbers, which look pretty from the lawn. A few steps lead down on to the turf, which, left in its natural gradation, slopes gently down to the water's edge. The engraving is from a view taken across one of the islands, the broad sheet of water intervening between this island and the lawn not being visible. The lake covers several acres, and there are four islands; these, however, are in the background, where they have the best effect, for their presence conceals the actual extent of the water, the farther shore being invisible. Upon the surface of the lake are fine groups of Water Lilies, thirty clumps of which can be counted from the front shore, while others are concealed. This is not the common kind, but a large white-flowered variety brought from China by Sir George Taunton, to whom originally the place belonged. Leaving the foreshore and rambling along the banks, the beauty of the islands clothed with profuse vegetation is apparent. The prettiest effect is produced by some large trees of a white-leaved Willow which fringe one side of the largest island, the branches reaching to the surface of the water. On a smaller island Birch trees display their grace. Rhododendrons also grow luxuriantly and afford a pleasant change from the taller-growing subjects. Along the banks of the farther shore are large groups of the yellow Iris and Water Carex. As a fringe to the wood at the far end of the lake Pampas Grass has been used. There must have been quite fifty large tufts forming groups, with here and there an isolated specimen. The effect of these when in full beauty must be magnificent. Yet the whole of this is artificial, for the landscape gardener had not the advantage of a river nor even of a natural stream. All the water is surface water, brought down from the great surrounding woods, and in no single instance is there any evidence of artificial work.

There are many very fine trees about the extensive lawn and pleasure grounds, some isolated specimens, backed up by large deciduous trees to the left of the lawn, which slopes down to the lake being especially noticeable. The first one noted was a fine Thuja Lobbi nearly 50 feet high, Abies canadensis being nearly as large. There were good specimens of Nordman's Silver Fir, and of the beautiful glaucous Abies nobilis, rendered more interesting by the profusion of cones. Abies Lowi is a tree not often met with and is represented here by a specimen 50 feet high, while another still more beautiful was A. bracteata, a nice tree 30 feet high. Another handsome specimen of Pinus Cembra was very conspicuous. In every case the trees, carefully placed in recesses formed by the natural wood, had plenty of room, and their branches swept the ground. Cupressus nutkaensis, one of the best and most elegant of Conifers, also does remarkably well here. There are several specimens quite 40 feet high. Trees of this type are seen to best advantage when brought into association with those of less formal habit, the beauty of the Selaginella-like leafage being very marked. Judging from the fine specimen of Picea Pinsapo towering up to a height of 60 feet, and with branches sweeping the ground, one would infer that it must have been one of the earliest planted. Near it and 50 feet high was a fine specimen of the glaucous form of Cedrus atlantica. A large Tulip tree on the lawn was in full bloom. From the top to the ground the tree was covered with flowers. There were large trees of Magnolia grandiflora, M. conspicua, and M. purpurea, while Mahonia japonica, planted as a fringe to the shrubberies that border the carriage drive, has grown 9 feet high and is still well furnished down to the ground.

In the conservatory two Tree Ferns planted out had assumed great dimensions, while the pillars, draped with Fuchsia Monarch, were very beautiful. This appears to be a splendid Fuchsia for planting out, as it blooms freely and the flowers are large. Cobæa scandens is very beautiful when allowed a whole roof to itself as here, and the laterals hang down several feet, producing abundantly large purple flowers. A house is devoted to Victoria Regia and other interesting water-loving plants. Mr. Penfold once kept a Victoria Regia for four years before it died. The largest leaf he has grown measured 7 feet 8 inches across. Besides the Victoria Regia in this house, Nymphæa Devoniana and Nelumbium speciosum were flowering well. The giant Amorphophallus and the Papyrus were also here. The pretty yellow flowers of Limnocharis Humboldti, of which there were fine masses, enlivened the scene. In another portion of the great tank Pontederia azurea was thriving well and flowering freely. Along the rafters had been trained Vanilla aromatica, and in this position Mr. Penfold manages to flower it successfully. The well-pitchered Nepenthes and the hanging baskets of Achimenes combined to render this house a picture of wild luxuriance.

Of Orchids there was a nice collection, Vandas being particularly well done, some of the plants having carried as many as 14 spikes of flower. Cypripedium barbatum and its varieties were in full flower, one very fine piece of C. barbatum nigrum having fifty expanded blooms. A house filled with New Holland plants showed that they are still in favour in some gardens. Erica Cavendishi was represented by some fine specimens. The now rarely seen Aphelexis rosea, also Statice profusa, were in full flower. House after house of Grapes, Peaches, and Nectarines spoke well of Mr. Penfold's abilities as a fruit grower. Muscat Hamburgh was carrying some exceptionally fine bunches. Among Peaches, Mr. Penfold speaks highly of Barrington, and for a late Nectarine Albert is well spoken of.

Adjoining the pleasure grounds is an extensive, well-timbered park, in which General Fitzwygram generously permits large parties from Portsmouth to picnic, at the same time throwing open his beautiful grounds, which have been visited by as many as 15,000 people in one day.

Kitchen Garden.

VALUE OF OLD SEEDS.

According to the published accounts of the seed harvest, the yield in many instances has been very much below the average, and what is most to be deplored, the quality, as a rule, is decidedly bad. All things considered, it is no more than might have been expected, the season both in this country and on the Continent being most unfavourable to seed-saving generally. As a consequence we shall most probably have to pay somewhat higher prices for an inferior article, and the question naturally arises, How are we to obviate this difficulty? for a serious difficulty it is likely to prove to many. It is too late to think of saving new seeds, but in very many instances much old seed still remains in the seed packets, and the careful gardener will take greater care of these than usual. Not, however, with the idea of relying exclusively on them next season, as this might prove most delusive, but rather with the idea of having two chances instead of one. If the new fails, there yet remains the old seed to try, and under favourable circumstances the greater portion of it may germinate.

The crops of Peas and Beans are light and badly ripened, especially the later varieties, and a great quantity of runner Beans especially were much injured by the early and severe frosts. There is said to be a fairly good crop of Carrot seed, and in all probability a sufficiency of Parsnip. None of these are supposed to retain their vitality much beyond a year, but I have frequently sown both Peas and Beans that were nearer two years old, and the majority have germinated strongly. They, however, germinate more surely in gentle heat, the seed being sown after it has sprouted. Carrot and Parsnip seed may also be sprouted prior to being sown in the open. I should not expect that seed saved this season would keep well, but that ripened in 1887 if properly taken care of ought to be serviceable in 1889. Much Leek and Onion seed has been spoilt this season, and Salsafy, Scorzonera, and Cress have not fared much better. The seed of these, however, can be depended upon to germinate well when two years old, and should be preserved accordingly. Old Onion seed sown this year came up very evenly, and I have no doubt that very much old seed is sown cheaply every season. Plenty of Asparagus seed has ripened this year, but if the crop quite failed, seed one or two years old may be depended upon to grow nearly as strongly. A fair quantity of Seakale seed was also saved, this also keeping good for two or more years. Nor have good crops of Broccoli, Cauliflower, Borecole, Brussels Sprouts, Cabbage, and Savoy seed been saved, but, as it happens, few need to be told that seed well kept and from two to four years old will germinate freely, especially if sown in gentle heat or under glass, so that we need be under no apprehension concerning these. A difficulty may be experienced in procuring seeds of a few popular varieties, but in most instances good old substitutes may be found. The seed of Mustard, Lettuce, Endive, Parsley, Turnip, and Radish keeps equally as well as those last named, and the same remarks apply to them in every way. Very little Tomato seed has been saved in the open, and it does not pay to grow fruit under glass expressly for seed. Fortunately, that saved in 1887 will germinate strongly next spring, and seed one year or more older will frequently come up well. The Beet crop is said to be very light, and Celery has not matured much seed. These, and also Cucumbers and Melons, retain their vitality for several years, and ought not, therefore, to be lightly thrown away.

Whether the seed will long retain its vegetative powers, however, depends largely upon the care taken of it. If left in the packets lying about in a comparatively damp fruit or seed room, the paper soon becomes moist and the seeds mouldy, and when this happens it is useless to keep it any longer. The good old plan of storing seed in bags—these being hung up in a warm, dry kitchen—is rarely practised now, but it has yet much to commend it. Few now-a-days care to have their living rooms thus bedecked, but if employers would provide a good seed cupboard, this being well furnished with small drawers, the doors closing against these, such could be set not far from a kitchen fire and be found most serviceable. In these the seeds would keep dry and plump, and retain their vitality longer than usually thought possible. I do not advocate turning out the small seeds from their packets if these are dry, but they ought to be changed if at all damp or mouldy. In every case the supposed age of the seed should be written on each packet or bag, this preventing many future disappointments. In the case of Cucumber, Melon, and Tomato seeds, it is always advisable to take the greatest care of packets of seed that have proved to be true to name, as it is not often that they can be relied upon. W. I.

French Beans in November.—In most gardens it is customary to see all tender subjects, such as Beans, &c., a blackened mass after the first sharp spell of frost. I was, however, agreeably surprised to find an exception to the rule at Eastnor Hall recently. Previous to my visit several severe frosts had occurred; in fact, no less than 8° were registered that very morning, and in the neighbourhood everything of a tender nature was prematurely destroyed. But as Beans form an important item in the vegetable supply at the above-mentioned place, so much so that they are in requisition all the year round, exceptional precautions are taken to prolong their season from outdoor plants as long as possible. When there I was shown a remarkably fine batch of Williams' Matchless growing luxuriantly on a south border. These were, in order to protect them from frost, covered with sheets of canvas supported on stakes, and so erected as to enable the canvas to be rolled up during the day. This did its work admirably, and kept out many degrees of frost, and, provided the weather is not very severe, a good supply of Beans may be had far into November. Where this vegetable is in request, this method of prolonging the season is well worth adopting. The Beans referred to were sown somewhat late in the summer, and at the time mentioned were ust coming into bearing.—C. C.

WINTER TREATMENT OF THE SOIL.

How best to aërate, and so far, through the influence of the atmosphere, permeate the soil during the winter with nutritive gases is a question in natural physiology which is none too well understood. Properly it is a matter for the chemist, whose vocation it is to ascertain facts of this kind and to make them widely known. Really, it is a question for the gardener as much as anyone, because he has the greatest interest in a complete apprehension of the subject. The old tradition favours roughing up or ridging soil for the winter, thus exposing in that way, and as far as possible, the greatest area of it to the influence of the atmosphere. That tradition is found in almost every gardening book which deals in any way with the winter fallowing of soils. It forms the basis of numbers of homilies on soil treatment for the winter; it is, in fact, a part of the gardener's creed—literally one of his prescribed thirty-nine articles. I do not say that the traditional idea is an incorrect one; what I would rather invite is some enunciation from gardeners of their experience of the best form of treatment to adopt for the winter in relation to uncropped soils, and in what respect roughing up or ridging has been found beneficial or otherwise. I was very much interested in one of those private unpublished discussions on practical subjects which not infrequently crop up when gardeners meet. Generally the plan of severely cleansing soil, which was not beneficially cropped, from weeds, or indeed from any other form of vegetation, and exposing the surface thus fully to the influence of the air was held to be a mistake. The theory set forth was, that weeds, or indeed any plants full of leafage, were the natural agents in aërating soil, that through them atmospheric gases were introduced into it and thus rendered it fertile. Further, it was held that soil deprived of all vegetable life became inert, closed against the air, and suffered rather than improved. Of course there are weeds which could not be tolerated in soils under any conditions, but mere annuals, such as Groundsel and Chickweed, are hardy and comparatively innocuous, and when dug in during the spring give a useful vegetable dressing. Where objection may exist to the maintenance of a crop of weeds during winter, it is not difficult to have a vegetable covering of white Turnips, Spinach, Mustard, or some similar plants, which also dug in would form valuable dressings. Whilst, however, some stress must be laid on this latter benefit, really the greatest consideration must be given to the subject of winter treatment, as that is the real point under discussion. Here, on a pasty loam, almost invariably the worst results follow from roughing up soil for the winter, because the worm channels are destroyed, and the heavy rains soon produce a beaten, closed surface to the soil. Frosts, so far from proving beneficial, seem rather to aggravate the evil, as these induce a fine pulverised surface which rain soon beats into a close pasty crust. Thus natural aëration is soon checked. The result is, that roughed-up soil is found in the spring to be heavy and sticky, and often can only be worked after it has been dried by the March winds and once more moistened with showers. Still, such soil never does work well for the whole year. On the other hand, soil left just as when late crops have been removed, and which seems during the winter covered with worm casts always works best in the spring, and is in far the most friable condition. Still, winter labour has its necessities, and some trenching must be done during the cold season. If the winter be dry the surface in the spring is fairly friable, but if wet weather prevails then, the benefit arising from the trenching is much counterbalanced by the close condition of the soil. In all gardens some portion of soil should annually be trenched, and necessity invariably makes that a winter labour, but there is still a quantity of soil only roughed up by digging, and it is with that portion my argument

deals. If roughing up produces such indifferent winter results with clay soils, it may be pleaded that the result is diverse with sandy soils; but then these are always naturally open and friable and need the rough exposure least. After all, the real point is, Do soils gain by this form of exposure to the atmosphere or not? and even it is worth asking whether they lose anything. If the theory is correct that soil only gains from the air when carrying a green crop, then it is evident that roughing up is of little use. Of course winter digging does in some cases facilitate spring operations, but only where the soil is naturally light. With me it does nothing of the sort. I think this subject is well worthy of discussion, as it is culturally a very important one. A. D.

KITCHEN GARDEN NOTES.

Storing Roots.

The root crops, in most instances, were still growing strongly when the severe frosts were experienced, but these have had the effect of checking the top-growth, and the roots are now fit for lifting and storing. We are located in a comparatively warm district, and find there is less need to either store early, or even scarcely any portion of the crops for fear of injury from frosts, but find it advisable to clear the ground at this time of the year in order that it may be manured and dug early. Jerusalem Artichokes have formed exceptionally strong top growth, and, as in most instances, this is still quite green and uninjured by frosts, it is yet too early to lift a portion of the crop. In the southern counties of England the tubers may well remain where they are and be dug as required for use, a fairly heavy covering of strawy litter being spread over part of the bed, or otherwise none can well be lifted in very frosty weather. Any that are lifted in less favoured localities should be stored in a cool place, and if well bedded in sand or fairly moist soil will keep fresh and plump till the spring. Beet is more tender, much of the bulb being above ground. The crop must either be lifted or heavily moulded over. The roots, whether required for immediate use or for storing, ought to be carefully forked out of the ground, the quality and colour being impaired by the short breakage of the stoutest fangs; nor should the tops be cut off very closely to the roots, or this may lead to bleeding and also militate against long keeping. Beet keeps well if stored in a clamp, this being formed in a dry, cool, and sheltered place. Either a circular or wedge-shaped heap may be formed, this being covered with dry straw, over which a coating of soil is spread. A funnel must be formed at the ridge with a tuft of the straw, this letting out any superfluous heat and moisture that may generate. Smaller quantities may be stored in a cool shed, and must be bedded in sand or fine mould. Unless thus surrounded, the roots will shrivel badly. Damp and rats are great enemies to Beet, and must be guarded against. The coarsest roots—and there are many—this season are of little value, and may well be given to the stock or pigs at once. Large Carrots if left in the ground are apt to crack badly. The bulk of these should therefore be forked up, lightly cleared of soil, and the tops cleanly cut off without injury to the roots. The most deformed and the coarsest of the roots ought to go to the stables, and the rest be packed closely in sand or fine mould in a shed or outhouse. Grown on some soils they are found to keep better in clumps than in sheds, and those who experience a difficulty in keeping them under cover ought to try clamping, as advised in the case of Beet. It is usually the thickest end that decays first, and I have known instances where the roots cannot be kept long after midwinter anywhere but in the ground where grown. If left in the soil the roots ought to be lightly moulded over. Beds of Horn Carrots, whether the roots are of good size or rather small, need not be disturbed, the roots keeping fresher and better in the ground. A covering of litter placed over part of the bed prevents the ground from becoming hard, this admitting of the tender young roots being drawn at any time. The Carrots in late-sown beds or in cold frames continue to grow in mild weather. Onions were exceptionally late, and many have been lifted while the tops are yet quite green. Such can hardly be expected to keep well, and ought therefore to be the first used. All late-pulled roots ought to be well harvested in a dry heat if possible, stagings in early vineries being suitable for the purpose, and if fire heat is turned on and the ventilators set widely open a thorough drying should result. Onions ought to be either stored thinly on plaited hurdles on an airy staging of some kind, or, better still, be roped or bunched up. Hung up where plenty of air and but little frost can reach them, they ought to keep well. Either moisture or warmth or both together soon spoil Onions, starting them into premature growth. The best keeping varieties are the Brown Globe, James's Keeping, and The Wroxton, Giant Zittau and Veitch's Maincrop also keeping fairly well. The above sorts ought not to be touched while the White Spanish, Banbury, Reading, and Nuneham Park are available. Parsnips usually keep better in the ground than they do out of it. The very largest roots are most liable to decay prematurely, and lifting and storing in sand or dry mould do not check the spread of canker or whatever the disease may be that affects the upper portion of the roots. Where it is troublesome, the only remedy is to thin out less freely than before, leaving the plants say not more than 8 inches apart. A covering of litter over a portion of a bed prior to the advent of severe frosts renders it possible to lift a few roots at any time. Potatoes may be lifted and stored in clamps, cool dry cellars, or outhouses, where they can be kept dark and protected from frosts. In the southern counties at any rate they may be safely left in the ground and dug as required, always provided they are well moulded over It is not the frost so much as the too rapid thaws that spoil Potatoes or roots of any kind, and a good covering of soil ensures the necessary gradual thaw. Turnips we rarely store, as we find they keep better in the open ground. Chirk Castle Blackstone is perfectly hardy, late in running to seed, and is most tender and mildly flavoured any time during the winter or spring months. All the Year Round and Orange Jelly are both yellow-fleshed varieties, and these also keep well. Veitch's Red Globe is also a fairly good keeper, and this ought to be kept till such time as Early Milan, Snowball, and other comparatively tender varieties are all used. The late sown breadths of any varieties are still growing strongly, and these ought not to be interfered with, as quite the smallest may be of good service next spring. Fully grown roots may be protected by being moulded over, or they may be pulled and after having their tops and roots shortened, but not closely cut off, be stored in clamps as advised in the case of Beet. Salsafy and Scorzonera are never injured by frosts in this district, and are found to keep much better until the spring where grown. Where it is thought necessary to lift them this should be done carefully, and the roots ought to be packed in sand or fine mould. Chicory roots keep best in the open ground, but if the roots are lifted and packed in sand or soil in a cool shed they will keep fairly plump. It is unwise to lift Leeks, these being perfectly hardy, and Celery and Cardoons may usually be protected where grown.

W. I. M.

SHORT NOTES.—KITCHEN.

Stachys affinis.—How is this eaten, cooked or raw? Is this the right time for lifting, and is it worth lifting, eating, or growing?—G. J.

The Broccoli crop in Cornwall.—Seldom, remarks a local paper, has the greater portion of the Broccoli crop in the vicinity of Penzance looked better. Many heads could now be cut. There is no demand for them as yet, however, Cauliflowers being abundant and cheap. There bids fair to be abundance of Cornish Broccoli when wanted, and local growers hope that sharp weather will soon create a demand for them.

Making Mushroom spawn.—For the information of "J. T. N." I give the method of making Mushroom spawn, which I have found quite successful. Some manure is prepared in the same manner as for the beds; in fact, we use it at the same time as we are making up a bed, choosing that which is in the best condition, sweet, and neither wet nor dry. We place the manure in a 6-inch pot, ramming it very hard in the pot with a thick blunt stick. The soil portion of an old bed which has previously borne a crop of Mushrooms is preferred. Take from this pieces the size of Walnuts, and place one piece in the middle of the pot Fill the pot with manure, making it quite firm as before. Place the pot in a dry position in the Mushroom house, giving no water. The pot may remain in the Mushroom house until the manure becomes spawn, which it does in from four to six weeks. No water is required during this time. We generally make twelve potfuls at once.—E.

GARDENING FOR PROFIT.

Although gardening in all its branches has increased with rapid strides during the past few years, I doubt if any branch of the art has increased to the same extent as that of gardening for profit in some form or other. At the present time we seem to be only on the threshold of the undertaking, for even at the present rate of increase garden crops of some kind seem likely to take up all the surplus land that is not being devoted to agriculture; while the increase of glass structures for the production of plants, flowers, or fruits for market goes on with increasing rapidity every year.

On taking a retrospect of the past few years, it seems incredible that, with nearly all the large private gardens more or less employed in growing for profit, the purely market establishments should have been not only able to hold their own, but to increase at an enormous rate both in size and numbers. No more convincing proof could be given of the fact that we are rapidly becoming a nation of horticulturists than that during the long depression in trade and manufacture the increase in garden work of all kinds, and especially in that connected with the trade, should have shown such a steady advance; yet we do frequently hear complaints from those who have been trying to make a profit that there is really no chance of doing so, for every branch of the trade is already overdone, and I have no doubt that they state the exact truth as far as their own personal experience goes. That they have been unfortunate in choosing their locality or have entered into the wrong branch of the trade seems to me the true cause of their failure. So long as we continue to receive such enormous importations of foreign-grown garden produce, it is clear that there is room for more home growers to live and thrive, but they will find plenty of discouragement at first, I am well aware. In the way of those who start growing any kind of garden produce for market there appears a multiplicity of obstacles. For although rent of land has of late been considerably reduced, all the old imposts that press so heavily on the land in the form of tithes, rates, &c., remain, and tenants are powerless to protect their own outlay, by reason of leases being too short, and compensation for improvements being all in favour of the landlords. If one takes the trouble to look a little below the surface of this important matter, he will find that the majority of growers for profit are cultivating crops that they can clear off as yearly tenants; not a fraction of them go in for any crops that need waiting for, and for this reason the vegetable markets are abundantly supplied and there is little room for new comers to make headway against the old ones. But when we come to fruit growing of the most improved kind we find we are miserably deficient. Orchards are being planted with worthless kinds and let at exorbitant rents, for there are not owners of small plots enough in all England to grow what is wanted, and tenants are afraid to expend their labour and capital on other people's land with the prospect of losing it all as soon as their lease is out. Why could we not grow as many Apples and Pears as we could utilise if the road was clear for willing workers?

Then there are crops that need glass structures to bring them in while the high prices are ruling. But here again the insecurity of the tenant stops the way, and renders it possible for the foreigner to get all the best of the bargain. Our home growers come in after the small horticulturists of France

and other countries have obtained the best prices for their goods. If anyone is interested in hardy fruit culture they should go and see good examples of dwarf Apples and Pears, and compare the produce with the ordinary run of orchard fruit as gathered from standards and note the difference in value when they are offered for sale; there is too much produce only fit for hawkers' barrows, and not half enough of the first-class article produced. No one would advise tenants to plant standards for profit, for if they did the old saying of planting for the next generation would undoubtedly be verified; but if they devote their attention to dwarf trees on the most approved stocks for their kinds, they may soon realise a fair return for their outlay. A few select varieties of kinds that do bear in their infant state, good trees to start with and good culture afterwards, the soil kept quite free from other crops encroaching on their roots, and ample dressing, are a few important items of culture, and after you have grown your crops, try and dispose of them as near home as possible, for railway companies and market toll proprietors swallow up a good deal of what ought to go to make market growing for profit a possibility. If you cannot act as your own salesman, take the next best course and make a bargain with some reliable shopkeepers, for too many profits mean a very small one for the grower.

J. G. H.

Fruit Garden.

W. COLEMAN.

GOOD GRAPES RARELY MET WITH.

A short time ago I drew attention to capricious Grapes, and now venture a few remarks upon choice varieties worthy, I think, of a place in all private gardens. From a commercial point of view they are of little or no use whatever, but the time surely will come when buyers in the market, like connoisseurs in the home vinery, will be able to pass by prodigious Gros Colmans and Marocs, for which they now pay the highest prices, simply because they are big and imposing, and will give preference to clusters of moderate-sized berries of exquisite flavour. Consumers of all other fruits—at least those who know what they are about—do not pay double price for Apples or Pears, Peaches or Nectarines, where size is their only recommendation, otherwise the delicious Kerry Pippin, Margil, and Cox's Orange Pippin would be superseded by Alexander and Peasgood's Nonsuch, the Seckle and Winter Nelis Pears by Beurré Diel and Léon Leclerc, Grosse Mignonne Peaches by Salway, Stump the World or Sea Eagle, and so on, or, carrying the point a little further, the old Queen and Black Jamaica Pines years ago should have hidden their diminished heads beneath the shadow of the 14-lb. Providence. Nothing of the kind, however, has happened. All the big fruits I have enumerated are good in their way and have their proper value, but no good judge of fruit thinks of placing quantity before quality. Why, then, should Grape consumers of the present day take so unwillingly to a lesson which their forefathers knew by heart? If cheapness were the only reason, the question would be satisfactorily answered; but this is not the case, as we find uneatable Gros Colmans cheerfully carried away at 5s. or 6s. a pound, where the best of Hamburghs go begging at half the money, and the Frontignan-flavoured Grapes, now rarely sent in, remain unsold. Whilst this running after sensational bunches of Grapes continues, men who supply the million cannot be expected to plant Frontignans, but could the upper ten thousand be reviewed, I venture to think nine-tenths of the owners of vineries would say, let all these choice varieties be represented; do not waste too much valuable space upon luxuries, but let us see once more the delicious Grapes of which our fathers thought so highly. Bowood Muscat, Madresfield Court, Mrs. Pince, nay Colman, Maroc, and Alicante must have proper space and attention. Lady Downe's and the queen of Grapes, Muscat of Alexandria, must have houses to themselves, but do not play the tyrant. Let us have Grizzly Frontignans amongst our pot Vines, a white Frontignan in the early house. Plant or inarch that splendid Muscat-flavoured Grape, Mrs. Pearson, in the late house, and ask some old friend to give you a bottle graft of West's Saint Peter's for working in the warmest end of the Lady Downe's house. Messrs. Pearson, of Chilwell, possess the variety which so nobly represents the best of all white winter Grapes after Muscats have passed away, but very few trade growers will give West's Saint Peter's true; therefore you must try Chatsworth or Frogmore for a very old variety highly appreciated by a duke, and the first lady in the United Kingdom.

As I do not wish anyone to devote a single rafter to each of these Grapes upon my unsupported recommendation, I will invite perusal of Barron's book upon Vines. He is a good judge of Grapes, and speak as he finds; moreover, his cultural notes are brief and to the point. Every Grape grower, I presume, has this excellent five shillings'-worth of matter upon his bookshelf, but lest anyone may have delayed buying the second edition, I will devote a few lines to quotations. Turning to

Grizzly Frontignan, he says: Growth moderately strong, ripening well, very fruitful. Bunches medium-sized, well set. Berries below medium. Skin thin, tawny, covered with a thin bloom. Flesh firm, rich, decidedly musky. When kept hanging apt to shrivel, but is then exceedingly rich and excellent to eat. Has a tendency to shank. Requires a warm vinery to ripen it thoroughly. Introduced by Sir W. Temple in 1654; formerly cultivated in every collection, but is now seldom met with.

White Frontignan.—A round, white Muscat Grape. Merits first-class. Growth free, robust, very fruitful. Bunches long, freely set. Berries small, round. Skin thin greenish yellow, often much covered with dull russet. Flesh firm, juicy, sweet, rich, with strong Muscat flavour. One of the fine old Grapes, now neglected; formerly found in every collection.

Mrs. Pearson.—Round white Muscat. Ripens late, hangs and keeps well. Growth strong and vigorous, wood ripening well, fruitful. Bunches large, freely set. Skin thick, leathery, amber when quite ripe. Flesh firm, juicy, sweet, with strong pleasant Muscat flavour. Raised by Mr. Pearson from Black Alicante crossed with Ferdinand de Lesseps. First-class certificate Royal Horticultural Society, 1874. Not in general cultivation.

West's St. Peter's.—Oval, black, vinous Grape. Late, first-class as a late variety; second only in point of quality to Black Hamburgh. Most refreshing for invalids. Growth free, moderately robust, very fruitful. Bunches medium-sized, loose, broadly shouldered, thin, wiry footstalks, freely set. Berries medium, roundish ovate. Skin thin, very black, bloom thin. Flesh tender, very juicy, sweet, remarkably fresh and pleasant. Thirty years ago this was the leading late black Grape; hence the origin of so many spurious varieties. It is best known as Oldaker's, West's St. Peter's. It requires warmer treatment than is good for the Hamburgh, not so much to set the berries as to ripen the fruit. Succeeds best in a house by itself. If ripe in September it will keep well till March.

Apple Sturmer Pippin.—Whilst conversing with a large fruit grower recently, reference was made to this Apple, and, in his opinion, it was one of the most prolific and useful varieties grown. In flavour, he considered it almost unsurpassed by any other variety in existence, and being juicy and a very late variety, he considered it worth growing much more extensively than it is at present. Reference was also made as to its usefulness as a market variety. This, I am afraid, it will never be, at least not to any great extent. For private use it is in every way a most useful Apple, and one which should have a place in every garden, but it is not the sort to create any special demand in the market. It is not of sufficiently good appearance. Apples for sale must be of good appearance, and this, if combined with quality, will secure good results.—C. C.

PLUMS.

One of the leading features at the meeting of the Royal Horticultural Society on Tuesday, the 9th inst., was a collection of Plums sent by Messrs. James Veitch and Sons, gathered from pyramid trees about 5 feet in height in their new fruit tree nursery at Langley, Bucks. The lateness of the season was witnessed in the case of some of the varieties, as they were not ripe, and Mr. Reed stated that the fruit would have hung upon the trees for another month or six weeks had frost not set in. Taken alphabetically, the varieties were Archduke (Rivers), a fine new variety which crops heavily and is of excellent quality for cooking purposes, medium-sized, oval, purple, with a nice bloom; Belgian Purple, a very fine cooking purple Plum, said to be superior to Prince of Wales, a heavy cropper, and an excellent market variety, the quality so good as to be available for dessert; Belle de Septembre, a handsome roundish, red, cooking Plum, belongs to the Orleans race, generally a good bearer, and valuable on account of its lateness; Cooper's Large, a longish oval, dark red Plum, ripening in September, a vigorous grower and abundant bearer, and classed among the best dessert varieties; Corse's Nota Bene, a round reddish purple Plum of Canadian origin, and a good dessert variety; Braby's Green Gage, a large round dessert Plum. Mr. Reed says it is late at Langley, but Dr. Hogg states that it ripens before the ordinary Green Gage; it grows to a great size. Decaisne, a French Plum introduced about 1860, oval, green, something in the style of Jefferson's, but not so golden, of excellent quality, ripening in September and October; the fruit shown on this occasion were quite green. Coe's Golden Drop, a well-known variety that is found too delicate to grow successfully as a standard, and should have the assistance of a wall. Fulton is an October Plum, the skin whitish yellow, shaded with red, oval, and apparently not much known; it is a good cooking variety, and worth admission as a dessert fruit. Grand Duke (Rivers) is one of our very best Plums, a very large oval, purple fruit, a free bearer, and almost unrivalled for culinary purposes; a grand late variety. Fellenberg appears to be a synonym for the Italian Prune, a dark oval fruit bearing a good bloom. The Late Green Gage is at least two weeks later than the Old Green Gage, and it has all its good qualities. Goliath, or the Caledonian Plum, as it is known in some parts of the country, is a large reddish purple variety, showy in appearance, but of second quality for dessert; good for preserving, and said to command a good price in the market. Impériale de Milan, or the Milan Prune, a round purple variety, ripens at the beginning of October, and is good for late dessert and also for preserving. Lafayette is a medium-sized, oval Plum, ripe at the end of September; a good late variety, flesh rich and juicy, and the flavour excellent. Jefferson's is so well known as one of the largest and finest Plums grown for dessert as scarcely to need description. It succeeds well as a standard, pyramid, or on a wall. Kirke's is a very rich purple dessert Plum, with a handsome bloom, but a shy bearer, and needs root-pruning to make the tree fertile. It is too uncertain for market purposes, but is well worthy a place in the garden. It is a very fine exhibition variety. Lawson's Golden Gage is also a very fine dessert Plum, yellow, speckled with crimson, and ripening in September. It does not appear to be much grown. The white Magnum Bonum was very fine, and it is one of the best of kitchen Plums, very handsome, and valuable for preserving; fruit grown on wall trees carries a very fine bloom. Pond's Seedling is one of our largest Plums, oval,

red in colour, a very vigorous grower, a great bearer, and to be depended upon as a cropper, and so makes a very fine market variety; it ripens in September. The Purple or Blue Gage, or Reine Claude Violette, is a very delicious and handsome purple Plum, highly flavoured indeed when it has become shrivelled; a garden Plum, needing a wall to ensure a good crop. Reine Claude de Bavay is a very richly flavoured Gage variety, with a golden skin, ripening in September and October. The Transparent Gage is a golden yellow Plum, and one of the finest dessert varieties, an awkward grower, however, and needing to be well root-pruned Lastly comes Standard of England, a medium-sized, oval, red, culinary Plum that has scarcely justified the high opinion formed of it when sent out about thirty years ago.

The latest purple Plums are Grand Duke, Archduke, Belle de Septembre, and Impériale de Milan, the two first named being valuable alike for kitchen and dessert purposes. The latest yellow or green Plums are Reine Claude de Bavay, Descaisne, and Bryanstone Gage. R. D.

Fruit growing.—The following paragraph relative to fruit growing which is now engrossing the attention of horticulturists lately appeared in the *Times:* "Opinions will differ as to whether much profit can be got from fruit growing in this country (except on a great scale, as by Lord Sudeley, who has all the appliances necessary for jam making and fruit drying) so as to secure against gluts in the market and in cottage gardens; but there can be no doubt that where good fruit can be grown with no cost for space this will be a positive good. Messrs. Ewing and Co., of Norwich, who made a speciality of Cherry Plum (Prunus Myrobalanus) for hedges, recommended that standards should be allowed to grow up at proper intervals, and have good sorts of Plums grafted upon them. I tried this in our garden; we have now a capital hedge with a number of fine young Plum trees. It is said, I do not know with what correctness, that cattle will eat the Cherry Plum, but there are many situations where the hedges will not be exposed to this danger. In these a quantity of good fruit can be grown with no cost but that of grafting.—George F. Wilson, *Heatherbank, Weybridge Heath.*"

BUSH FRUIT TREES.

There are many ways of growing Pear trees, and as the planting season has commenced, this is a fitting season to bring before the intending planter the advantages of the bush method of training, fast becoming general. Although this method has strong recommendations, it would be absurd to lay down any hard and fixed rules, as it is not every soil, position, or garden that will suit it, while in others the crops produced are astonishing. There will come a time when the market gardener will see the value of the bush tree over the miserable standards and other methods now adopted. If we are to compete with America in Apples, we must bring about a revolution in the method of culture and rid our orchards of the dross that now encumbers them to the disadvantage of the grower and public generally. There is nothing so sweet and luscious as a ripe English Apple or Pear. The fruit has a piquancy that is lost in foreign productions, but it is hard to obtain good samples of English-grown fruit unless a high price is given. While fruit growers in general have been lamenting over the barrenness of the season, there has been a prodigious crop on the bush trees in the Royal Horticultural Society's garden at Chiswick. The small trees there, some of them not more than 4 feet high, have been loaded with fruits of excellent size and unblemished. If this result obtains here, why should it also not in other places where perhaps the advantages of soil and position are better? As yet the bush form of training has been confined to gardens, and those who have limited space may be strongly advised to adopt it in the place of the pyramid or cordon method. It is certainly the most natural way to cultivate the tree, as it branches out in the form of a bush, varying in vigour and character according to the variety. Trees of dwarf stature like these can be attended to most readily. There is no need for ladders and very little occasion for pruning, for the heavy crops annually produced help to keep down undue growth, the main requirement being to attend to the young trees closely when in fruit, as frequently the slender stems snap with the weight of their heavy burden. The small bushes of Apple trees at Chiswick are on the French Paradise stock, and are planted about 6 feet apart.



A bush Pear tree (Duchesse d'Angoulême).

The accompanying illustration shows a bush tree of the Duchesse d'Angoulême Pear, and this was grown by an amateur in Kent. In planting a piece of ground at the back of the lower portion of this garden he was careful to choose trees such as we now recommend, and well furnished with fruit buds. The ground, which was very poor, was well prepared, and the trees, fifty in number, were planted at a distance of from 4 feet to 6 feet, according to the character of the tree, whether of vigorous growth or otherwise. Each tree was properly staked and a mulching of rotten manure given, for the purpose both of protection from frost and affording nourishment to the roots. In the following spring the trees flowered well, and at that time fresh mulching was given, being spread over the surface and lightly forked in. A little pinching of the shoots was done in summer, and when the weather was so dry as to hurt the trees a thorough watering was given, but at no other time. In a large orchard of bush trees, of course, to give frequent watering would entail endless labour, but such a course can be followed in a small garden. In the autumn the trees were cropped as the one shown in the accompanying engraving. Slight pruning was needful in winter. Very little damage was occasioned by storms when the trees were in bearing, while the standards were punished severely, half of the fruit being blown off. In the following years this same treatment was given. Here, then, is evidence of the profitableness, fruitfulness, and utility of the Pear and Apple bush form of culture. W. C.

Apples for Hertfordshire.—Amongst the facts as to the best varieties of Apples suitable for each locality, which I am now gathering from various friends and acquaintances in different parts of the country, one writes me this week from Hertfordshire. The soil, I am told, is a heavy loam with a strong subsoil, and the trees are planted in a somewhat exposed position. Some varieties are subject to canker, though this is fairly well kept in hand by constant lifting and keeping the roots near the surface, which also has a tendency to well ripen the fruit and wood. Amongst the cooking varieties the best are Wellington, Mère de Ménage, Alfriston, Lord Suffield, Hoary Morning, Gloria Mundi, and Blenheim Orange; while in dessert varieties, such as Cox's Orange Pippin, Sturmer Pippin, Adams' Pearmain, Syke House Russet, and

Lord Burghley are the finest. King of the Pippins is a free bearer, though it is not considered a first-rate dessert Apple. Most of the trees are pyramids, and not more than 12 feet in height.—C. C.

RENOVATION OF OLD AND FORMATION OF NEW ORCHARDS IN THE WEST MIDLANDS.*

Five years having passed since the Royal Horticultural Society inaugurated the first Apple conference, the present council has wisely decided upon testing the result of that important step by again calling together the friends of Pomona. A small minority at the time thought the exhibition of thousands of plates of Apples would not benefit the growers, but overlooked the fact that these exhibits would bring together, not only the growers, but the consumers also. Since that time the growers' prospects have not improved, owing, they say, to the prevalence of low prices brought about by gluts and foreign competition. Buyers, on the other hand, say the supply is unevenly and irregularly distributed, and the price is too high when they purchase from the retailer. Growers say fruit culture will not pay until the land each man holds or occupies is as good as his own, or let to him on a very long lease indeed; but present owners of the soil somehow do not seem to see the force of their argument; consequently the most important work the present gathering has before it is the framing of a scheme of open markets in which consumers can buy first hand at fair remunerative prices. This is all very well, but supposing each householder is in a position to buy Apples say, from day to day, where are those Apples to come from? Why, we must import them. Actually, we must trust to the colonies for the produce of a tree which is indigenous to our soil, whilst thousands of acres of land capable of producing the finest fruit are going out of cultivation. To the Royal Horticultural Society should attach the honour of taking the initiative in working out this problem, but before the body can move we must learn from reliable men the progress which has been made in the great fruit-growing districts. Living as I do in the county of Hereford, boasting its 27,000 acres of orcharding, where in days gone by thousands of tons of good fruit was lost, wasted, or converted into indifferent cider, I am able to form a pretty correct opinion of our own progress, and although less rapid than I could wish, I may say it is fairly satisfactory. Cider drinking amongst the working classes since I first knew the county has gradually decreased; consequently small parcels of the rosy Tom Putt and other useful Apples, alike good for cooking or vintage, are now stored for daily use by all the members of the grower's family. If not wanted, then they are sold to dealers, who make a profit for conveyance to retailers, who also make another profit, and that a heavy one, from their customers. Although a slight step forward, this state of the case is not quite satisfactory, neither will it be until a powerful fruit growers' association, which should be the outcome of this conference, has established a network of markets in all provincial towns as well as in London—markets in which producers, as in all parts of Paris, can meet face to face with consumers without the aid of so many middlemen. In fruit-growing counties like Hereford, Worcester, Gloucester, Kent, Devon, and Somerset, these local markets should be well supported, as we gather from statistics that three-quarters of a million of money is sent out of England annually for Apples alone. If landowners, hitherto blind to their own interests, and legislators now take up the matter, I see no reason why growers should not go forth to the production of an article which the public must and will have, and so keep the money at home. Our climate is all that can be desired for the growth of fresh crisp fruit, not quite so highly coloured or so large as picked samples from the colonies, but large enough to command top prices when well grown and packed, and properly marketed. There must be no shaking from the trees, but the cream of the crop must be hand-picked and honestly packed as firsts and seconds. The residue or refuse, which added to the best would increase expenses and pull down prices, would then remain at home for various purposes.

Mr. Knight, the great physiologist and hybridist, who worked so much in Hereford and Salop, proved by analysis that some soils, even in these favoured counties, were preferable to others for producing Apples of dense gravity and full of saccharine matter. The late Dr. Bull, of whom Hereford should be proud, following in his wake, corroborated all that Knight had said, proving, I think satisfactorily, what past generations of shrewd men had found out for themselves, both as regards the quality of the fruit and the constituents of the soil which should be chosen for Apples, also for Pears. The conclusions at which they arrived were these: The light thin soils will not grow the best Apples; therefore those who would plant a successful orchard must choose a deep stiff sandstone loam if they have the opportunity of doing so. All the orchard land in this county is not alike good; indeed, some is very bad, but the soil here, as in Devonshire, which produces the best fruit owes its fertility to the plentiful supply of lime from the marl or cormstone; to its great depth and sustaining nature. Scientists who will may peruse the first part of the "Herefordshire Pomona," or they may follow Mr. Rivers through his exhaustive address delivered at the Crystal Palace, but my remarks, necessarily brief, will guide plain practical planters to the best spots for new plantations.

Having been honoured by an invitation to contribute a short paper upon the Apple, I have determined to confine myself to the west midland orchards, in which, I am pleased to repeat, some progress has been made since the first conference was held in 1883. Draining, grubbing, grafting, and planting are still going on, but much remains to be done before we can invite inspection. Although the Apple is a long-lived tree and perfectly hardy in all its parts save its flowers, the occupants of many of our oldest orchards, crippled by age, bad usage, and neglect, are past recovery and should be cleared away, but the ground they occupy should not be replanted if better or equally good sites can be found for new plantations. Other orchards, again, containing thoroughly sound young trees, although of inferior sorts, after the grubber's axe has passed over the land, may be converted by grafting and resuscitated by draining and top-dressing. Some of our oldest orchards which date back to the Wars of the Roses contain a great number of wildings or kernel fruits of no value to the owners even; whilst younger plantations are crowded with healthy, vigorous trees, at one time supposed to be Norman, but now proved to be English seedlings, no better than the stocks used in large nurseries. Upon the first I would not spend money, as they are too old for grafting, too old to pay rent, too old for anything save loss and disappointment. The second I would behead and regraft with choice varieties which have been proved in the locality. Confining myself to old orchards now existing or languishing in the western counties, I may close my remarks upon this head by saying, Cut down all useless trees; thin out the heads of those worth keeping; cleanse the branches and stems from Moss and insects; regraft sound, healthy trees with good market sorts, and see that the drainage is satisfactory. I will not presume to inform practical men who may deign to read my remarks that sound, deep, naturally-drained orchards are better than others which require artificial treatment, and that a certain quantity of moisture in the soil is absolutely necessary, but on no account must it be stagnant. All gardeners are well acquainted with the fact that soils too dry prodnce fruit that is small and mealy, whilst waterlogged soils are several degrees colder than others of similar texture that are free from this root-chilling poison. They know, moreover, that warm summer rains run off the surface, whilst the sun acts very slowly in raising the temperature of the wet subsoil in which deeply seated roots soon perish, and those nearest the surface are little better off, as they do not commence fresh action much before midsummer. Drainage, all good cultivators assert, is the first essential in the preparation of new orchards or in the renovation of old ones, and why? well, simply because the removal of stagnant, if not putrid, water and the introduction of fresh air raises the temperature of the soil from 3° to 5°, a condition which not infrequently forms the dividing line between success and failure.

So far my remarks have been confined to old orchards planted haphazard upon all sorts and conditions of badly-prepared land, as well as in unfavourable situations. The best of these may be retained for a time, upon the principle that half a loaf is better than no bread; but the majority of them must go, and young ones must spring up before we can hope to realise an average £10 an acre, or compete with the colonists in our own markets. Some years, as many present know, have passed since horticulturists commenced agitating, but the good seed which was intended to put three-quarters of a million of money into the British farmers' pockets for a long time fell upon stony ground. Some recently has taken root, and far-seeing landowners are now putting our theory into practice by offering land upon conditions that will induce capitalists to invest in fruit culture precisely as they do in coal and iron. In this and the adjoining counties good landlords are raising and distributing to their tenantry Apple and Pear trees by thousands. These mostly are standards on free stocks, the only class of tree suited to pasture and arable land. Nurserymen, again, who have brought propagation up to a fine art are producing standards and dwarfs by the million, and these surely in a few years should make their mark. Meantime, a complete network of markets, I insist, must be created throughout the kingdom.

From the preceding remarks those who run may gather the fact that I do not set much value on the thousands of acres of ragged, decrepit Moss and Lichen-laden trees, but until the new plantations come into bearing we must make the best of them. Then, with Gladstonian vigour, we may hew them down, and let the Apple-sick sites go back to Hops, Corn, and pasture. Upon this principle change of site may be worked precisely as gardeners now manage their Strawberry plantations, and with similar results. As I venture to say, one acre of modern orcharding will beat ten of the old—at least, in the west midland counties.

Already I am afraid my paper is too long, but having warmed to my subject, I should now like to say a few words upon the formation of these modern orchards. I might divide them into several parts, such as aspect, site, soil, preparation, planting, the best style of tree manuring, mulching, pruning, and protection, gathering, storing, packing, and marketing, but my time being limited, my words must be brief and general.

Aspect and site being so closely dovetailed together, these I will not attempt to separate. All gardeners, I believe, are pretty well agreed that a south aspect is best, as trees in this position ripen their wood well, and produce fruit of the highest colour and quality. The Apple, however, being perfectly hardy, the quality of the soil must not be lost sight of; neither must altitude and shelter from north and east winds be repudiated. Under these circumstances, the soil being deep sandstone loam resting on marl, and naturally drained, I should not object to a point east, or any other aspect round with the sun to full west. The latter, however, I should prefer, and for these reasons: although western gales in this part of the country do some damage, it is well known that if plants are exposed to the first rays of the morning sun when they are frozen they will suffer, but if they are shaded until they are gradually thawed by the rising temperature of the air they will stand a few degrees with impunity. An orchard open to the east or south-east is almost sure to suffer after an attack of spring frost when in full flower or setting, whereas one with a western aspect, which does not receive the sun until the temperature has risen and dispelled the frost, often sets and carries full crops to maturity. Hardly a year passes in which the gardener does not find early crops of all kinds are safer and finer upon west borders than upon others. Therefore I think few will deny that his experience

* A paper read at the Apple and Pear Conference, Chiswick, by W. Coleman, Eastnor Castle Gardens, October 17.

is of great value to the planter. The site, I may say, should be above the line of fog, and it should not be too near or on a level with water. If naturally drained, much time and expense will be saved, otherwise this operation must be well carried out as a preliminary to preparation. This may be performed in two ways, viz., by trenching two spits deep for pyramids or bushes, or by taking out large circular stations on Grass or arable land for standards. If trenching is decided upon, the bottom spit, if heavy and inferior, should not be brought to the surface, but it may be ameliorated by the addition of burnt clay from the drains, by road scrapings, or any other fresh friable material short of rich animal manure. This, unless the staple be very poor, I would keep back for use as a mulch after the trees are planted. On all ordinary loams young trees grow fast enough at first, but the time comes when they must be fed, otherwise they cannot be expected to yield year after year fruit of the finest quality.

In the preparation of stations for standards on Grass or tillage ground, I would throw off the top spit 9 feet in diameter, break up the bottom, and throw out clay or bad material to be carted away or burned. If cold and at all unfavourable to root growth, exposure of the soil for a few weeks or months would greatly improve its quality. Otherwise, after correcting the bottom spit, that thrown off first, turf included with anything in the way of road scrapings or old lime rubble added, may be chopped in until the hole is quite full, or a little above the general ground level. A stout stake should then be driven down to the solid bottom as a support for the tree when planted.

Planting may be performed at any time from the beginning of October up to the end of April. Autumn, however, is best, as the roots at once take to the soil and the trees make a fair growth the following summer. October and November are undoubtedly the best months, that is, provided the land is in perfect condition and the weather favourable; but so important is getting the trees into the ground when it is fairly warm and dry, that I would rather defer planting until April than risk placing the roots in a pasty medium. Trees of home growth, that is, from one's own nursery, which every fruit grower should have, may be planted earlier than others brought in direct from a distance. All trees should be carefully divested of faulty or injured roots by a clean cut with a sharp knife; they should never be allowed to become dry, and each root and fibre should be spread out in a horizontal position, lightly covered, and watered home.

In the arrangement of trees, the rows, if convenient, should run from north to south or north-east to south-west, as three out of the four sides then receive an equal share of sun and light. The old fault of planting them too close should be carefully guarded against, as good fruit cannot be expected when the heads grow into each other and the roots are constantly shaded. Standards of upright-growing varieties may be placed 30 feet apart each way, whilst 40 feet will not be found too much for spreading trees like Flanders Pippin and Blenheim Orange. Trees, again, of one variety or a similar habit of growth, and which ripen their fruit at the same time, should be kept together or in rows, alternating with others of a spreading or upright character. By observing this rule at the outset the general and orderly appearance of the nursery will be greatly improved, and much time and labour will be saved when gathering the fruit. The same rule applies also to pyramids and bushes, which, by the way, should have plenty of room for extension in every direction, as no extensive planter can afford to prune close home upon villa-garden principles, especially when the best of the fruit is cut away by the process. Thinning the shoots and branches annually, of course, is necessary, but beyond this and maintaining the balance by tipping a gross shoot, I should let each tree go. The distance apart will depend upon the kind of stock, as trees on the French Paradise may be grown for years at distances of 4 feet to 6 feet apart each way. On the English Paradise or Doucin, which I like best, they grow stronger; consequently more room is required; 12 feet from row to row and 6 feet from tree to tree will give them room for a long time, but eventually it may be necessary to transplant every alternate tree, when those left will stand equidistant, viz., 12 feet from stem to stem. Some I know plant much closer, but when it is borne in mind that a well-developed head turns off not only more, but better fruit than a small one, abundance of room is a decided advantage. Moreover, plenty of space favours a spreading growth, which keeps the heads near the ground, safe from wind and easy of access for pruning, manipulating, and gathering. When standards are planted they should be well secured to the stakes previously driven, but in a way that will allow them to settle with the subsiding soil, otherwise the roots will drag and strangle. If on pasture land, they should be well protected from sheep and cattle, and the orchard itself must be fenced and wired round to keep out hares and rabbits.

Varieties.—The only point I must now venture to touch upon is the selection of varieties for special soils, situations, and purposes. A few years ago we planted very early sorts for coming in before the American importations, but this is now over, as the quick run, and summers hotter than our own combined, enable our friends to be abreast of us at the beginning, as for a long time they have been at the end of the season. Our only way out of this dilemma, as I have before observed, is high cultivation. We have a climate which ripens fruit crisp, tender, and juicy, not quite so highly coloured perhaps, but in my opinion superior to the general run of American. We have the soil which, thanks to yearly tenancies, nobody cares to till, and we have the ability. All we want is quality, then it matters little whether we market early or late, always provided we confine ourselves to a few of the best sorts which do well in the locality. This hackneyed phrase for a long time puzzled would-be growers, who said, "Where must we look for anything better than a Suffield or a Blenheim?" Well, I am not sure that anyone requires anything better, but if they do, they must just look into any of the great well-known nurseries about the end of September, and there they will find thousands of trees of all the leading kinds carrying fruit of the highest quality. Some of these on dwarfing stocks—just the thing for the garden or home nursery—will be loaded with large, bright fruit, of which at the present time we ought to have one hundred thousand tons ready for storing. They will find also standards on free stocks specially prepared for planting on pasture and arable land. From these they may select scores or hundreds of trees of one sort, and so on of another, but on no account must they select one or two trees each of a hundred sorts, as this plurality is a great drawback in commercial culture. Very early sorts generally go direct from the trees to the market; medium and late sorts must be stored in dark, cool fruit rooms or dry cellars, and this accommodation, or the want of it, must be the guide in making a selection.

Gathering, storing, and marketing hitherto in the western counties have not received proper attention; but a great improvement is now taking place, and the day, I hope, is not far distant when ruthless shaking of the boughs will be looked upon as a barbarous custom of the past. Apples worth growing are worth hand-picking, and when hand-picked they are worth sizing—that is, dividing into two classes before they are stored or sent to market. The best only should be sent away; seconds may be retained for home use or consumption in the neighbourhood. There should be no mixing of sorts, or good and bad together, but one uniform quality should prevail. Buyers in this part of the country still stick to their pots. I do not mean earthenware, but wicker, which hold from 5 pecks to 7 pecks each; but invariably they sell by weight, and this, I think, is the fairest way, as anyone can compute the value of a ton of Apples. Before Apples are hand-picked for storing they should be ripe—that is to say, the kernels should be brown and somewhat loose in their cells. The fruit, moreover, should be perfectly dry and free from spot or blemish, as one black sheep soon demoralises the flock. Once put away, the less they are turned or handled the better, especially when sweating or during frosty weather.

If the store-room is fitted with lath shelves, the choice varieties should be placed one, or at most two, layers thick; but late sorts grown in great quantities may be laid upon dry floors in greater bulk. They may be stored also in dry flour barrels, which should be labelled and put away in a low even temperature for the winter. Good aristocratic store-rooms are rather expensive; but a cutting driven into a dry bank and covered with thatch, with double doors at one end, will make a store equal to the best and most elaborate in the kingdom. Resinous wood should never be used in the manufacture of shelves. Neither should hay or straw be admitted within the walls, as all these materials impart a disagreeable flavour. Dry Fern, on the other hand, may be used for covering purposes, but very little of this will suffice where frost, and more especially heat-proof stores are properly constructed.

FRUITS UNDER GLASS.

Vines.

Although late Grapes to a certain extent have taken the place of very early forced Hamburghs, a great number of gardeners are still obliged to have this excellent variety ready for cutting in April. The Vines from which these Grapes are expected, as a matter of course, have the run of internal borders, the preparation and management of which I touched upon in my last paper. Assuming, then, that they have been top-dressed, or, in the case of very old Vines, well mulched with rotten manure, the first watering with warm water at a temperature ranging from 90° to 100° may follow close upon the heels of closing for forcing. Notwithstanding the fact that their season of growth has been completely changed, it is astonishing how quickly and evenly thoroughly healthy old Vines break, and how freely they show fruit, whilst young ones which have made stronger growth and have had a shorter season of rest require much care and attention through the early stages. Indeed, so remarkable is the change, that I have known very old Vines which had been started about the same date for a number of years plumping up and pushing their buds without the aid of fire heat at all. This being so, experience teaches us that we should not condemn or cast aside very old friends until they are fairly exhausted and refuse to respond to the alternate renovation of external and internal borders. The exact age at which these Vines give in, no one who crops moderately and forces judiciously can define, as I know a Black Hamburgh which has been forced for more than forty years, and the bunches, from one to three pounds each, are marvels of excellence when jet black and deeply covered with bloom. As nothing succeeds like success, a few brief remarks touching the management of this or any other remarkable Vine may be of some use, and possibly more interesting than a cut-and-dry calendar. The short outline after all may be disappointing, as I have no secrets to reveal, no dealing in miracle-producing mixtures to make known. A few plain ground bones from an honest country manufacturer, sound loam, a gathering together of old lime rubble and charred refuse well mixed form its daily food; it imbibes an immense quantity of water, sometimes slightly discoloured just to take off the rawness, and, like all other aged fruit trees, it requires and takes an abundance of rest. Vines in the hey day of their youth may stand a night heat nearly high enough for them by day, but the pace kills; they never make old wood. Consequently, their owners cannot say from positive experience that Grapes from old Vines, like wine from old bottles, attain a quality which age alone can give. Another advantage this Vine has, and that is room for its strength. There is no over-stepping the dividing wire, or running into its neighbour's laterals to the detriment of both, for it has nearly the whole of the trellis to itself, pushing forward in all directions as the shoots grow out of the gnarled and knotted stem. The pruning of this Vine is conducted upon

the best bud principle, that is to say, each shoot is cut back to a good bud, not necessarily the largest, as these invariably give loose bunches, whilst those nearer home produce compact clusters which require plenty of thinning. Tying in, again, is conducted in a way that every part of the trellis soon becomes evenly covered with foliage. Each shoot is pinched at the second or third joint beyond the selected bunch, when the remainder of the space, if any, is filled in with the point laterals.

Forcing is commenced in November, first by shutting up the house, then by giving the internal border a good soaking with water, at a temperature ranging from 90° to 100°, and covering the external roots with a thick layer of Fern or litter. The minimum temperature after closing is 56°, with a rise of 5° to 10° by day, and the better to dispense with fire-heat, as well as syringing, a substantial ridge of fermenting leaves is formed the whole length of the border. When the bunches become prominent, the night heat, if the weather is very mild, ranges a degree or two higher, and 60° is the figure when they are coming into flower. At 60° to 65° the Grapes set well, and henceforth the night heat ranges about 60°. This rest, with a chink of air, fits the Vine for brisk work by day, and accordingly it is shut up very early with sun heat and plenty of atmospheric moisture, not from direct syringing, but from damping all available spaces, turning and renovating the fermenting material with more leaves from the reserve. Returning to the external border snugly covered with Fern and sheets of corrugated iron, for throwing off snow and cold rain, the breaking of the Vine into growth is the accepted time for filling up the front area with fresh harvested Oak leaves, for it must be understood that this border does not take up more than half the space originally allotted to the roots. Against the face of the drainage and the retaining wall of turf these hot leaves are packed, and the roots receive no further attention until the Grapes are cut and the foliage shows signs of ripening. In May the iron sheeting is removed to let in summer rain, in August every particle of covering is cleared away, the border is raked down, top-dressed with fresh loam and bone-dust and lightly covered with fresh stable litter. If the summer proves hot and dry the external border receives copious supplies of water through the hose, and the internal roots get about 3 feet of water annually. In course of two or three years the roots reach the extremities of the borders, but finding nothing to hold or sustain them they strike downward or turn back again. To prevent this, about the end of August some 2 feet or 3 feet say of the internal border furthest away from the stem and the whole length of the house, roots and all, is taken away quite down to the drainage. Half this space is at once filled up with new compost and the remainder is made good the following autumn. The outside border is treated precisely the same, the removal of the exhausted soil and roots being performed in the following or alternate autumn. By this means 3 feet of new compost is added annually, new roots are always extending through it, and so long as this is going on the Grapes must set, swell, and colour perfectly.

Pot Vines.—If the fruit from these is to shake hands with late varieties and precede the crop from the earliest permanent Vines, they should now be thoroughly on the move and ready for tying up to the wires. If the pots have been placed upon others in an inverted position with a sod of light rich turf dividing them, there will be no danger of sinking or settling and dragging the roots after the rods are secured; but this will not be the only advantage, as the fermenting material, always a great help to pot Vines, can be turned or removed and renovated at any time throughout the season. Although pot Vines are capable of taking liberal supplies of tepid water after the foliage is fully developed, they require very careful watering through the breaking stage; therefore the better to prevent the roots from becoming too wet at the outset close packing with the moist warm leaves should be deferred until the young growths are pushing freely. From this time forward the rich top-dressing previously prepared and kept in reserve must be regularly plied as the roots require it, and weak diluted liquid may be used for washing it through the pots and into the sods, which will be found an excellent sustaining medium when the crock roots gain their liberty. If a full crop of really good Grapes is the only object, the bunches should be reduced to six on each cane so soon as the best can be selected, and these in like manner should be thinned when the berries are the size of No. 1 shot. By this means not one ounce of vital force will be wasted. Then to keep the sap in motion, the point laterals, after the first stopping at the second joint beyond the bunch, must be tied in and pinched at discretion according to the space available for the full development of foliage. The more good leaves a Vine can make the better the Grapes, but a crowded mass which cannot have full exposure to sun and light is worse than useless. As these Vines will be destroyed when the Grapes are cut and early maturity is desirable, the night heat from showing to flowering may range from 60° to 65°, afterwards from 65° to 70° when the weather is favourable, and a little lower when the reverse. That by day must be proportionately high, but no exact rule can be laid down, as a skilful man, by giving rest at one time and bottling up sunbeams at another, will work his Grapes forward without distressing them, whilst another will let opportunities slip, and, although longer about his work, will come in last and second best at the finish. Night air, it is hardly necessary for me to say, is imperative, and this can easily be secured by constant attention to the fermenting bed, the moisture from which will counteract the drying influence of fire-heat.

Late Grapes.—If these have finished well and the foliage shows signs of taking on the crimson mottled hue, the temperature may be gradually lowered, but sufficient fire-heat with ventilation must be maintained to prevent condensation of moisture in the house or upon the berries. If, on the other hand, the bad season has told adversely and the foliage retains its fresh colour, imperfect Grapes may still be improved by giving through the day the fire-heat parsimoniously withheld in the spring, and feeding the surface roots with extra warm diluted liquid on a fine bright morning favourable to free ventilation. Rest by night, however, is necessary; therefore, the better to hold the progress made by day, the temperature through the hours of darkness must range about 60°, with a circulation of fresh warm air. When the Grapes are quite ripe, a good covering of thoroughly dry Fern or Bracken, whilst keeping down dust and moisture, will give the house a neat appearance until the time arrives for cutting soon after Christmas.

Late Hamburghs still hanging on the Vines must be kept dry and cool, but not cold enough to cause condensation of moisture, as it is better for the berries to shrink than rot. If not already done, every particle of growing lateral must be taken out quite down to the main buds, and shoots not carrying bunches may be well shortened back to three or four eyes. This thinning out, whilst checking growth and favouring the plumping and ripening of the buds, will ensure a free circulation of fresh air so long as the weather continues fine, but once the foliage shows signs of ripening, bunches intended to lead up to Alicantes may be cut with wood attached, bottled and kept in the Grape room.

Late Muscats now well finished, like the preceding, will require a lower temperature, otherwise they will soon begin to shrivel and the foliage will ripen prematurely. From the high temperature in which they have grown, there may be a gradual descent to 56° through the night and 65° to 70° by day for the present, but once the Vines are quite clear of foliage a lower day temperature will suffice—that is, provided the most gentle circulation in the pipes with a little air prevents the accumulation of moisture. Gros Colman and Black Morocco—two varieties which enjoy Muscat treatment—will improve in quality long after the latter are ripe, and assuming that they are intended for bottling, they should hang for some weeks after the leaves fall. It will, of course, be necessary to pay careful attention to the house during the time they are falling, as the slightest tendency to damp or mould is sure to result in the loss of all faulty berries, although the blemish at first may not be perceptible. Sometimes they go after removal to the Grape room, but the mischief generally is the outcome of a low, damp condition of the house when the leaves are falling; hence the importance of turning out every plant when the Grapes begin to colour, of covering up all open cisterns and removing dead leaves every morning, of littering down well with Fern and keeping the house dry, cool, and safe from frost or sudden fluctuations.

Cherries.

If mild weather sets in and birds are likely to be troublesome, pot trees which have been a long time at rest should now be well washed and placed under cover. The house, as a matter of course, must be made sweet and clean by washing or painting and each tree may be placed where it is to remain, but on no account must the ventilators be closed in moist mild weather. Permanent trees trained upon trellises must undergo the usual pruning, cleansing, and tying in, and, provided the roof lights have been taken off, these must now be returned, although not with the view to exciting the buds for the present. All root and border work having been performed some weeks ago, the first care will be a proper degree of moisture. Autumn rains may have put this matter right, but of this, judging from all the open-air borders recently examined, I am extremely doubtful. Let watering then be thorough, as good Cherries cannot be expected from trees that are only partially dry at the roots when the buds commence swelling. Vigorous young trees will not require stimulants, at least until the fruit is set, but old ones which make a profusion of flower buds and very little wood may be well mulched with short manure at the outset. Once a forcing house is cleansed and ready for starting, pot plants of a suspicious or dangerous character should be introduced with great caution. The Chrysanthemum craze has done much harm by blocking and stuffing Pine stoves and vineries even down to the simple Cherry house, but this may not happen again, as the sharp October frosts have settled the account with some scores of these unduly favoured giants in all parts of the kingdom. I am a great admirer of the beautiful blooms when I get above them, but the hobby horse may be ridden too fast, and I think the rein should be drawn at the threshold of the Pine stove and vinery.

W. C.

Garden Flora.

PLATE 672.

THE CALCEOLARIA.*

The beautiful varieties of Calceolaria now in cultivation are the showiest occupants of our greenhouses and conservatories during the month of May. The dwarf, compact specimens, with their large heads of richly coloured flowers of large size and handsome form, have been brought to the present high standard of excellence by careful selection and skilful culture. We can tell whence they came by going back to the time when Calceolarias were first grown and hybridised in our gardens.

We read in the "Floricultural Cabinet" for the year 1834, vol. ii., that Calceolaria arachnoidea var. refulgens was raised by a Mr. Gillen, gardener to Mr. McIntosh at the East India Docks, by crossing two of the numerous varieties originated between C. arachnoidea and corymbosa. A year earlier C. Menziesi, figured in the same work, was raised by Mr. John Menzies, gardener to Mr. Christopher Rawson, Hope House, near Halifax. This variety is highly praised for "the splendour and richness of the flower, the profusion of its blossoms, with the fulgent richness of their colour."

* Drawn for The Garden by H. G. Moon, at Messrs. Vilmorin's grounds, Verrieres-le-Buisson, June 11, 1888. Lithographed and printed by Guillaume Severeyns.



NEW RACE OF HYBRID CALCEOLARIAS

At this time a Mr. Major, landscape gardener at Knowstrop, near Leeds, was a raiser of Calceolarias, but a reference to the coloured plate of C. Harrisonia—one of the best of them—shows that they are of the same parentage. We may, therefore, suppose that C. arachnoidea and C. corymbosa are the parents of our garden varieties, and that the gentlemen named were the first to improve them.

C. ARACHNOIDEA was figured in the *Botanical Magazine*, tab. 2874, for the year 1828. The seeds of it were sent by Dr. Gillies, of Mendoza, from Chili. It is a tall-growing plant with purple flowers.

C. CORYMBOSA is also figured in the *Botanical Magazine*, tab. 2418, and the seeds from which the plants were raised had also been sent from Chili The plants were produced by a Mr. Walker at Arno's Grove, Southgate.

C. THYRSIFLORA may be supposed to be the parent of some of the garden forms, but it must be the shrubby section. It is another of Dr. Gillies' introductions from Chili. The flowers are perfumed, and said to be used by the natives as a yellow dye.

C. BICOLOR is another pretty species introduced at the same time as the above, also from Chili. The flowers, which are white and yellow, are freely produced. The plant itself is of a sub-shrubby nature.

The earliest coloured plate of a Calceolaria known to me is that of C. pinnata, figured in the *Botanical Magazine*, tab. 41. It is an insignificant-looking plant with small cream-coloured flowers reddish at the base. It was flowered by Mr. Hoy, gardener at Syon House.

A little later a curious species (C. Fothergilli) was figured in the same periodical. It was introduced about 1777 from the Falkland Islands. Up to 1833 the hybrid forms had self-coloured flowers, but in that year C. crenatiflora was figured in the *Botanical Magazine*, tab. 3255. It was decidedly herbaceous, and its flowers were of large size, clear yellow, and crimson spotted. The same plant is figured in Sweet's "British Flower Garden," tab. 155, under the name of C. pendula. This distinct species, either by being intercrossed with the other forms or by selection, would give us the handsomely blotched and spotted varieties.

In the first volume of *The Florist*, published in 1848, there are coloured illustrations of seven distinct varieties; some have white grounds, others yellow blotched and spotted crimson, chocolate, deep maroon, and purple. There are also crimson and puce-coloured selfs. I began my own gardening career about that time, and can well remember that part of my work as a young gardener was to attend to the propagation of the named varieties of these richly-coloured Calceolarias. Their fault, which has since been overcome, was a tall, lanky habit of growth.

Mons. Martin, of the firm of MM. Vilmorin et Cie, in whose grounds the varieties represented in the coloured plate were raised, says—

They are forms of Calceolaria rugosa hybrida, raised by our firm at Verrieres-le-Buisson by crossing Calceolaria rugosa Gloire de Versailles with our strain of herbaceous Calceolarias. They are most useful plants and splendid bedders, as they bloom indoors at the same time as the herbaceous Calceolaria, and continue to bloom outdoors until killed down by frost. Where a branch has been cut two will come in its place, and these varieties continue in flower a long time. The range of colour is very wide and as rich as in the herbaceous strain. The plants are very sturdy and branch freely. When bedded out they need no more attention than Pelargoniums.

C. rugosa is an old inhabitant of our gardens, and is nearly allied to C. integrifolia. The first named is figured in *Botanical Magazine*, t. 2523, and the then editor, Dr. Sims, states that they are the same. C. rugosa was introduced from Chili. It is so easily propagated from cuttings, that one marvels that the editor should state it could be propagated only by seed.

The new varieties represented in the plate can doubtless be propagated in the same way, and may be useful out of doors for beds or borders. If their persistent habit of flowering is retained, they will also be excellent greenhouse plants for the autumn. The ordinary herbaceous varieties cannot be depended upon to produce flowers after midsummer. Plants for autumn blooming would require to be propagated from cuttings in the spring, and be grown on in pots to make good specimens by the time they are to flower. What all these Calceolarias require, whether they are produced from seeds or cuttings, is good rich open soil to grow in and to be kept free from green-fly. This troublesome pest is its worst enemy and does much mischief, especially in hot weather.

The plants do not like syringing or being dipped in any soapy or tobacco mixture, so that the only way to keep them clean is periodical fumigating with tobacco smoke. I do this at intervals of four weeks, even if no fly is visible. The plants also require to be shifted from one pot to another before the roots become so matted together that they have become pot-bound. If this happens they are sure to go wrong, and many of the lower leaves will become yellow and have to be removed. The plants will flower in 6-inch and 7-inch pots, but large, full-grown specimens will easily fill a 9-inch pot with roots and require to be watered with weak liquid manure to maintain the quality of the flowers.

Calceolarias are all comparatively hardy plants and a few degrees of frost do not seem to injure them; indeed, most of the bedding-out varieties will pass through the winter in cold frames. We have also in cultivation in our own garden a quite hardy species, hardy also in the coldest districts of county Durham. Mr. Dewar, of the hardy plant department at Kew, informs me that it is C. Kellyana. The leaves hug the ground, and the plant itself reminds one of a Mimulus. By crossing this with our best spotted herbaceous forms one might obtain even a hardier type than we yet possess. C. Kellyana, which has yellow flowers, is strictly herbaceous, and grows freely in the open borders without protection of any kind.

J. DOUGLAS.

FLOWER GARDEN.

NEW HARDY HYBRID FRENCH GLADIOLI.

HAVING again during the summer and autumn now drawing to a close grown for study and comparison with older varieties the set of ten new hybrids of the purpureo-auratus crossed with gandavensis race, distributed towards the close of last year by M. Victor Lemoine, of Nancy, some notes of my observations as to their respective merits and beauties will not, I hope, be unacceptable to the readers of THE GARDEN who admire, and perhaps may be induced to cultivate, these beautiful and easily grown hardy bulbous plants. The comparatively cold and almost sunless summer we have had this year has in no way interfered with, but has indeed been far more suited to the growth and perfect blooming of these plants than the torrid season and long drought to which they had to submit last year, which prevented many of the varieties of that year from coming to perfection at all. These I have been able to observe this year, and shall give my notes on them after the novelties of this year. The ten varieties belonging to 1888 are—

BOUSSINGAULT.—This commenced to bloom on August 1, and is a very strong grower, producing three flowering bulbs from one. It has medium-sized creamy yellow flowers with most distinct and beautiful clearly marked lower petals, the outer half of which is deep canary yellow, the inner half deeply feathered maroon. This beautiful variety, also Louis Van Houtte and Oriflamme, were well figured on the coloured plate appearing in the Paris *Révue Horticole* for May 16, 1888.

DE HUMBOLDT is a vigorous habited variety with good sized flowers opening well together on the spike, and thus showing a good many flowers in full beauty at the same time. The colour is a deep rosy salmon with clear yellow under petals distinctly blotched with light maroon.

EMILE GALLE is rather a slender growing variety which in the bud state promised to be of quite a novel shade of violet not hitherto met with in these hybrids, but on the expansion of the flowers they proved to be washy and pale in colour, thin in texture, and deficient in form. Only the lower petals are beautiful, being of a deep shade of violet with a thin line of gold down their centre. It is quite possible, however, that this, being quite a new break in colour, may prove the parent of many beautiful varieties in years to come.

EUGENE LEQUIN is a variety of medium height, with pale lemon-coloured flowers distinctly marked on the lower petals with broad blotches of velvety carmine, and is altogether an extremely pretty flower.

E.V. HALLOCK is a vigorous growing variety, and quite one of the most beautiful of the whole series, with large fully opened flowers of a clear, pale shade of canary yellow, the three lower petals clearly and evenly blotched with pale carmine. This should be in every collection.

LE HOBLA.—A rather weak-growing variety with flowers under the medium size, of a pale shade of red. The three lower petals are yellow, distinctly blotched with carmine, and the centre one edged with pale red. The flowers of this variety may come larger on a stronger plant.

MIRABEAU.—A rather weak grower, with large, well-expanded flowers of a somewhat dull shade of yellow, faintly flamed with carmine, and with broad and most distinctly marked blotches of deep maroon on the lower petals.

LOUIS VAN HOUTTE.—This is a rather dwarf-growing variety, with medium-sized, well expanded flowers of a pale yellow shade of colour, faintly blotched with carmine on the lower petals. The flowers open well together on spike.

ORIFLAMME.—A vigorous, tall-growing variety, with branching flower-spike, and producing deep rose-coloured flowers, blotched with carmine on the lower petals.

VICTOR MASSÉ.—This is a washy, indistinctly coloured, and worthless variety, which did not, I think, deserve a name.

The seven varieties distributed at the end of 1886, and which I was unable to describe adequately last year, were :—

MONS. A. THIERS.—This is a very pretty variety, of rather vigorous habit, with medium-sized, well-opened flowers, which are rather far apart on the spike, of a clear shade of deep rose, flaked with carmine. The lower petals are clear canary-yellow, edged with rose and blotched with maroon.

MARQUIS DE SAPORTA is a variety with medium-sized scarlet flowers, with a lighter throat, and are closely set on the spike and open well together. The lower petals are rather indistinctly flaked with maroon-yellow.

MONTESQUIEU is a tall and vigorous grower with large, well-expanded, light red flowers flaked with carmine. The lower petals each bear a distinct and pretty flame of deep rose colour tipped with yellow.

De Cherville.—This is a vigorous grower of medium height of spike, with flowers rather under medium size, of a rather dull shade of deep rose colour, somewhat indistinctly flaked with maroon and yellow.

Braconnot.—A variety of medium height and not very vigorous habit of growth, with medium-sized blooms of a deep shade of scarlet prettily flaked with canary-yellow on the lower petals.

Gounod.—A rather weak-growing variety with flowers of a rather dull shade of yellow faintly shaded with rose colour. The two lower petals are evenly divided between deep velvety maroon and clear canary-yellow, the latter outside.

Jean Jacques Rousseau.—A variety with pale orange-scarlet flowers distinctly blotched with carmine on the lower petals; each blotch is edged with pale yellow. This is an exceedingly pretty variety.

M. Lemoine again sends out this winter fifteen more varieties of this race of hybrids, about which I shall hope to have something to say in The Garden about this time next year. He has not, however, yet been able to get up sufficient stock of the beautiful new race of hybrids he has obtained by crossing G. Saundersi superbus with some of his own purpureo-auratus race; of these he hopes to be able to distribute one or two varieties towards the end of next year. Another foreign nurseryman, M. Otto Frœbel, of Zurich, has also obtained some bright and pretty hybrids between G. Saundersi superbus and G. gandavensis which he hopes to distribute shortly. W. E. Gumbleton.

HARDY BULB PLANTING.

There are a few points in bulb planting which to my mind are worthy of note. One great thing is the careful removal of both the husks, so largely used by the Dutch packers, and the meal which remains among them. I am certain that the tunicless roots, such as those of Liliums, Fritillaries, Dog's-tooth Violets, and the like, are injured by a fungoid growth following a lodgment of the Buckwheat meal, which is more or less present in all the angular chaff. It may often be observed that where a lumpy particle of the meal assisted by a little moisture has stuck to a bulb, green mould has taken place by the time the bulb parcels are opened. I wonder that for this class of roots at least something different is not employed. I daresay most of us feel that the timely planting of such things comes at a period of the year when there is much else to be done in the garden, and difficult as it is to find time for bulb planting, it is as nothing compared to the time expended in cleaning some roots from the husks and meal referred to.

Where bulbs when potted are placed in the open, it is doubtless a good plan to fill up well with compost and press with the palm of the half-folded hand, so as to leave the earth rounded up a little above the pot's rim. This serves to throw off wet during heavy rains even when under ashes.

I often think we do not take into account sufficiently the altered conditions under which bulbs are placed through the loss of so many of their coats from the time of lifting to replanting. It may not matter so much with the more robust kinds, but we not only know that the triandrus class of Daffodils, for instance, belong to a very much warmer and drier climate than ours, but that they are not so readily established in our gardens. The coats of these bulbs are very thin, and as they often all come off, such bulbs must naturally be handicapped in their new home. I think that sand placed round the bulbs may be of some help to some things and in some soils, but there are different sorts of sand, and I find that some kinds are as retentive of moisture as strong loam, and that when employed in some land they attract rather than keep wet off the bulbs. It would often be better to plant without surrounding the bulbs with sand. I am supposing that the ground is well and deeply prepared in each case, as it certainly should be. There is a little point often neglected, which to my mind is of more importance than giving sand. Firm pressing of the bulbs when being put in position both forms a hard bed where the ground should be left if possible most porous, and too often bruises the succulent ring, whence issue, or maybe are issuing, the new roots. If the land is very dry at planting time, there is not much risk, but it is seldom that such is the case in September and October.

Kirkstall. J. Wood.

AURICULAS ONE HUNDRED AND THIRTY YEARS AGO.

I have lately been lent by a friend in Scotland a book on the garden published in 1764, and entitled "The British Gardens Director, chiefly adapted to the climate of the northern counties, directing the necessary works in the kitchen, fruit, and pleasure gardens, and in the nursery, stove, and greenhouse." The author is a Mr. James Justice, one of the principal clerks of session, and he seems to have been a thorough enthusiast and the work to have been a success. The first edition was sold off, and the present one was published after his death from notes and emendations he left behind him. He speaks of Philip Miller as his worthy and ingenuous friend.

The chapter on the Auricula is very interesting, and shows that so long ago as that, the flower was more highly valued than it is now; while the method of culture shows that sound principles of common sense far more guided him than it did many of his successors. I shall endeavour then to give a few particulars on special points of interest to Auricula growers of the present day.

The origin of the florist varieties of the Auricula.—This flower, he says, was formerly the pride of English gardeners and florists. They had the greatest good fortune in raising the best seminal varieties. The Dutch florists, envious of the good fortune of the English in raising so many varieties of this flower, sent to England and purchased the best flowers, from which they have raised many admirable varieties and which they valued very highly. "They divided their Auriculas into two sorts, viz., the Leigoises Auriculas, or self or plain coloured ones, which being much velveted or shaded were very pretty, and the painted sorts, which are like those raised in England, and in which they succeeded well." This sounds very much as if these were not the refined edged sorts which we now have, but rather those which are called fancies, and which are ignored by all true florists. He thus describes

The characteristics of a good Auricula.—As we do not know of what character the varieties then grown were, we cannot determine how far they agreed with those of the present day; still some of them are what genuine florists would subscribe to. "A good Auricula should have a strong, erect stem (I venture to say they did not employ stakes), short pedicels or footstalks. Bright, glossy, well shaded colours in the self, and those of different colours, or painted ones, being well and distinctly marked with round, florid, large eyes, together with well expanded bells, which must not crowd on one another (not like the florists, who think a truss with twelve or thirteen pips the point to be aimed at), but must show themselves distinctly with a handsome, narrow funnel enclosing well-proportioned stamia. These qualities, when united, compose a fine Auricula, and when the plants are in full health and vigour their large leaves add much to their other beauties." He then states that he had the previous spring (1762) a show of Auriculas, the blooms at which, composed of the most capital flowers in England and Holland, besides some very fine new seedlings of his own raising, were superior to any ever seen in Scotland, England, or Europe. This had been attained by attending to the best way of cultivation.

The culture of the Auricula.—The soil, he states, in which these plants delight is a fine fresh loam taken from under a turf which for many years has not been ploughed or spaded, and is what we call virgin earth, one half; the other half must be old well-rotted three-year-old cow manure, one part sand, but there must be no horse manure. You must not mix those heaps together until a few days before you use it, for otherwise when mixed for some time, they breed worms and vermin, which are very hurtful to the roots of Auriculas, and be sure that the pots in which you plant your Auriculas retain no water, for nothing can be of worse consequence to your plants, for in such pots they will rot past remedy. There are two things that strike me in this. 1. That when some modern florists advocate plain and simple compost, they sometimes imagine that it is a new discovery; whereas here we have the very simplest one advocated one hundred and thirty years ago. 2. That the horrible mixtures which were advocated in the latter part of the last century were an innovation, which was due to Maddox, Hogg, Emmerton, and others, who recommended goose manure steeped in bullock's blood, sugar baker's scum, blood and lime, loam steeped in night soil, &c. The only thing that our author seems to recommend is fullers' earth, and this he does with so many reservations, that he seems to think that the compost would be as well without it. As to the time of potting, he evidently favours late potting; indeed, he fixes the day for potting also as the 12th of August. He advises the tap roots to be cut, and if there are any black spots on it, it must be cut until all these are removed. He advises that the water, in the first instance, be given by placing the pot in a vessel of water halfway up its sides; the water will then go up into the roots of the plants sufficiently. This is, I believe, what is called "capillary attraction." They are to be placed in the shade, to have all the air possible, and be allowed to get moderate showers. Top-dressing in the spring seems to have been practised then, and our author advises it to be done at the end of February in calm, mild weather, taking all the old earth from the surface of their pots and from amongst their fibres, which by no means you must not break or injure, and put into its place some new earth. If the plants are strong, he advises a little fullers' earth to be mixed with it, but if weakly, to avoid it.

Seed-saving.—On this point he has a good deal to say. "You cannot," he says, "get good seed from those flowers which have bloomed strongly in your shade (which, I conclude, to be archaic Scotch for a frame); wherefore those seeds which are most valuable to a curious florist must be obtained in another manner, which must be thus done in February or March. When you give new earth to your Auriculas, observe if any have well-rooted offsets; if they have, take them off from their mother plants, pot them, and place them in a very shady situation, but not under the drip of trees nor places exposed to storms. In October let them be put into the shade (or frame), and in the following February prepare a bed of virgin earth which you have got ready beforehand and turned over frequently, make the bed 2 feet deep and 3 feet wide, raise it 3 inches above the pathway, then take three dozen of your strongest offsets, take them out of their pots, and plant them as deep as they were in their pots; there they will flower and give you much more and better seeds than your plants in pots." This is quite at variance with modern custom, and I should imagine the advantage of it is very questionable. He evidently knew nothing of hybridising, and trusted simply to chance hybridisation. He gives directions for making what he calls bunkers to keep the plants on planks. They appear to have been made of brick and covered with boards. If I recollect right, Mr. Lightbody used to winter his in similar structures, the boards being removed during fine weather and put on in wet or stormy days.

The repute in which the Auricula was held.—Our author mentions that he has known a single plant of a good new raised seedling to be sold for seventy guineas. Does not this make the mouths water of our Horners, Simonites, Douglases, and other raisers of the present day? For when we consider the value of money in those days as compared with the present it does seem an enormous sum, for there could have been no gambling with so

perishable a plant as there was with the Tulip in the days of the Tulip mania in Holland. There can be little doubt of his nationality, for with the 'cuteness which becomes a canny Scot, when he is speaking of the time to get offsets, he says, "If any gentleman inclines, I can furnish him with fresh, well-rooted plants from half-a-crown to five guineas' value per plant, as good as any he can get in England or Holland, with the advantage that the plants suffer less, being already in the country, which is a great advantage to the purchaser." We think now-a-days a guinea a very high figure for a new Auricula, and I believe, except to an exhibitor, it is so. Unfortunately, our author does not give us a list of the varieties grown. What will be the state of things fifty years hence? Will the flowers we now prize—our Lightbodys, Lancashire Hero, Acme, Heroine, Sapphire, and others—be superseded by newer and better varieties? and will the raisers of the present day be as forgotten as those of the past? I doubt not that it will be so. We must work for the present, and leave the future to take care of itself. DELTA.

TRITOMAS (KNIPHOFIA).

THIS genus of liliaceous plants, which is composed of several species and their varieties, is most conspicuous in many gardens in the autumn. The majority of them are of somewhat similar appearance, having long, Grass-like leaves and spikes of scarlet and yellow flowers. Some species bloom in August, though the majority of them do not flower until the gloomy days of autumn have set in, and from that time onward until the end of the year—in fact, in some instances later, for I have on more than one occasion seen them in flower in February. The cold nights which now prevail have no effect upon them. Such a plant as this cannot be praised too much, and it is generally rather extensively planted. Amongst the many species now in cultivation T. Uvaria is undoubtedly the best known. There are several varieties of it, all somewhat similar in appearance, but varying much in height. Generally this is the first of the Tritomas to bloom, usually producing its coral-red spikes about the end of August. Some varieties of it, however, such as Uvaria major, may be seen in bloom in December The flowers, when first produced, are in some soils of a bright scarlet colour, in others of a coral-red, but these in due course change to an orange tint. The spikes vary in height from 2½ feet to 4 feet. T. caulescens is a robust-growing species with fine foliage, and produces tall spikes of bright crimson and yellow flowers. T. Quartianana is somewhat similar in appearance, but produces much shorter flower-spikes. T. Leichtlini is a most beautiful species of recent introduction. It usually attains the height of about 3 feet and produces remarkably fine spikes of red and yellow flowers. T. Rooperi is also a very pretty variety, and grows about 3 feet in height, having large spikes of bright scarlet and yellow flowers, generally most conspicuous in September. The same may be said of T. Burchelli, a very fine species and well worth a place in every border. There are several more species somewhat dwarfer in habit of growth than those I have mentioned, such, for instance, as T. Macowani. This is one of the dwarfest species grown, rarely exceeding 18 inches in height. It has broad grassy foliage, and produces in great quantities dense clusters of bright orange-red flowers. T. media is another dwarf-growing species, producing red flowers late in the autumn. Generally speaking, the whole of the Tritomas thrive best in a warm sandy soil, and although perfectly hardy, it is no uncommon occurrence to see them injured during exceptionally bad seasons. This, however, is more conspicuous when growing in cold wet soils, and frequently the plants are more injured by a rainy season than by severe frosts. Thus it is necessary in planting this beautiful subject to place it in an open and sunny position, and then it will well repay all the labour that can be bestowed upon it. At the some time, some varieties are more tender than others, such, for instance, as T. Uvaria. This should be slightly protected by a covering of litter in exceptionally severe weather. There are many places where the Tritomas might be planted with advantage, such, for instance, as the herbaceous border, around the margins of shrubberies, rockeries, or, as I recently saw them, growing in a semi-wild garden, where, amidst other plants growing in a natural style, they were very attractive. In fact, they might be naturalised upon grassy plots. They are easily propagated by division or from seed, the former, however, being much the best method. The dividing should be carefully done in early spring, and each portion be planted in well-prepared soil, and encouraged to make as much growth as possible during the summer.

C. COLLINS.

FLOWER GARDEN NOTES.

SHRUBS IN THE FLOWER GARDEN.—Dreary as would be the prospect, I would prefer to have a freshly ploughed-up field to look upon during the winter than a set of bare flower beds, however beautiful the design. Our British winter seasons are wretched enough without having to contemplate either, and therefore it is worth some amount of labour to be able to avoid such a prospect. A few choice shrubs planted in the beds greatly improve the view, and where they can be used in larger numbers and greater variety, the outlook is much improved, and by the addition—the intermixing of early spring-flowering plants—the height of flower gardening possible in our climate at that season has been attained. Beds entirely filled with spring-flowering plants, though they cover the soil, are not nearly so effective in winter as are similar beds in which a few shrubs are associated with the spring flowers. As their presence even in spring, by destroying the monotonous appearance of flat surfaces, enhances the beauty of spring flowers, there is no reason why they should not be used in both connexions. But I go still further, and advocate the supplementing of small shrubs in the summer flower beds also; and having long used them, I can speak confidently and most favourably in respect of their value for this purpose. But there is another phase of the question which I think of still greater importance, and that is the permanent planting of small shrubs in the flower beds. There is then no labour as regards planting in winter or spring, and the plants thrive better. They will in a few years, of course, get too large for such positions and must be replaced by smaller, the larger being moved to form specimens about the shrubberies or lawn, as may be required. Many vases that are usually filled with flowering plants would look all the better if filled with nice specimen shrubs, such as the compact-growing Retinosporas. Several of ours are so filled, and other vases have been taken away and shrubs planted where the vases stood. Further than this, we use, and have long done so, Cotoneasters, French Honeysuckle, and the shrubby Vincas (Periwinkles) as trailing plants to hang down over the edges of large vases, and in the summer-time Ivy-leaved Pelargoniums and Tropæolums are intermixed with the permanent trailers. Thus whilst in summer we have little loss of gaiety and more variety in winter, we have for that season an extra bright effect.

MICHAELMAS DAISIES.—The fine weather that has prevailed since the severe frost of the 2nd inst. has well suited all the varieties of Asters we have, and at present they make a grand show. Our best varieties are bessarabicus, Novæ-Angliæ, and Amellus grandiflorus. As all but the hardiest species of flowers were cut down by the unusually early frost, these Daisies at the present time are the most valued of all flowers for vase and table decoration. All the varieties I have named are producing such an abundance of flowers, that they will serve to give us an ample supply of cut flowers till the height of the Chrysanthemum season. Our plants are large masses that will be the better for division and fresh ground, and as soon as they have done flowering the rearrangement of herbaceous borders will be undertaken, when some of these Asters will be again arranged in the borders, and others will be planted in quantity on a piece of ground reserved for the production of cut flowers.

YELLOW AND WHITE MARGUERITES.—These are still flowering most profusely in the open air. Some of the plants in the most exposed situations were a little damaged by the frost, but the bulk were uninjured. We have cut round the roots of some of the smaller plants with a spade, in order to get them to lift without much check, as it is desired to pot them on and keep them flowering on through the winter. Plants thus lifted not unfrequently flower far better all the winter than plants that have been growing in pots all the summer. The reason is obvious—namely, the plants get root-bound and the soil exhausted before summer is ended, and if grown in large pots the plants either flower sparsely or not at all. Hence I prefer to plant out and lift and pot them now. They soon get over the slight check of removal if placed in a warm house or frame and kept moist both overhead and at the root. Either for the conservatory or for use as cut flowers for vase decoration in rooms they are in every way excellent.

WALLFLOWERS AND SNAPDRAGONS.—These are serving us well at the present. The Wallflowers are from seed sown in April, transplanted in June, and flowers are now numerous. We cut them as they open, in order to keep the plants of compact form and good broad heads that may be expected to produce plenty of flower next March and April. The seed of the Snapdragons was sown at the end of February, and the plants moved to the ground on which they are now flowering about end of May, and they have now been in bloom several weeks. I note these because any plants that will prevent the cutting of valuable indoor flowers at this season are worthy of special attention in respect of cultivation.

GENERAL WORK.—To store away Dahlias, lift Gladioli and auratum Lilies. The latter winter well in the sandy peat soil of this district, and we rarely lift them—in fact, only when it is desired to take off the small bulbs. In wet soils it is, of course, risky to leave them in the ground. Herbaceous Lobelias and Cannas have also been lifted, and the former we place closely together in shallow boxes of leaf soil and store them away in any cool house or frame. Cannas do in the dark, and these have to be packed closely together in any place free from frost. All bedding plants should now be safely housed, but in mild weather give all the air possible to promote a hardy growth that may be better able to resist the severe frost and gloomy wintry weather. W. WILDSMITH.

Mixed beds of bulbs, Daffodils, &c.—The great drawback to devoting entire beds in a select Grass garden to rare choice Daffodils, planted on the three years' system for increase, is their uninteresting appearance after bloom is over. We get a glorious spring display of noble blooms at the expense of a summer effect, but by planting the Daffodils in conjunction with the double white Colchicum, or even with Colchicum speciosum, which is more plentiful, two seasons of bloom can be had from the same piece of ground within the year without injury to either, and both kinds can be lifted in July and replanted. Lobelia cardinalis Queen Victoria makes a grand bed planted between a strong-growing Daffodil, such as maximus, Horsfieldi or Emperor, and the roots in no way injure the Daffodils. But a most delightful bed can be had in spring and autumn by planting alternate bulbs of Sternbergia angustifolia with, say, Tenby Daffodils. I have two large beds in conjunction with Golden Spur Daffodil, over 1000 bulbs in each, just now showing for a second bloom, with this Parkinson's narrow-leaved winter Daffodil, the blooms of which are like golden earth stars. The Ivy-leaved Cyclamens and some of Mr. Maw's Crocus that bloom in autumn are also admirably adapted for the same purpose.—WM. BAYLOR HARTLAND, *Temple Hill, Cork.*

SHORT NOTES.—FLOWER.

Lilium giganteum.—What happens to the bulbs of Lilium giganteum that have flowered? I hope to hear that they break up into many small ones, as I wish for a number of young ones, and growing from seed is a tedious process. In a group of many I have three that have flowered; the leaves are now destroyed by frost, but the great stems remain, bearing seed-pods. I am afraid to cut them down,

as the hollow stump of stalk would let wet into the root. If I hear there is a prospect of finding the old bulb broken up, and if now is a good time, I would dig up those that have flowered to plant elsewhere as young bulbs.—G. J.

Wanted, a name.—I am forwarding you by this post a plant of what I take to be an Oxalis. It has a long-flowering season and is very pretty. I do not think it would grow anywhere but on well cultivated ground, as, though it is a troublesome weed in the kitchen garden here, we never find it except in cultivated quarters. There is no getting rid of it, as the new tubers separate so easily from each other and from the parent that they cannot be lifted intact unless great care is used. Last year we destroyed great quantities of tubers, but they seem just as plentiful this year.—John C. Tallack.

*** Your Oxalis is O. corymbosa.—Ed.

Chrysanthemums.

E. Molyneux.

PROSPECTS OF THE SEASON.

Lovers of Chrysanthemums who are not experienced cultivators will be surmising as to the probable results of the coming season regarding the quality of the flowers produced from plants which have had an extraordinary season to contend with. My opinion is that where the plants have had the necessary attention in all stages of growth, that is, careful nursing during their early career and strict attention to watering, &c., the quality of the flowers will be good. Where the growths have been carefully tied out to the supports, the wood will now be well ripened. Successful growers of Chrysanthemums for large blooms find that it is useless to expect blooms of the finest quality, particularly those of the incurved section, from plants which were drawn up weakly from the start and still have soft sappy stems quite green in appearance.

Gradually ripened wood as the growth proceeds is the correct method to get the deepest formed blooms in the incurved varieties. I fancy the results of the present season of Chrysanthemum culture will prove that those growers who have attended to the wants of their plants at the proper time will reap the richest harvest. From all quarters one hears of considerable interest being taken in the growth of plants.

Plants generally have attained the average height, while from some localities come reports that the plants are exceptionally tall, and from others quite the reverse; the former, no doubt, is caused by the situation the plants occupied during the spring months, when the sun was scarcely seen for a long time. When the position is not suitable, plants are liable to get drawn up weakly. I find that where the plants are extra tall they are not the strongest. Good foliage upon the plants is general this season. Growers in the extreme north of England are somewhat heavily handicapped against their southern brethren this season owing to the late spring and wet, cold summer. They will find it most difficult to get their plants ripened up sufficiently, and at present all things point to a rather late season. Japanese varieties will preponderate no doubt in point of numbers, as a good many new or supposed new sorts are on trial. Mr. H. Cannell, a pale yellow variety in the way of Thunberg, will be much sought after, and will no doubt develop fine blooms, being a good grower. This variety has extraordinarily long peduncles. If the thickness of these is a criterion of what is to follow—some growers consider this to be a fact—we shall see many fine blooms.

Mrs. H. Cannell, a white variety with very broad florets, sent out about the same time as the preceding kind, is a most peculiar grower. The bottom leaves die off as soon as the plants are struck and until they attain a height of about 4 feet, rendering the appearance of the plants very shabby. The constitution of this variety must be of a peculiar nature. Edwin Molyneux, on account of its telling colour, has already this year sustained the reputation it gained last season of being a good addition to its class, as several very fine blooms have already been shown. In point of growth it is all that could be desired, as it perfects its blooms on stout plants 4 feet high. This is a step in the right direction. Avalanche promises to maintain the high opinion I formed of it last season. Mr. C. Orchard will, I think, be found a sterling novelty of last year's introduction. W. G. Drover, the extraordinarily large variety introduced last season and severely condemned by some people, grows very well. This season will set the matter at rest as regards its quality, as plants are being cultivated in many different localities; therefore opportunities will be given to compare blooms from other places. Florence Percy, waxy white florets, deeply cut at the edges, is a promising variety. Mrs. F. Jameson, a new Japanese variety not yet fairly in commerce, is very promising; it is a full flower, the edges of the bottom florets serrated, a curious mixture of colour of red and bronze, the under side of florets pale gold. It is of a dwarf habit of growth, from 2 feet to 3 feet high; the foliage is dense, the points of the leaves curling inwards. Belle Paule promises much better this season than last, there not being many complaints of blind buds, owing to the absence of the scorching weather that the plants were subjected to last season during the month of August, at the time when the flower-buds were forming. Sarah Owen, a sport from Madam Laing, should be of good service among amber-coloured flowers. The list of new sorts among the incurved varieties is, as usual, a short one; these are increased but slowly. One variety from which great things are expected is Charles Gibson, a bronze sport from Mrs. Norman Davis, having all the characteristics of the earliest parent of this class. Princess Teck.—Should this variety prove good it will be a boon to exhibitors of cut blooms, as it will be a welcome addition to the front-row flowers, which often show a great falling off, particularly where a large number of sorts are required. Another variety in this section, of which I have some faith, is Perle Précieuse; the petals, which are broad, are purple, tinted silvery rose. Should it come out this time with a full centre it will be a decided acquisition to this class. The National Chrysanthemum Society has been able to form another class—that for reflexed Japanese. Although much difference of opinion exists as to the varieties which ought to be and ought not to be enumerated under this definition, still in time a better solution of the matter may be arrived at. If Elaine is to be regarded as the true type of a reflexed Japanese, as I think it should be, Val d'Andorre can scarcely come under the same denomination, as it is of too loose a character in its florets to correspond with flowers of the Elaine or Maiden's Blush class. Time only will prove the wisdom of this class. I think it a step in the right direction, as otherwise flowers of this type would soon be lost sight of if not used on the exhibition table, and certainly they would stand no chance of success in competition with the newer varieties of Japanese kinds now in existence. It is the fitness of the blooms for exhibition or otherwise which makes a variety popular.

Reflexed varieties find favour with many cultivators, but, as far as I know, nothing in the way of new meritorious kinds is forthcoming. Cullingfordi still ranks as the best in this section; its brilliant colour is everywhere admired. Now that the large Anemone varieties and the Japanese Anemone kinds are considered by nearly all societies as distinct, there is not so much fear of losing sight of the former section as there was when both kinds used to be placed in competition with each other. Miss Annie Lowe, a bright yellow sport from that old favourite, Lady Margaret, should render good service, a yellow-flowered variety being much needed, as Glück stood alone in that colour. At present the latter class calls for no special comment as regards new kinds, but no doubt they will gain in popularity both with the public and cultivators alike, as they are much more showy than their older fashioned brethren which are so prim in appearance. Pompons and Pompon Anemones find many admirers. They are very suitable for small growers whose room is limited, as a good number of plants can be cultivated in a small space.

HINTS ON JUDGING.

A few hints on judging Chrysanthemums at this season of the year may not be out of place, as no doubt some persons may be called upon during the coming season to adjudicate at some exhibition for the first time. Judging is no light matter, as so much depends upon the proper distribution of the prizes. A mistake made often leads to much unpleasantness afterwards between individuals, and, at the same time, causes much disappointment to an exhibitor who does not occupy his proper position. All men are liable to make mistakes sometimes. But judges should take every precaution to avoid wilful ones. The larger the show the more important it is that fewer mistakes be made. Let it not be thought that flowers at smaller exhibitions do not require as careful an examination as those at shows of greater magnitude, for the blooms put up for a five-shilling prize deserve as much consideration as do those for a twenty-guinea challenge cup. All conscientious judges regard their reputation for fairness and carefulness quite as high as does the exhibitor who is in the habit of winning numerous prizes. Judges should bear in mind the fact that when they have adjudicated on the classes there are others to follow them in the form of growers, exhibitors, and some visitors who know blooms when seen as well as what the judges themselves do. All decisions are subject to criticism, whether wrong or right. Oftentimes judges are blamed for decisions over which they have no control, and of which the public are not aware, such, for instance, as the wrong wording of the schedule. It is the duty of judges to act according to the stipulations of the schedule, which is the published guide of every society. If this be wrong, then the committee is to blame, and not the judges. The schedule of prizes and rules is binding upon the exhibitor as well as on the judges. Every judge should be able to give his reasons why such and such prizes were awarded or withheld, as the case may be. I never yet met a judge who would not point out to an exhibitor where his faults lay if the questions were put in a proper manner. Exhibitors then often gain and profit by the valuable information given.

Upon committees of societies falls the blame of appointing men as adjudicators who have not previously shown their fitness for the office of a judge. It is not necessary that a man should have been a grower of prize Chrysanthemums to enable him to act as a judge. But, at the same time, I am not prepared to say that a man who possesses the abilities of the best judges in existence and also the experience of a foremost grower of prize blooms is not better able to adjudicate upon classes in close competition than a man who possesses one of these named qualifications only. A good grower of Chrysanthemums may not make the best of judges, as he may lack points of special importance in the work. A man may be an excellent judge, but he may never have grown a prize bloom during his

existence, as through coming in constant contact with them in different parts of the country a standard of excellence, which he rarely forgets, is fixed in his mind. As there are so many exhibitions now in existence, exhibitors have the opportunity to pick and choose more now than in times past. Exhibitors will always go where they know justice will be given them. This is an excellent reason why none but those qualified to act should be chosen.

Beginners in judging should well study the schedule of the society where they are to act, as sometimes the conditions require careful consideration, and will often guide the judges in making their awards. In judging cut blooms the judges are generally asked to adjudicate upon the principal class first, for the reason, I suppose, that everyone concerned is most anxious to know who is the winner. With old hands as judges this arrangement is right enough, but with beginners it is not the best plan by a long way. Far better for them would it be if they started first on some of the smaller classes, as thus the mind is gradually cultivated and a high standard of excellence is worked up to. It is necessary for a judge to set up a standard of excellence in his mind.

Before a judge commences his duties, he should, if possible, take a quiet survey of the stands throughout the building, and if anything calls for special comment he has an opportunity to note it. I would impress strongly upon all men who are likely to be called upon to act as judges to avoid the practice of giving equal prizes, and particularly first prizes. These decisions on the part of the judges only show a weakness in their characters as judges. Equal first or second prizes for cut blooms is an easy way out of a difficulty, but creates an immense amount of dissatisfaction amongst competitors. I do not think it is possible to make two stands containing twenty-four blooms each equal in point of merit. I am positive there is a difference somewhere, however slight. This difference should be found and expressed. It sometimes happens that two stands of blooms will total up even points; the remedy then is to start again at the opposite end from which a commencement was made before, and it is hardly likely that they will again be found equal in point of numbers. But should they do so, the advantage which one or the other is sure to possess in point of "setting up," or harmony of colour in arrangement, must tell in the award. These two qualities demand notice, and at no time more so than when the stands are brought so close together. Another method to adopt is the changing to a larger number of "points" allowed to each bloom. This is a resort adopted at times when the competition is exceedingly close. Rather than give equal prizes in classes of this sort, I would prefer to spend a much longer time over making the award rather than fail to do justice to one stand or the other, as certainly a failure of justice does occur when equal prizes are awarded. Judging by points is by far the best method to adopt. I fail to see how a correct estimate of competing stands of twenty-four or forty-eight blooms can be had by any other means—of course, allowing for the close nature of the competing stands. Where a wide difference exists, judging by points would be a mistake and a waste of time. Each bloom should be judged on its particular merits, and in the Japanese section, where the variation in form is so marked, I fail to see how comparison is sufficient to arrive at a correct definition of the merits of each bloom.

If the work is to be done by points, the number to be adopted should be agreed upon at the commencement. There is no particular number binding, but six is often adopted as being found to work satisfactorily. This number allows of a good gradation for blooms of all qualities. The method of procedure is this: ascertain the number of entries in each class, see that all are there which are supposed to be, that none are overlooked. Then study the conditions of the particular class in hand; if it be forty-eight blooms of Japanese, for instance, not less than twenty-four varieties, nor more than two blooms of any one variety. The first thing to do is to see that all these conditions are complied with; if not, much time will be saved in going through the blooms in judging them. If these conditions are not found correct, the duty then of the judges is to disqualify the stand, giving their reasons for so doing. If all the stands fulfil the conditions required, then commence to allot to each bloom its proper number of points, according to the standard of excellence which it reaches, one judge acting as teller, while the other puts down in lines the number of points to each bloom. The whole are totalled up when all the stands have been examined—the result is thus obtained. In all cases where judging



Physianthus albens.

by points is adopted the blooms should be taken from left to right, commencing at the back row first. Reference to each bloom is then easily obtained afterwards if necessity requires. The award is either entered in a book for the purpose opposite each exhibitor's number, or it is recorded on the back of the prize card. E. M.

Madame Desgrange flowering a second time.—The plants of this variety, which produced large blooms, one on each shoot, are now developing a second crop of flowers, which are very useful for cutting. The profusion of bloom of this variety proves what a useful kind it is where early blooms are needed. It certainly deserves much more extended cultivation. When the first blooms were cut early in September, it was noticed that side branches from the main stem and suckers from the base were being developed. Instead of cutting all the blooms off in the ordinary way, the main branches were cut to just above where the new growths started. The plants were given a light position near the glass in a cool house, and are now producing spikes bearing several neat blooms.—E.

Stove and Greenhouse.

PHYSIANTHUS ALBENS.

This, also known under the name of Arauja albens, is a good greenhouse climber, as it is of very free growth and flowers in the greatest profusion. The leaves are of a peculiar whitish tint, which gives it a very distinct appearance. The flowers, which are borne several together in the axils of the leaves, are whitish in colour and a good deal like those of Schubertia grandiflora, which is now also included in the genus Arauja. The Physianthus is of easy culture, as it will grow in any good open soil, and cuttings of the weaker side shoots strike root readily at any time during the summer months. Though there are many climbers more showy than the Physianthus, it is one well worthy of notice from its distinct character, freedom of blooming, and the succession that is maintained for a considerable period. This plant is hardy enough to succeed in the open air when trained to a wall in favoured localities in the south of England. In The Garden, Oct. 20 (p. 381), it is also noted as flowering in the open air at Offington, in Sussex. T.

Epiphyllum truncatum.—This is grown largely and well by Mr. Stringer at Horsgate, Cuckfield. He finds the flowers most useful for cutting, the blooms being cut with the current season's growth. By a liberal course of treatment the plants do not suffer from this hard cutting. The plants seen bore ample evidence of this. An intermediate house at Horsgate has a shelf entirely devoted to them. The plants are nearly all on their own roots, the shoots hanging round the pots and below the shelves. When worked upon the Pereskia the plant flowers a little earlier. This was noted at Horsgate, for upon one worked plant the buds were sufficiently expanded to show their colour, but they were only just visible upon the own-root plants.

Flowering Cannas.—The many beautiful varieties of flowering Cannas which are now attracting so much attention in this country, and to several of which first-class certificates have been awarded, have all been sent out by M. Crozy, of Lyons, who has devoted years to bring them to their present perfection. Some of the varieties now brought prominently forward are by no means novelties, having been put into commerce three or four years since. As M. Crozy is still working among the Cannas, and sends out a few new varieties every year, we can reasonably hope for still further improvements among this beautiful class. In purchasing a stock of Cannas the best time of the year is when they are dormant, as they can then be sent without any trouble; whereas in a growing state the young brittle leaves are very liable to be injured, however carefully they may be packed.—H. P.

Scutellaria Mocciniana.—Where a certain quantity of flowering plants has to be maintained throughout the year, this Scutellaria is one of the most useful subjects we possess, for it may be had in bloom at almost any season; though perhaps the most useful in a general way are those plants that are struck in the spring and grown on throughout the summer. These are now rapidly unfolding their

earliest blossoms, as in a structure that does not get lower during the winter than 55° they will bloom during the whole of that period. They may be grown into good sized specimens, or their bright-coloured blossoms will put in an appearance on plants not more than a foot high and in quite small pots. In selecting the cuttings, shoots that appear more likely to grow than to flower should be chosen, as it is so free-blooming that if propagated from the flowering shoots some of the plants are far more likely to bloom again than to grow.—H. P.

WINTER-BLOOMING CARNATIONS.

Although the Carnation is one of our most popular flowers, we seldom see the perpetual or winter-blooming varieties grown so much as their merits deserve. In America, especially in the vicinity of New York, Carnations are very extensively grown, especially for market, and as they are largely used for button-holes and bouquets fabulous prices are often paid for them during the winter festive season. Generally speaking, they are easily grown, and those who possess a greenhouse and can maintain a medium temperature during the winter months may with advantage add these beautiful subjects to their list of plants. I have frequently heard growers say that the number of flowers they generally produce is a very inadequate return for the labour they involve during the season. One drawback they have, and this is more conspicuous when grown as single specimens. I refer to their lanky appearance so commonly seen, though this may to a certain extent be avoided by paying proper attention to their culture from the commencement. Too frequently the plants are subjected to fluctuations of temperature. For instance, several cases have come under my notice where during the summer months the plants having been grown in the open air were as the autumn drew on removed to a cold frame, and from thence during the month of October into a warm, close greenhouse. This, it is needless to say, is not conducive to satisfactory results. Subjecting them during the early part of winter to a warm, close atmosphere not only promotes weakly growth at an unseasonable time, but also lessens the amount of bloom. The chief aim in the culture of these winter-blooming Carnations is to obtain sturdy, vigorous growth at the proper season, and without subjecting them to any undue heat.

Soil is undoubtedly a most important element in their culture, though not so much as some writers assert. Some growers place more importance on this point than on any other in the whole routine of culture. That a heavy root medium is not conducive to their culture I readily admit, but after having grown them in a variety of composts, I have seen excellent Carnations grown in a mixture of peat, loam, leaf-mould, and sand in equal parts, while in the same compost, minus the peat, equally as good plants have been grown. The best plants, however, I have seen were grown in nothing but a mellow sandy loam without any other ingredient. Good drainage is most essential, as Carnations, not being very strong-rooted subjects, cannot absorb an undue amount of moisture. Watering, therefore, is a point which must be carefully attended to. Many a plant has lost its vigour, become sickly, and eventually died through the injudicious use of the water-pot. Too strict attention cannot be paid to this point during the coming winter. Where possible, abundance of air should also be given, as this will stimulate the plants and materially assist in bringing about a successful issue.

With regard to their propagation, I have generally practised layering during the summer, though I have occasionally propagated them by cuttings in early spring. The former, though not for this class of Carnation generally practised, is undoubtedly the surest, and one best adapted for those who are not adepts at the work. My system, as soon as the plants have finished flowering, is to remove them from the greenhouse to a cold frame. Here they remain until early in June, when they are removed to a frame from which early Potatoes have been dug. This frame, I may mention, is heated with manure early in the spring for the sake of the Potatoes, and the soil in which the tubers are grown is generally of a light sandy nature. Into this the Carnations are plunged so that the pots are covered. In fact, the aim is to sink them so that the shoots to be layered may reach the soil easily; thus in the case of leggy plants they are frequently sunk a considerable depth. When ready, the layering is performed in the usual manner—pegging each shoot firmly to the soil. All is well watered, and then the frame closed and kept so, at least with but a chink of air, for a week or so. Should the sun be scorching, the plants are shaded during the hottest part of the day. In the course of a fortnight or three weeks the layers are sufficiently rooted to enable them to be separated from the parent plant. This is usually done some two or three days before being lifted and potted. After this they are grown on in cool frames all the summer, given plenty of air and light and an adequate supply of water. Potting is again done about August, and the plants similarly treated as above. By this means useful plants for blooming in the spring may be had, though for earlier use it is necessary to raise them from cuttings. This may be done in March, inserting them in pots in a similar compost to that recommended above and plunging in a good bottom-heat.

As to varieties, Miss Joliffe is undoubtedly the best all-round winter-blooming Carnation. The old Souvenir de la Malmaison is also a useful variety when well grown. La Belle, a charming white variety, is an acquisition to any collection. George Paul, a bright yellow with red stripes, I have also found very good; also Whipper-in, a fine scarlet.

C. Collins.

WORK IN PLANT HOUSES.

Greenhouse.—Hyacinths.—The large-flowered varieties of Hyacinths that are intended to give successional bloom during the winter and spring should shortly be potted, as the bulbs are now inclined to commence growth. As advised for those that were potted a few weeks back, they should have good turfy loam, enriched with rotten manure, adding a moderate amount of sand. From one to three bulbs may be put in a 6-inch or 7-inch pot according to their size, as some varieties make larger bulbs than others. These later potted roots, like those put in earlier, will be better out of doors plunged in sifted ashes or Cocoa-nut fibre. It is even more necessary now to have a sufficient body of the plunging material under the pots to keep out worms, as when the weather is cool and the earth more moist, the worms come near the surface, necessitating precautions being taken to prevent their entering the soil.

Bunch-flowered Narcissi, Tulips and Crocuses.—The principal batch of these should also be potted, as, if a portion are not required to bloom until spring, there will be no difficulty in keeping them until the time they are wanted; the more roots they make before being taken indoors, the better they flower. This, combined with little or no hurrying being required, causes those that bloom late to produce the finest flowers.

Scilla sibirica.—This beautiful blue-flowered plant blooms as freely in pots as any of the bulbs that are more generally used for forcing. The bulbs may be either potted by themselves or mixed with Snowdrops; the white and the blue flowers associate well together. It requires the same kind of treatment after potting that the other smaller kinds of bulbs do that are used in this way, namely, to see that enough roots are formed before subjecting the plants to heat.

Chionodoxa Lucillæ.—The flowers of this fine bulb are of a paler shade of blue than those of the Scilla, and it is equally deserving of a place. Some bulbs may now be potted. Their treatment is similar to that required by the Scilla.

Freesias.—These plants are easily managed, and though comparatively little known until recent times, are coming much into favour. The delicately coloured white flowers of F. refracta alba are amongst the best things for cutting. Some of the most successful growers do not allow their roots to get dry during the resting period, which is evidently not necessary. Where the bulbs after the tops died down have been taken out of the soil, they should now be potted and plunged in a cold frame, in which they may remain until they have made some top growth. It will be well to plunge the pots, as then there is less danger of the soil being frozen, a condition that is better avoided with pot plants of all kinds, however hardy they may be.

Narcissus.—Many kinds of this extensive genus do equally as well in pots as those which have long been used in this way. One of the most beautiful of all, N. poeticus, is one of the best for early forcing. N. poeticus ornatus is the best for early work. Four or five bulbs may be put in a 6-inch pot. When the flowers are wanted for cutting only boxes about 7 inches or 8 inches deep may be used. Drain the boxes and put the bulbs in about 2 inches apart. Grown in this manner a considerable amount of room and also of labour will be saved. The different forms of the large-flowered Daffodils may also be potted now. Put them several together into 6-inch or 7-inch pots. In potting cover the tops of the bulbs with an inch or 2 inches of soil. Plunge out of doors in the way that other bulbs for forcing are usually treated, allowing them to get well rooted before attempting to put them in heat. It may be well to say that in selecting any of the kinds of Narcissus for forcing those that naturally flower early should be chosen, keeping those that bloom later when grown out of doors to give a succession. With a sufficient quantity of roots a constant supply may be kept up until they are plentiful out-doors. N. poeticus ornatus can be forced so as to have it in flower soon after the new year comes in.

Roman Hyacinths.—The earliest potted roots will now have made enough root growth to admit of their being put in heat. See that the tops are not at first exposed to the light. The old method of inverting a small pot over the cap of the bulb is as good a plan as any. Under the influence of the light that is admitted through the hole at the bottom the tops will soon turn green, after which the little pots may be dispensed with.

Pelargoniums.—Plants of the large-flowered varieties of Pelargonium that were allowed to keep on blooming until late in summer, and consequently were not cut back at the usual time, will now have made enough new growth to admit of their being repotted. Most of the old soil should be shaken away, and any long straggling roots that have grown amongst the drainage should be cut away. Put the plants in pots a size or two smaller than those they have been flowered in. Good fibrous loam, with rotten manure and sand, is the best material for Pelargoniums of all kinds. Make the soil quite firm in the pots. To do justice to Pelargoniums that are shaken out late, they should be kept for some weeks where they can have a little warmth, say about 45° in the night, as if stood in a cold house there is not enough atmospheric heat to get the roots to move freely. Stand them near the glass, and do not admit cold draughts upon them. Pelargoniums that were cut down in July, and shaken out and repotted as soon as they had made some fresh growth, will now be in a condition for moving into the pots in which they are to be grown on and flowered. If all has gone well with them, the roots will have got well hold of the soil. At this the final potting drain carefully.

Fancy Pelargoniums.—Plants of this section that were headed back at the same time as the large-flowered kinds that bloomed early should now be shifted into the pots in which they are to flower. See that the soil is sufficiently moist before the plants are potted, so that they may not require water for a week or two after they are moved. The fancy kinds are the most impatient of having any excess of moisture about their tops during the winter. Both the fancy and the large-flowered sorts should, if possible, be kept in a house or pit where they will have a night temperature of from 45° to 48°, and be stood with their tops near the glass. To grow the large-flowered and the fancy Pelargoniums as they should be, they should have plenty of light all through the winter and spring, and be kept drier at the roots than most greenhouse

plants require. If the soil is at all too wet, they make too much top growth and comparatively few roots. See that the stock is quite free from aphides. If the insects are allowed to infest the plants, even for a few weeks, they injure the leaves so that the lower ones die off before the time of flowering.

HELIOTROPES.—Where large specimen Heliotropes are grown in pots for winter blooming and have been stood out of doors and had the flowers picked off during the summer, they should be full of hard matured wood capable of flowering well through the winter. The plants should now be moved to a house or pit where they can be kept at a temperature of 50° in the night. With this amount of heat and plenty of light they will go on blooming until spring. But to enable them to yield the full amount of flowers manure water must be given at short intervals. Where small plants such as have been grown on from spring-struck cuttings have to be depended upon they must be treated similarly in the matters of warmth and light, and it is equally necessary to keep up their strength by liquid stimulants, in the absence of which the young wood will be weak.

STOVE. — SHRUBBY CLERODENDRONS. — The shrubby kinds of Clerodendrons, such as C. fallax and C. Kæmpferi, that were headed down after flowering will by this time have made young shoots 2 inches or 3 inches long, in which case they should be turned out of the pots and have half of the old soil shaken away, replacing them in the same or larger pots, according as the plants may require them. It is bad practice to allow these and other things of a like character to remain, after being headed down, until spring before shifting them. Good turfy loam with some rotten manure and sand answers for these Clerodendrons. Give pots proportionate in size to that of the specimens. Plants of the two kinds named will last for many years if fairly treated. When large they require 16-inch or 17-inch pots, as being free growers that make quantities of roots they need a liberal amount of room. After potting they should have a place in a warm stove, as they require to be kept moving all through the winter. Plants that were raised from cuttings struck in spring if pushed on with enough root-room and the requisite amount of heat will now be composed of a single strong shoot. It is as well not to stop them, as they look well with a single panicle of flower. If the plants are vigorous they may now be put in 12-inch pots which will be large enough to carry them through the season. Smaller examples that have been raised from seed that ripened early in summer must not be allowed to want for root-room, for if they get a check they will not bloom much during the ensuing spring.

CLERODENDRON FRAGRANS. — This distinct species is almost herbaceous in habit, as its erect growing shoots are best cut down to the bottom after flowering. Plants that were treated in this way will now require moving into the pots in which they are to flower; unless the specimens are larger than usual, 12-inch or 13-inch pots will be large enough. If kept in a warm stove through the winter this kind will flower early enough in spring to admit of the plants producing a second lot of bloom late in summer.

C. SPLENDENS.—This fine stove climber is not so vigorous in habit as to require a great deal of either head or root-room. Even when the specimens have attained something like their full size the branches should only be shortened moderately once a year. The present is a good time to carry out whatever is required in this way, being careful not to use the knife too freely. The plants should have warm stove treatment during the winter, and whatever repotting is necessary had better be deferred until the days begin to lengthen in the new year.

T. B.

Ivy-leaf Geranium Alice Crousse.—What a splendid plant this is for vases out of doors, or for training up a wall. Strong plants of this variety put out in good soil at the base of a south wall towards the end of May make free growth and flower abundantly Our plants are covered with bloom now (October 20), and have not suffered from the frost in the least, although no protection was afforded during the keenest frost (6°) which we registered.—SOUTH HANTS.

Rivina humilis.—Plants from 1 foot to 1 foot 6 inches high, loaded with berries in long drooping bunches, are capital subjects for house or conservatory decoration at this time of the year. If sown and grown on in heat until they become established the greenhouse will afterwards be a suitable place for them. The pots need not be more than 3 inches in diameter. Any fairly good soil if kept well supplied with water during the summer will be suitable for the Rivina.—A.

Begonia Weltoniensis.—It may not be generally known that this Begonia is very useful for bedding. It is of good habit of growth, being bushy, and retaining its foliage well, while the pretty pink blossoms are freely produced. We had it growing in a mass in a circular bed this season, the centre of the bed being occupied with a good plant of Eulalia japonica variegata, while the ground was carpeted with Antennaria tomentosa, the whole forming an agreeable combination. Anyone having a few old roots in the spring should start them into growth quietly, so that the new growths can be plainly seen. Divide the stools into small pieces, placing all with roots attached in boxes filled with good soil. Grow them in very gentle heat until growth is again ensured, after which cool treatment is the best.—M.

TREES AND SHRUBS.

THE INDIAN BEAN.

(CATALPA SYRINGÆFOLIA.)

THE appearance of a giant specimen of the Indian Bean in the grounds at Holwood Park just now suggests the necessity for so rare, handsome, and hardy a tree being brought more prominently under notice than it has heretofore been. The large terminal panicles of curiously coloured flowers rival those of the Horse Chestnut, while its broad bronzy leaves have at all times an appearance that is so totally different to that of the ordinary denizens of our lawns and parks, that one cannot help admiring it. Then the seed-vessel is just as curious as is the leaf or flower, for it resembles nothing half so much as that of common Cabbage, only it is much longer, but just as slender, rougher of surface, and usually up-curved. The pod, as it may best be called, is not unfrequently 15 inches long, of equal width throughout its entire length, and there are rarely more than two or three produced to each panicle of flower in this country.

To bear seed at all freely on this side of the Atlantic is rather a rare occurrence for the Catalpa; although in Ireland and some of the southern English counties one occasionally meets with it on old and healthy trees.

Except in the milder portions of the British Isles, the Indian Bean cannot be said to find a congenial home; although, at the same time, it is but fair to add that its tender character has been much exaggerated, for on looking up my note-book I find that in many cold and cheerless districts are to be seen not a few fine sturdy specimens of nearly 50 feet in height. I am now convinced, from the growth of numerous trees of this Catalpa, that it is peculiarly well suited for planting along the sea-coast, the mild, ozone-laden atmosphere seeming to be particularly relished by this North American Catalpa. At Baronhill, in Anglesey, and where partially exposed, it has formed a handsome tree of stately proportions, the stem being thick and straight and the branches far-spreading and thickly studded with the freshest of foliage. The Holwood tree is fully 40 feet in height, with a branch-spread of 36 feet, and a well-rounded stem, which at 3 feet and 5 feet girths 3 feet 1 inch and 3 feet respectively. It is in excellent health, as is clearly demonstrated by the abundantly produced and freshly tinted foliage, while the branch tips are at present adorned with the conspicuously coloured flowers, some of these being of immense size, particularly on the sunny side of the tree. Unfortunately, owing to the close contiguity of this handsome specimen to a far-spreading Beech on one side and a tapering deciduous Cypress on the other, the larger branches have become somewhat marred and stunted in appearance, although the best art of the pruner has been brought about to effect a cure. Generally speaking, the Indian Bean has an awkward and ungainly appearance, this being occasioned mainly by the branches being irregularly arranged on the stem, and also by these having a wide spread in proportion to the bulk of the trunk.

In favourable soils, and when planted in suitable situations, the Catalpa is a tree of rapid growth, instances having come under my own notice of a height of fully 24 feet having been reached in twelve years; but this is more the exception than the rule, the average rate of growth of fifteen specimens for the first twenty years of their life being hardly 13 inches per year.

The strong, thick, and sappy growths produced under favourable conditions are somewhat remarkable, and must be well ripened off, else they suffer considerably during our coldest seasons, and then half the beauty of the tree is destroyed, and the flowering qualities greatly impaired. This usually occurs, however, when the tree is planted in rich and damp loam, but rarely when grown in that of ordinary quality, for then it has less inducement to form such rampant growths. It is a curious fact that in many trees and shrubs that suffer from the coldness and unseasonableness of our climate, and that, in consequence, have their young growths killed back occasionally, the recuperative powers are unusual, and in the case of the tree under consideration it is no exception to the rule. Many instances are on record of the Indian Bean having been cut back down to the ground level through the severity of our winters, and yet the trees have sent out strong shoots with renewed vigour, some of these soon attaining to the size of the original stem.

Alluvial deposit or thoroughly decayed vegetable matter would seem to suit this particular Catalpa best—at least when planted in such it grows most rapidly, and attains to largest proportions. The Holwood tree, which is probably one of the largest in this country, is growing on a rather poor loam, which rests at only a couple of feet on a deep bed of gravel. Another plant on the same property, and growing in a stiffish loam almost approaching clay in texture, is less vigorous.

This tree was introduced from North America in 1726, its headquarters there being the United States, from Illinois southwards to Texas and Florida, and where it is frequently found girthing 10 feet in circumference, and rising to 50 feet without a branch.

In the States the timber is highly valued for its lasting qualities, and it is used for telegraph poles, fencing posts, railway sleepers, and many other purposes. An eminent judge of American woods tells us that

during a period of thirty years I have seen much of it in posts and timbers of buildings coming in contact with the ground, and my observation is that it is the most durable of all timber. In fence posts of twenty years' standing it is as sound and firm apparently as when put in. If the timber is matured and firm enough to hold a spike, it may be considered as next to iron for railway sleepers; in fact, it may be regarded as imperishable under or lying on the ground.

Of course, we do not for one moment wish it to be understood that the Catalpa is at all suitable for extensive culture in this country, but that it is for many of our foreign possessions has been pretty conclusively proved. For its unusual and handsome foliage, its dense spikes or panicles of large white flowers, spotted and marked with purple and yellow, and its peculiar recuperative qualities, it is well worthy of extended culture wherever a suitable soil and situation are at command.

There is a form of this Catalpa which differs from the typical species in that the foliage is of a golden hue. This is a very interesting and handsome tree for lawn or park planting, and would seem, from how seldom one sees it, to be

rare, but it is well worth a place if suitable soil and a warm and sunny situation can be provided.

A. D. Webster.

SHRUB NOTES.

The Sorrel Tree, or Sour-wood (Oxydendrum arboreum), sometimes called also the Lily-of-the-Valley tree, on account of the shape and colour of its flowers, is now blooming. It is the Andromeda arborea (the first name) of some of the old collections. The Sour-wood is hardly more than a tall shrub in the north, rarely attaining here a height of more than 10 feet or 12 feet, but in the south, in the mountain forests of Carolina and Tennessee, where it grows in its greatest perfection, it becomes a slender tree, often 50 feet high. It has deciduous, membranaceous, lanceolate leaves, 4 inches to 6 inches long, an inflorescence consisting of a spreading panicle of one-sided, drooping, many-flowered racemes terminating the leafy branches of the season. The pure white, bell-shaped flowers are a quarter of an inch long. It is surprising that this beautiful plant is now so rarely found in gardens. Its handsome, white flowers open at a season when few trees are in bloom, while the brilliant colours, unsurpassed, perhaps, by those of any other American plant, which its leaves take on in autumn make its cultivation doubly desirable. The name Oxydendrum is derived from two Greek words, signifying sour and tree, and relate to the acid flavour of the leaves.

Another plant peculiar to the mountain forests of the Southern States, and too seldom seen in gardens, Clethra acuminata, is now in bloom. It is a tall shrub, sometimes 18 feet or 20 feet high in the high southern valleys, but at the north rarely attaining half that size. It has large leaves 4 inches to 7 inches long, and nodding, solitary racemes of yellow-white flowers, shorter than the caducous bracts. This plant is perfectly hardy here. It is less beautiful, however, than the northern representative of this genus, the familiar Sweet Pepper-bush, which just now is the chief ornament of northern swamps, which it enlivens with its lustrous, dark green foliage and handsome, upright racemes of pure white, spicily fragrant flowers. This is one of the handsomest shrubs found in North America; it is easily cultivated and thrives in any good garden soil. Some attention of late years has been directed to the value of the Clethra as a garden plant, and it is now found occasionally in commercial nurseries.

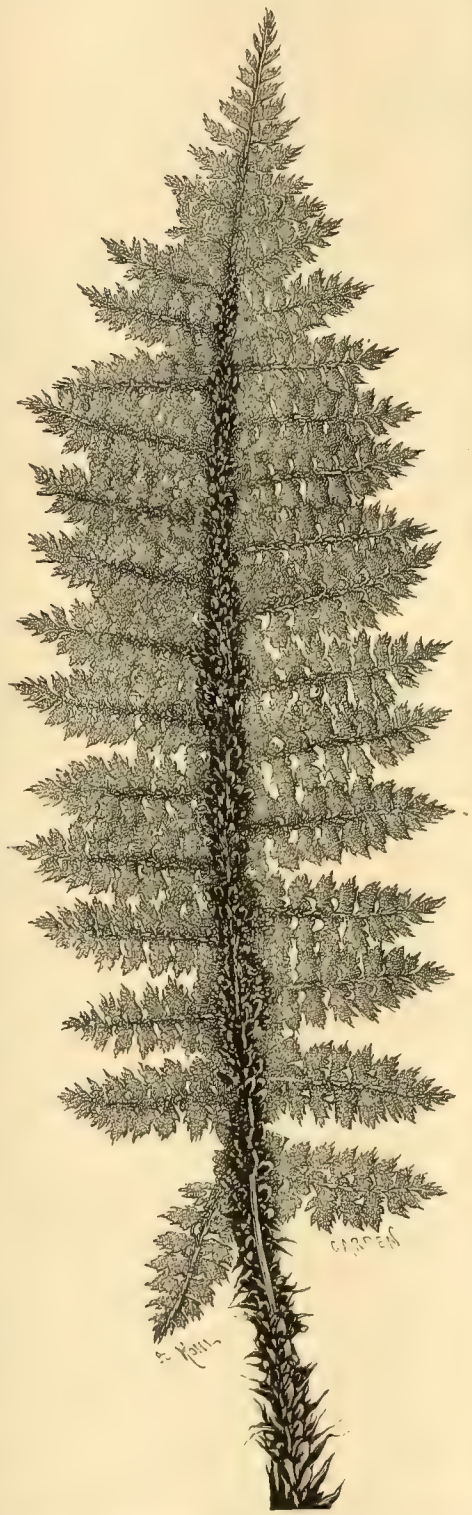
Rosa Beggeriana var. genuina is a wild Rose of Central Asia which has the merit of keeping in bloom here all the summer long. Its introduction into cultivation is due to Dr. Aitchison, botanist of the late Afghan Boundary Survey, who found it "a common shrub at the western extremity of the Kuram district, and throughout the Hariáb, in vicinity of streams and watercourses; it is also very common near cultivation, where it forms natural hedges along the various channels of irrigation, at an altitude of from 4000 feet to 9000 feet. It forms a bush of from 4 feet to 6 feet in height, the latter being in more favoured localities. When in bloom it is covered with a mass of pure white small flowers. The fruit is little larger than an ordinary Pea, at first orange-red, when fully ripe of a deep purple-black. The shrub is brier-scented. The hardiness of this plant and its habit of blooming continuously throughout the season make it a useful, as well as an interesting addition to single Roses.—*Garden and Forest.*

SHORT NOTES.—TREES AND SHRUBS.

Treatment of Box trees.—I have some large Box trees which were beaten down by the snow last year. Would you advise cutting them down next spring to the ground, or tying them up to a large stake?—Wilcote.

The hardiest Gum trees.—M. Naudin finds that Eucalyptus coccifera, E. anigera, and E. cordata are the hardiest of the great collection of Eucalyptus tested by him in the gardens of the Villa Thuret.

Magnolia purpurea.—This Magnolia has made growth of a more vigorous nature this season than at any time previous, sending out shoots 18 inches long, owing, I presume, to the copious supplies of rain experienced. Flowers of good quality have lately been formed and developed on the current season's growth, thus rendering the appearance of this Magnolia quite different to what it is when flowering in the spring when the foliage is not developed thoroughly, and I note that plants of M. Soulangeana



Polystichum venustum. Engraved for The Garden.

are freely set with bloom buds at the present time, giving promise of a plentiful display next spring.—S.

Common Bracken amongst Rhododendrons.—When replanting some Rhododendrons last spring, the roots of the common Bracken were freely mixed with the peat used for the Rhododendrons. In time vigorous growths pushed up amongst the branches of the Rhododendrons, and were allowed to rise over the top of the foliage of the Rhododendrons. The effect during the summer has been pleasing; particularly now is this so, when the Bracken is assuming its autumn tints. The Rhododendrons have not suffered in the least owing to this companionship, as the growths of the Bracken were not allowed to be so thick as to obscure that light sufficient for the proper ripening of the growths of the Rhododendrons.—E.

FERNS.

W. H. GOWER.

CHOICE POLYSTICHUMS.

This genus is nearly allied to Lastrea; it is technically distinguished by the indusium being circular and attached in the centre; whereas the indusium of Lastrea is reniform; this distinction, however, can be readily broken down, but to a cultivator there is an amount of character which mostly serves to define the various species, as they have a more rigid habit, the pinnules being usually armed at the points with a spine, and the whole frond is of a dry texture in comparison with the fronds of any of the Lastreas. The various members of the genus Polystichum are suitable for the embellishment of ferneries in all temperatures, as they have an extensive range, being found wild in the cool regions of the north and south, as well as in tropical parts of the world. Some authorities include these plants in the genus Aspidium, but as this last-named family is so different in habit and has reticulated veins, there is little difficulty in separating the genera. Polystichums are, for the most part, very easily cultivated; they grow freely, form grand ornaments, and are especially deserving the attention of amateurs. Care must, however, be taken to keep them cool enough, or the black thrips will attack them, and this may be taken as a sure indication of their being in too high a temperature. Drain the pots well, and for soil use a mixture of two parts loam and one part each of peat and sand; pot firmly and water freely.

P. amabile.—This plant is a native of Ceylon; it is also found in various parts of Malacca, and therefore requires a somewhat strong heat to develop its beauties; the fronds attain a height of 2 feet or more, half of which is bare stem, the latter being clothed at the base with numerous light brown chaffy scales. The fronds are bipinnate, about a foot broad, and have from three to six pairs of pinnæ and a long terminal one; the segments are large and bold, the edges being conspicuously spiny. It is a distinct and handsome Fern, suitable either for rockwork or pot culture in the stove.

P. varium is a species somewhat resembling the above, but the fronds are more rigid; the pinnules, moreover, are more obtuse, whilst the sori are not submarginal. In habit it resembles P. amabile and is quite as strong. It is a native of Japan and Hong Kong, and will probably be found a welcome addition to the open-air fernery in favourable localities, but I have only ventured upon it hitherto in the cool house.

P. amplissimum.—A beautiful stove Fern, producing fronds from 2 feet to 3 feet in height, and 1½ feet in width at the base; the stems are of a pale straw colour, becoming chestnut at the base, and they are also slightly hairy. The fronds are decompound, divided into elegant segments and beautifully arched, deep green in colour, and densely covered beneath with brown sori. It is a native of Brazil.

P. auriculatum.—This is a plant of tufted habit, with erect fronds; the pinnæ are some 3 inches long, narrow, closely set, regularly serrated at the edges, and tapering to a point. It is a handsome and distinct species, from various altitudes in India.

P. capense.—This, a large, bold-growing, handsome Fern from South Africa, forms a grand

specimen in a cool fernery. It has stout, scaly, creeping rhizomes, which have frequently led amateurs to call it a Davallia, with which genus, however, it has no affinity. The fronds, deltoid in outline and very coriaceous in texture, are from 3 feet to 6 feet in length, and from 1 foot to 18 inches broad, spreading, and rich deep green in colour; sori copious, large, and conspicuous.

P. VESTITUM is a handsome greenhouse Fern from New Zealand, far too seldom seen in cultivation. The fronds are spreading, twice-divided, some 2 feet or more high, and from 9 inches to 1 foot wide. The base of the plant and the rachis are densely clothed with bright chestnut hairs.

P. VENUSTUM (the subject of our illustration) is one of the most beautiful greenhouse Ferns in cultivation, and is of a somewhat erect habit. The fronds vary from the size of that shown in our cut—which was gathered in New Zealand—to upwards of 18 inches long, and they are between 3 inches and 4 inches in width. The pinnules are very deep green, and the chaffy scales which so densely clothe the stem and the rachis are a deep brown with a pale border, adding materially to the beauty of the frond.

P. PROLIFERUM.—This is a fine species from New Zealand, the fronds reaching some 2½ feet in height, the crown of the plant and the base of the stems being clothed with large, black, chaffy scales, the rachis furnished throughout with brown woolly hairs; near the apex the rachis becomes proliferous and bears a young plant; the fronds are bipinnate, the pinnules nearly entire and deep green.

P. CONIIFOLIUM.—A superb stove Fern from Ceylon and various other parts of India. The fronds are somewhat deltoid in outline, three or four times divided, rigid, and bright shining green in colour on the upper side, sori dense and bright brown. It forms a charming pot plant, and thrives equally well planted out, but I have observed that sprinkling with water over the fronds has an injurious effect, causing them to turn of a rusty brown hue.

P. CONCAVUM.—This is the plant introduced from Japan and named Lastrea Standishi. It is a beautiful species for the open-air fernery, and somewhat resembles P. amabile, but the pinnules are smaller and more closely set; the fronds are three times divided and very leafy, from 1 foot to 3 feet high and about 9 inches across. Its bright green colour renders it a very ornamental plant in an open-air fernery.

P. TRIANGULUM is a lovely small-growing plant and thoroughly distinct in character. It forms a pretty little specimen in a pot, and it will also thrive well in a Wardian case. The fronds vary from 6 inches to 15 inches in length, the pinnæ being triangular in outline and spiny on the lower edge. The variety laxum is also very distinct and pretty; the crown of the plant is more scaly, and the pinnæ are not triangular, but are divided at the base into two or three small lobes, the point of each terminating in a long, spine-like point.

P. FALCINELLUM.—This forms a handsome mass when planted in the rockery and contrasts well with any of the varieties the fronds of which are more finely divided. The fronds are erect, from 1 foot to 18 inches or more in height; the pinnæ, which are narrow and entire, are bright green above, pale beneath, and furnished with bold red sori. It is a cool house plant from Madeira.

Lapageria unhealthy.—A Lapageria alba which I have had for several years has flourished and flowered freely up to the present year. It has now lost many of its leaves, has borne but one or two miserable flowers, and seems in a very unhealthy condition. About three years ago it was removed from the pot in which it was to a large box, and seemed much benefited by the change. Will you have the goodness to suggest a remedy?—R. L. A.

*** Kindly give some particulars as to the treatment. Perhaps you are keeping it too warm and close, or you may have neglected supplying sufficient water. Lapagerias resent very warm treatment, and during the growing season require abundant supplies of water, provided the drainage is good. If the drainage is bad, stagnant water may be the cause of your plant being unhealthy. If you suspect this is the case you had better examine it at once and remove all the wet and inert soil, replacing it with a mixture of rough peat, silver sand and broken clinkers. Lapagerias always do best when planted out.—ED.

PROPAGATING.

ELÆODENDRON ORIENTALE, better known as Aralia Chabrieri, is a handsome plant of symmetrical growth, its usual habit being to form a strong leading shoot, while the branches, which extend in a nearly horizontal form, are arranged almost as regularly as those of many of the Coniferæ. Unlike most of the order (which very seldom produce a leading shoot from a side branch if it be struck as a cutting), the Elæodendron may be readily propagated by cuttings taken from any part of the plant, for though those formed of the side shoots will often maintain that character for some time after they are rooted, and grow perhaps a foot long in a nearly horizontal manner, yet finally a stouter leading shoot will be pushed up from near the base and grow away quickly. When this leader, which is to form the future plant, has made a little progress the side branch should be shortened back somewhat, in order to strengthen the centre of the plant, and finally the side branch, which was the original cutting, may be removed altogether, thus leaving a young symmetrical growing plant. The best time to put in the cuttings is just as the young shoots are about three parts ripened, and for subjects such as these it is preferable to put them in single pots. Good sandy soil must be used for the purpose and the pots well drained. No more leaves than necessary should be removed, and it is also an advantage to secure each cutting to a small stick. The best place for them is a close propagating case kept at a stove temperature, and a very good plan is to stand them on the surface of the fibre (if it be the plunging material in the case) for two or three weeks, until the base heals over and then plunge them in a gentle bottom heat, as this will greatly assist the action of rooting. In the case of any cuttings of this or other stove plants that have been standing for some time the action of rooting will be often hastened by taking them out of their cutting pots and re-inserting in some new soil.

PHLOXES FROM SEED.—It is by no means necessary to resort to seeds for the propagation of the various late-flowered kinds of Phlox, for where large masses exist they can be readily increased by division, which may be carried out to almost any extent, while, even if the plant is small, it can be protected by a frame in the spring, and will thus yield several cuttings, which are not difficult to strike if kept close until rooted. There is, however, a very great interest attached to raising plants from seed, and as these can be depended upon to flower the same year as they are sown, one has not long to wait to prove the merits of his plants. The seeds will ripen usually about the early half of October, when they should be gathered, and after being laid out to dry, stored away in a safe place until the end of February or the early part of March. They should then be sown and placed on a gentle hotbed, when the seed will quickly germinate, and as soon as the young plants are large enough to handle without risk, they should be pricked off into boxes or pans of good soil. If just protected by a cold frame they will grow away freely, and need potting off before very long. They ought not to be planted out much sooner than the end of May, so in potting them one precaution to be observed is not to use the pots too small, otherwise they will get full of roots, and the plants starved before they are planted. If a suitable piece of ground be chosen for their reception they will grow away freely and flower profusely the first season, while, as a rule, great variety will be found amongst them.

SOLANUMS.—The beautiful berried Solanums, so much grown for winter decoration, are easy enough to obtain either from seeds or cuttings, but where small bushy plants are required this last is the most suitable method, and the early autumn months is a very good time to carry out their propagation for the next season's display, as cuttings put in now will not take very long to strike, and they may then be potted off and wintered on a shelf, or in some similar spot. So treated, they will be sturdy little stuff ready to be shifted into larger pots on the return of spring, and when frosts are over they can be either planted out or potted on. Some prefer one mode of treatment and some another, but whichever is used plants struck in the autumn are far more likely to set and colour their fruits well than those which are not propagated till spring. T.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

OCTOBER 23.

THE last of the fortnightly meetings of this society for 1888 was held in the Drill Hall, Westminster, on Tuesday. The principal things shown are described below.

First-class certificates were given to the following:—

ONCIDIUM MANTINI.—This beautiful Oncid was shown both by Messrs. J. Veitch and Sons, of Chelsea, and Mr. E. Crook, gardener to Mr. G. H. Baxter, Hutton Park, Brentwood, and of the two that exhibited by Mr. Crook was the richer in colour. It is a supposed natural hybrid between O. Forbesi and O. Marshallianum, and from the character of the flower this would be correct. It has a strong likeness to O. Forbesi, the flowers having broad sepals and petals, rich brown, with the margin irregularly blotched with the same colour, and the extreme edge greenish yellow; the lip is yellow, with spottings of brown. A few well-flowered specimens would be welcome just now in the Orchid house.

CATTLEYA HARRISI.—An exceptionally distinct and beautiful addition to a magnificent genus. It is the result of a cross between C. Mendeli and C. Leopoldi, and a resemblance to both of its lovely parents is seen in the flower. The broad lip, with its side lobes rolled over the column, shows the affinity to C. Leopoldi, though the front lobe is wider, and has taken the lustrous colour of that of C. Mendeli. It is of the deepest purple, this running into the throat, where there is a pale suffusion of yellow just at the entrance. The side lobes are almost white, save the upturned tips, which are of the same rich colour as the lip. The Mendeli character is seen in the wavy, self rose-lilac-coloured, narrow sepals and broad petals. The plant bore one bloom of a size intermediate between that of C. Mendeli and C. Leopoldi. It is a strong grower, and has deep green foliage. From Mr. Ballantine, gardener to Baron Schröder, The Dell, Egham.

CATTLEYA LAMBERHURST HYBRID.—This is the most interesting and remarkable hybrid that has appeared for a long time. It has for one of its parents the citron-coloured C. citrina, and the other is C. intermedia. A cross between two such Orchids as these ought to produce a beautiful variety; and here we have a charming flower that has more of the character of C. citrina than C. intermedia. It has, to some extent, obtained the colour of C. intermedia, as there is not a trace of golden yellow, the sepals and petals being lightly touched with rose, the lip delicate rose-lilac, with veins that run into the throat, the whole thinly margined with white. There is the strong aromatic, spicy fragrance of C. citrina, and the whole flower is of almost exactly the same shape, except that the sepals and petals are narrow, the lip smaller, and the whole bloom less waxy. The plant was of upright growth, the spike bearing the flowers being almost as pendent as in C. citrina itself. A more beautiful flower still would be a pure white hybrid with the expression and fragrance of C. citrina. From Mr. Ballantine.

RHODODENDRON YELLOW PERFECTION.—We have never seen a more beautiful cross than this, which is between R. Teysmanni and Lord Wolseley. It is of an indescribably lovely yellow tint, so pure and fresh as to be almost transparent, the tube showing the deepest shade. The truss bore several

flowers, all of large size and great substance. This greenhouse Rhododendron ought to be one of the most highly prized of all. From Messrs. Veitch and Sons, Chelsea.

Chrysanthemum Lincoln's Inn.—This Japanese variety was exhibited by Mr. W. Holmes, Frampton Park Nurseries, Hackney, and Mr. Owen, of Maidenhead. It is a useful October-flowering variety, of a reddish buff colour, with golden reverse to the florets; the bloom being rather thin at present, but this fault may be rectified by cultivation.

Chrysanthemum Magicienne.—This is a Japanese variety that has much to recommend it. The flower is full, broad, solid, and of excellent proportions, showing great distinctness from other early-blooming kinds. The colour is rich orange-bronze, the reverse of the petals pale gold. From Mr. Owen.

Chrysanthemum Sunflower.—Three splendid blooms of this evidently noble Japanese Chrysanthemum were shown by Mr. W. Holmes, the flowers thoroughly characteristic, shaggy, of great width, remarkably full, and of an exceedingly bright self-yellow colour, the brightest we know of its class. This is vastly superior to the usual run of new varieties. Exhibited by Mr. W. Holmes.

Chrysanthemum Edwin Molyneux. — No description is needed of this splendid Japanese variety, as it has been described before in The Garden. From Mr. G. Stevens, Putney.

Chrysanthemum Capucine, from Messrs. J. R. Pearson and Sons, of Chilwell, Notts, was commended for its earliness and decorative qualities. The flowers are of medium size, very freely produced, and of a rich yellowish bronze colour. It is useful for the conservatory.

Messrs. Veitch & Sons had, besides the plants certificated, Rhododendron Brunette, a greenhouse variety, and a hybrid between R. javanicum and R. Princess Frederica; the flowers have each of them six or seven segments, the colour being fine buff Alocasia Chantrieri, the foliage deep green, with bands of glaucous colour; and Chrysanthemum H. A. Gane, a Japanese decorative variety, the flowers being of a soft lilac tint and of very neat shape. Adiantum Wrighti came from Mr. H. Wright, gardener to Mr. J. A. Whittard, Royal Mount, Streatham Hill. It is very beautiful, but not very distinct from A. cuneatum, and much like A. Waltoni, shown at the last meeting of the society. A well-grown plant of Odontoglossum Insleayi splendens, a Mexican Orchid of great beauty, came from Mr. Baxter, Hutton Park; it might be more often seen than it is, as the flowers are very handsome, the colour rich brown, except the lip, which is golden-yellow, the margin blotched with reddish crimson. Messrs. Seeger and Tropp, The Nurseries, East Dulwich, showed Cypripedium Seegerianum, a cross between C. Spicerianum and C. Harrisianum; the flower has the neatness of that of C. Spicerianum, but more the colour of C. Harrisianum.

Two baskets of Chrysanthemums came from Mr. W. Holmes, the best varieties comprising M. Chrétien, a reddish crimson-coloured Japanese flower, the better known Feu de Bengale, O. J. Quintus, blush white, and Martinmas, a reflexed variety, rose in colour, the centre golden-yellow, full, and free. Also shown by the same exhibitor were Sabine, a yellow Japanese Anemone variety, the centre yellow, the ray florets pale sulphur, and Charles Souchet, a Japanese reflexed Chrysanthemum, the colour crimson-red, with the reverse of the petals golden-yellow. Four new varieties of Chrysanthemums, viz., Othello, a Japanese flower of a gold-bronze colour; Charles Delmas, deep crimson, gold reverse to the petals; Charlotte de Montcabrier, pale lilac; and Mme. Louise Léroy, white, the florets beautifully frilled, were shown by Messrs. J. R. Pearson and Sons, The Nurseries, Chilwell, Notts. Mr. G. Stevens, of Putney, exhibited handsome blooms of the pure white Japanese-flowered C. Wagstaff, a variety that ought to become popular. Several kinds of Chrysanthemums also came from Mr. R. Owen, of Maidenhead, of which the Japanese Comte Horace de Choiseuil, which has broad petals, white, tinted with rose, was one of the best. A well-flowered spray of Lapageria alba was sent by Mr. H. Jackson, gardener to Mr. S. A. Ralli, Cleveland House, Clapham Park. Flowers of the beautiful double white Colchicum and a small white-flowered Primula, believed to be new, were shown by Mr. G. F. Wilson, Weybridge.

Fruit committee.—From Mr. J. Crook, Farnborough Grange, Hants, came a collection of fruit, comprising admirable samples of Coe's Golden Drop and Reine Claude de Bavay Plums; Marie Louise, Louise Bonne of Jersey, Doyenné du Comice, Conseiller de la Cour, and Duchesse d'Angoulême Pears; and Blenheim Orange, Cox's Pomona, and Alfriston Apples. Mr. Smith, Mentmore, Leighton Buzzard, exhibited Prune, Worcestershire, Shropshire or Cheshire, and the Farleigh or Crittenden Damsons. Brilliantly coloured fruits of Duchess Favourite Apple, as bright as those of Worcester Pearmain, came from Captain Ferry, Shrublands, Hersham, Walton-on-Thames. Potatoes came from Mr. A. Selby, Radcliffe-on-Trent, Notts, and Mr. W. Ellington; and seedling Grapes from Mr. Smythe, The Gardens, Basing Park, York. A basket of tubers of Stachys tuberifera came from Messrs. J. Carter & Co., High Holborn.

Fruits of the Tree Tomato (Cyphomandra betacea) and the Snake Gourd (Trichosanthes anguina) came from the Royal Gardens, Kew. The former are edible, egg-shaped, and were from plants grown in a warm greenhouse. The fruit of the Snake Gourd measured 2½ feet, of snake-like form, and rich orange and scarlet. It must be grown in a tropical house.

NATIONAL CHRYSANTHEMUM.

Oct. 24.

There was a most interesting committee meeting of the National Chrysanthemum Society on Wednesday last, when the following novelties were certificated:—

Sunflower.—This beautiful Japanese variety will be found fully described in the report of the Royal Horticultural Society's meeting. From Mr. W. Holmes.

Sabine.—This is an excellent addition to a class by no means well represented—the Anemone Japanese. It is in the style of Miss Annie Lowe, with a well-built disc, which is of a bright yellow, the outer florets of a paler shade. From Mr. W. Holmes.

Nelson.—This belongs to the same section as Sabine, but it is of quite a different colour, and on that account an acquisition. The flower at present is somewhat ragged, but this may disappear with cultivation. There are excellent guard florets, which, together with the well-built disc, are of a dull rose colour. From Mr. W. Holmes.

Violet Tomlin.—This is an incurved variety that has the fulness and excellent shape of Princess of Wales, from which it is a sport. The colour is dull rose, and several shades darker than in the type. From Mr. Doughty, Angley Park, Cranbrook.

Magicienne.—This will be found described in the report of the Royal Horticultural Society. From Mr. Owen, of Maidenhead.

H. Shoesmith.—We have in this incurved variety a marked addition. It is a sport from the variety Mr. Bunn and has inherited its beautifully finished form, but not its colour, which is reddish orange. From Messrs. Davis and Jones, Camberwell.

Stanstead Surprise.—This is a seedling of the Japanese class, and is thoroughly characteristic. The flower is quite up to the exhibition standard, and is in colour of a distinct and telling cherry-rose, the reverse of the florets silvery grey. It must be commended also for its earliness. From Messrs. J. Laing and Co., Forest Hill.

Two baskets of Chrysanthemums came from Mr. W. Holmes, Frampton Park Nurseries, Hackney, and two stands from Mr. Owen, of Maidenhead, containing flowers of Thomas Stevens, a variety of the Coquette de Castile type, and more of the reflexed character than the true Japanese; the colour is white, tinged with pink. Mr. Owen also showed a pretty Pompon, named Maggie, reminding one of White Trevenna; the flowers are white, tinted with pink, and of true Pompon character; it was commended, and its earliness is a point in its favour. Mr. W. Piercy, West Road, Forest Hill, sent a plant of Sam Henshaw, a seedling from Comte de Germiny, and having outer petals of somewhat the same style, but more elegant; the colour is bright cherry-rose, the reverse of the petals silvery-grey. It is exceptionally early and free, and was commended on that account. Mr. Doughty also exhibited a variety of a bright cerise-rose colour. A variety that is of use for its dwarfness, earliness, and freedom of blooming is Mrs. W. P. Woodcock, an incurved flower in the way of Mrs. Heale, having a similar petal; the colour is white, with the lower florets tinged with a pinky hue. It was shown by Mr. Woodcock, Sheffield. From Mr. G. Stevens, Putney, came Florence Piercy, a flower that, if it were fuller and more solid, would be of great value. It is of the Japanese class and pure white, with crumpled florets. The variety Lincoln's Inn, described in the report of the Royal Horticultural Society, was commended. Messrs. J. Veitch and Sons, Chelsea, exhibited H. A. Gane, a flower very similar to O. J. Quintus, and of a soft rose-lilac; The Moor, a reflexed variety with fimbriated florets, and as rich in colour as W. Holmes; and Gladys Spaulding, a Japanese Anemone that ought to be seen again. It has a magnificent yellow disc, but fails in the ray florets, which are of rather a weak reddish-orange colour, irregular and thin; it should not, however, be discarded. Two well-developed blooms of the fairly well-known Japanese kind, Fred. Marrouch, were sent by Mr. Briscoe Ironside; the colour of the ample flower is bright yellow.

National Auricula and National Carnation and Picotee Societies.—The annual meeting of the members of these societies took place at the rooms of the Horticultural Club, the Rev. H. H. D'Ombrain presiding. The balance sheet showed a substantial sum in hand in the case of both societies, and that is all the more satisfactory, as the Royal Horticultural Society made no contribution to the funds during 1888. Mr. Shirley Hibberd was elected president of the National Auricula Society in the room of Mr. F. Whitbourn, deceased; and Mr. T. E. Henwood, of Reading, was appointed treasurer in the place of Mr. S. Hibberd. The officers and committees of the two societies were elected, some additions being made to the latter. The matters of appointing judges, and also of revising the schedule of prizes, were referred to the committee, who will meet early in the year. The question of a place in which to hold the exhibitions in 1889 was considered; it was thought by some that should the Royal Horticultural Society carry its meetings to Chiswick, the shows should be held there. Eventually it was resolved that the Rev. H. H. D'Ombrain and Mr. Shirley Hibberd be requested to open negotiations with the directors of the Crystal Palace Company in reference to holding the exhibitions at Sydenham.

Birmingham Gardeners' Mutual Improvement Association.—At a largely attended meeting of this society held at the Midland Institute on Tuesday evening, Oct. 16, Mr. W. B. Latham, curator of the Botanic Gardens, Edgbaston, occupying the chair, G. Barnes, Orchid grower to Mr. C. Winn, The Uplands, Selly Oak, read a very instructive paper on the cultivation of the Odontoglossum and Miltonia. In building a house for the purposes of growing these lovely Orchids he specially recommended the choice of a south aspect, with plenty of top and bottom ventilation and lights that can be removed in the summer months. Abundance of piping is another essential point to be observed, so that the temperature can be maintained in severe weather without creating that dry, choking atmosphere so often the result of over-heated pipes. A light shading must be used and a moist atmosphere maintained during the summer months, and by no means a dry one in the winter. In watering care must be taken not to wet the young growths, while a little air even in the severest of weather should be given. Potting operations he recommended to be

done at the end of the summer just as the plants are commencing to grow, August and beginning of September being the most suitable time. Avoid doing it on hot, dry days, rather choosing dull, moist weather, and so avoid that drying of the roots which so often proves injurious to this class of plants. Sphagnum cut about 2 inches long and good sandy peat in equal proportions is the best material for growing this class of Orchids in. In all things in connection with the cultivation of the Odontoglots a little variation may be necessary according to the varieties to be dealt with, an intimate knowledge of which can be best obtained by the close observation of the cultivator. A brief discussion followed the observations of the speaker, being mainly in support of Mr. Barnes's system of cultivation. On this occasion Messrs. Sutton and Sons, Reading, exhibited a very fine collection of their seedling Potatoes, these being remarkable for their size, shape, and smoothness, and what is of the greatest importance, the majority of them are said to be disease-resisting. The seedling varieties not yet in commerce were very fine indeed, and showed what can be done by the careful study and observation of the various crosses.—J. H.

NOTES OF THE WEEK.

Bouvardia President Cleveland will be difficult to eclipse, as there is no variety that can rival the intense crimson colour of the comparatively large flowers. It is very free and a good grower, as can be seen from a large batch of it in full beauty in the Chelsea nursery of Messrs. J. Veitch and Sons.

Grevillea Fosteri.—The above-named plant has been in flower here for the past month in the open air. The lightly-coloured cut leaves and bright heads of flower at the end of the branches make it most desirable for planting in sheltered situations.—W. O., *Fota, Cork.*

Passiflora Constance Elliott in Ireland.—Enclosed I send you a few blossoms of the white hardy Passion Flower Constance Elliott from an open wall, also a spray showing its remarkable freedom of flowering. The season has, so far, been exceedingly mild, one cold week excepted. We have had only one very slight touch of frost as yet, though a mile or two inland there has been smart frost. Clematis lanuginosa pallida is full of flowers and buds, and C. William Kennett is also blooming for the second time.—Greenwood Pim.

Fiery Thorn (Cratægus Pyracantha) is represented by a magnificent specimen on a wall in the Royal Horticultural Society's Garden at Chiswick. It is a mass of rich scarlet berries that glow like fire in the autumn sun, and afford rich food for the birds. To prevent their depredations, it is covered with netting. This showy climber is being much used for covering walls on suburban villas, but we can have too much of even a good thing, as already it is becoming monotonous. Small plants of the excellent variety C. Lælandi make fine subjects for decoration, and are sold rather largely in the markets.

Plants in flower in Ely.—Lady Alwyne Compton sends us a list of the flowers in bloom on Oct. 24 in the garden of The Palace, Ely, where (though in the middle of the Fen country) there has not been more than 4° of frost. Roses—Climbing Devoniensis, La France, Macartney, Céline Forestier, Homère, Mme. Caillot, Marquise de Castellane, Annie Wood, Gloire de Dijon, Anna Alexieff, John Hopper, Captain Christy, and an old Rose (name not known) which flowers in clusters till late in autumn, and which resembles Mme. Falcot; Chrysanthemum maximum, Echinops Ritro, Œnothera biennis, Coreopsis auriculata, Harpalium rigidum, Rudbeckia speciosa, Aster angulea rubra and three others, Linum flavum, Saponaria officinalis, Lobelia cardinalis, double and single Helianthus, Delphiniums, Nepeta, Galatella acris, Rose of Sharon, Anemone japonica, Potentillas, Salvias (blue and scarlet), Sunflowers, Cornflowers, Jasminum revolutum, Phloxes in variety, Helichrysums, Gaillardias, Scabious, Amaranthus, Love-lies-bleeding, French Marigolds, Pyrethrums (single and double), Anagallis, Ten-week Stocks, Sweet Peas, Mignonette, double purple Senecio, Pentstemons, Antirrhinums, Larkspurs, Pansies, Violets, Verbenas, Auriculas, Passion Flowers, Primroses, Carnations, Chrysanthemum segetum, C. Burridgei, C. Mme. C. Desgrange, C. Mme. Dufoy, C. Luxemburg, C. Précocite, Clematis Jackmanni, and C. Alexandræ.

Novelty seeking.—In the race after novelties among annuals, purity of strain is often lost, and more harm than good is the result. I have been disappointed this year in two or three instances, the worst being with seed sown as Godetia Lady Albemarle. This has produced a very large percentage of bad-coloured, washy flowers, instead of the clear, satiny rose ones, which are its chief attraction, these bad coloured flowers spoiling what would otherwise have been good groups.—J. C. T.

Lavateras.—The note by "M." (p. 339) on Lavatera rosea and alba should bring these useful subjects into more favour. Usually they are only found in cottage gardens, and in such gardens in this neighbourhood they have been very fine this year, especially where allowed to grow into good masses, making a striking contrast to a thinly planted long row of them which I saw not long ago in a garden of some pretensions. Probably a worse form of planting them than this last could not have been devised.—John C. Tallack, *Livermere.*

Ivy on walls.—The note in The Garden of the 22nd ult. refers to stone buildings; but Ivy is not hurtful to woodwork, unless it sends its shoots between the wood and the stones or bricks, as the case may be, as then it loosens them from their proper position. On no account tamper with your Silver Ivy, but let it grow up the bay window. It will not rot the wood, but keep it dry, and "dry rot" is only occasioned by the presence of damp. Silver variegated Ivy is none too common, nor are Ivies of any kind.—E. C.

Effects of the past season.—The influence of weather on the flavour of fruit has been strongly marked in the last two seasons. Apples especially show a great difference. The old scarlet Pearmain was so good last year as to make one doubt the wisdom of classifying it as second rate in quality, which is the usual catalogue description of it; but this year it is very inferior. Reine Claude de Bavay Plum, grown on a south wall, is also very deficient in flavour, while on a north wall it is quite useless. Many other instances of the bad effect of the sunless season on fruit might be given. Pansies, Violas, Marguerites, robust varieties of Pentstemon, Veronicas of the herbaceous section, scarlet Lobelias, Lavateras, Sweet Peas, Marigolds, and Michaelmas Daisies seem to have been well suited by the cool, dripping season we have gone through. Roses, too, have made excellent wood, giving good promise for next year if the winter is kind. Pampas Grass is very late, and is only now (Oct. 18) opening its first plumes. Unless we have very fine weather the majority of the feathers will not come to perfection. I have also been much struck with the smallness of the leaves of deciduous trees, Beech especially this year. This is very noticeable in this neighbourhood, and all the trees seem affected in the same way, though the wood is fairly strong and the buds plump. Evergreens, however, have made their normal growth.—John C. Tallack, *Livermere Park*

Hybrid Cosmos.—I enclose three blooms of a hybrid Cosmos. I do not know if they are commonly grown or not in this country, but surely they deserve it. I procured the seed from America two years ago. Last year I tried them out of doors, but as we always suffer here from sharp and early frosts, they were cut too severely to flower, although they lived till November. This year I sowed a few seeds I had left, and raised four plants. These, when sufficiently strong, I moved to a cold frame, and grew on together with Chrysanthemums all the summer, moving them into the house at the same time. Now they stand about 4 feet high in 9-inch pots. Two of them have a stiffer habit, but the white one is very graceful, and is covered with 150 to 200 buds and blossoms. The others have not yet opened their flowers, but there are a great many buds. Coming at this time of the year, and flowering in a greenhouse, they are both pretty and useful. I should say eminently so for growers of cut bloom for the market, as their own foliage is so finely cut, as well as the flowers being pretty. They would also be a variety at Chrysanthemum shows, forming as they do a natural bush.—W. Shibley, *Southwick Parsonage, Fareham.*

*** An exceedingly beautiful pure white, slightly fragrant flower, with the shape somewhat of that of a white Anemone. It would be a great advantage to have such a plant become common, as much for its intrinsic beauty as for its period of blooming.—Ed.

Death of Mr. William H. Crawford.—It is with regret that we announce the death of this noted amateur horticulturist, who died in his chair at Lakelands, Co. Cork, on the 18th inst., of heart disease, at 76 years of age. Born to enormous wealth, he was a philanthropist of noble views and wide-reaching aims, his main desire being to create and improve the institutions which now grace his native city. The Cathedral and the Queen's College owe largely to his bounty, while he may be said to have created the School of Art, at a cost of over £20,000; and he may also be said to have created the Botanic Gardens attached to the University. The gardens at Lakelands are deservedly noted for the rare trees and shrubs they contain from all temperate parts of the globe. Here the splendid Magnolia Campbelli has borne its blossoms in the open air, and, turn where one may in the beautiful grounds, rarities of all kinds meet the eye. His Orchids were of the finest, and his collection of Browneas, &c., unsurpassed in any private collection, while some of his specimens were unique. Beside the entrance to the house were two enormous plants of Philesia buxifolia in tubs, the admiration of all who saw them, while every wall was covered with rare exotics and every nook and corner sheltered a rare plant, or shrub or tree. Dignified and retiring in manner and never married, Mr. Crawford seemed to exist for the benefit of his much-loved "city on the sea." Personally, he was of an ascetic temperament, but unsparing of expense when a good cause, charity, plants, books, or pictures were concerned. He was a noble Irish gentleman, whose loss it will not be easy to replace, and whose memory will long be evergreen.—F. W. B.

Death of Mr. W. Court.—I have been requested by some of the trade in this country to express our regrets at the death of Mr. W. Court. I have done so in the few enclosed lines, which might be much extended. It is with much regret we heard of the sudden death of this gentleman, at a comparatively early age. I express the feelings of the trade in general in this country when I mention that no one was more generally liked and respected; and although he first made a business tour in this country but a few years ago, a stranger to most of us even by name, he had secured many friends in all parts of the States. But although he will be missed and his death regretted by hundreds of his friends in this country, his greatest loss will be to his children and his employers. Messrs. Veitch have lost a most faithful servant. I know personally that at all times his thoughts and actions were for the advancement of his employers' interests. It may be said he was a "good and faithful servant."—Jas. Taplin, *Maywood, N.J.*

Death of Mrs. Eyre Crabbe.—This amiable lady, so well known in gardening circles as one of the most vigorous promotors of the hardy culture of the Camellia, expired at Bellagio, Italy, on the 12th inst., at the advanced age of 77 years. Those who have visited Glen Eyre, Southampton, the delightful residence of Mrs. Crabbe, will not have failed to remember with pleasure the great beauty of the gardens, the absence of all formality in style, with such luxuriant results in tree and shrub growth, and, not least, the truly wonderful Camellias, which thrive at Glen Eyre like common Laurels. Mrs. Crabbe was one of the leading horticulturists of South Hants fifty years ago, and even then had a knowledge of plants far beyond that possessed by others of her sex. She was then also a warm patron of the old Horticultural Society and a most successful grower of plants. Mr. Stewart, the gardener at Glen Eyre, has been Mrs. Crabbe's faithful servant and friend for fully thirty years.

WOODS & FORESTS.

THE SILVER FIR.

(PICEA PECTINATA.)

This tree has never been planted in this country to the extent which its merits deserve, and this arises in a great measure from the fact that young plants and small trees of it are so liable to be cut down by spring frosts as to render it unsuitable for hill planting on exposed situations, where the Larch, Spruce, and Scotch Fir thrive admirably. It is, however, one of the best trees for filling up gaps in plantations where the soil is suitable, as the shelter which the established trees afford proves conducive to its growth and healthy development in a remarkable manner. A great many coniferous trees when used for this purpose soon get drawn up into tall bare lanky poles through confinement, thus rendering them of little use for shelter, covert, or utility of any kind; but the Silver Fir, on the other hand, not only retains its side branches, which make the best of covert, but likewise brings up its thickness of stem in proportion to its height in a uniform manner, and when fully developed may be seen towering above all its associates at a considerable distance from the plantation. It will thus be seen that although the tree is rather tender in early life, yet when thoroughly established it is proof against the inclemency of the weather, which is a point of much importance in its favour. It has been repeatedly stated and believed by some that tender trees when grown from home-saved seed in this country, gradually get naturalised and become quite hardy; this, however, is doubtful, and, as far as the Silver Fir is concerned, is not correct, as I have grown trees raised from foreign as well as home-saved seed side by side, and found both cut down by late spring frosts in the same way, and not only in the seed-bed, but likewise after being planted out in the forest.

When the Silver Fir is, however, thoroughly established it makes rapid progress, and when planted in mixed plantations on suitable soil by the time it attains some sixty years or eighty years of age I have often found it to contain double the cubic contents of the Larch, Scotch, and Spruce Firs of the same age and in the same plantation. As the wood brings equally as good a price as that of the two last named species, this surely ought to be a strong inducement for the extension of its culture in situations where there is a reasonable prospect of its success. In order to check the growth of the side branches and render the stems clean and free of knots the Silver Fir should be grown rather thickly, and may be planted about 8 feet apart, with a Larch between each pair of plants. When the trees become too crowded the Larch should be cut out and thus leave the Silver Fir as the permanent crop. As the Larch can be turned to good account at all stages of its growth I have found it give an earlier and more profitable return when used as a nurse than any other Conifer. When planting the Silver Fir it is best to use good sturdy plants not less than 12 inches high and which have been well prepared during their nursery career, and in order to give them a good start they had better be planted in pits. Poor hard ground is unsuitable for this tree, as it never attains a profitable size on such, and besides is apt to contract disease. The Larch may be planted with perfect success by the cross-notch system, and in choosing the plants let them not be less than from 12 inches to 18 inches high and free of scale and the coccus insect. The Silver Fir has been recommended by some writers to be planted upon almost all classes of soils as a profitable tree, but planters had better take care and not be led astray by such advice, for although it cannot be said to be fastidious in its choice of soil, yet to grow the tree to anything like perfection for profit, it should be planted on deep rich soil of a cool, moist character; and I have seen some fine large trees upon ground of a mossy texture resting upon a cool clay bottom. It, however, thrives and attains a large size on soil of a very opposite character; and at Killymoon Castle, co. Tyrone, Ireland, I have measured some trees growing on a soft rich clay soil resting upon limestone, and found them to girth upwards of 14 feet about 1 yard from the ground, and with a uniform stem, I should say, of about 100 feet high. This class of soil, however, produces hardwooded and other species of trees of an enormous size. Many years ago, when planting the grounds and new approach to Balmoral Castle, Aberdeenshire, I used a limited number of Silver Fir trees on a loose embankment, thrown up to form the roadway between the north end of the new bridge and the road at Crathie, and although the material which formed the embankment was loose, and perhaps some 20 feet in depth, yet it proved unsuitable for the growth of the Silver Fir; but as other trees, mixed with that species planted at the same time, were all that could be desired, perhaps climate had something to do in promoting an unhealthy condition of the Silver Fir. At all events, I inspected these trees some few years ago, and although they had attained a fair size, yet every tree was affected with the coccus insect (Adelges picea), thus conclusively proving that the tree is unsuitable for all soils and climates. J. B. Webster.

Larch seed.—In The Garden of October 13 (p. 356) I see a letter from J. Farquharson on the subject of Larch seed. Might I suggest that instead of depending on seed from this country, where on account of the climate it is apt not to be properly ripened, the seed should be procured from the native country of the Larch, the Alps. I have for the last two years got seed from a firm in the Engadine, who take special care in the selection and preparation of their seeds, and with which I have every reason to be satisfied. The crop this year is especially good, and my gardener says he thinks none of the seeds have missed. I have also had very good seed of Spruce and Silver Firs from the same firm. I enclose some samples of their Larch and Spruce seeds.—Hugh Hamilton, *Pinmore, Daljarrock, Ayrshire.*

*** In reference to the above packets of seed, they are both fair samples, but that of the Spruce is much superior to that of the Larch. The crop of Larch seed in this country ought to be very fine this season, as the trees bloomed very freely and seemed to have set well.—Ed.

The annual ring in trees.—In the course of his last report, the chief of the forestry section of the Agricultural Department of the United States, referring to the annual rings in trees, asserts that these exist as such in all timber grown in the temperate zone. Their structure is so different in different groups of timber that from their appearance alone the quality of the timber may be judged to some extent. For this purpose the absolute width of the rings, the regularity in width from year to year, and the proportion of spring wood to autumn wood must be taken into account. Spring wood is characterised by less substantial elements, the vessels of thin-walled cells being in greater abundance, while autumn wood is formed of cells with thicker walls which appear darker in colour. In Conifers and deciduous trees the annual rings are very distinct, while in trees like the Birch, Linden, and Maple, the distinction is not so marked, because the vessels are more evenly distributed. Sometimes the gradual change in appearance of the annual ring from spring to autumn wood, which is due to the difference in its component elements, is interrupted in such a manner that a more or less pronounced layer of autumn wood can apparently be recognised, which again gradually changes to spring or summer wood, and then finishes with the regular autumn wood. This irregularity may occur even more than once in the same ring, and this has led to the notion that the annual rings are not a true indication of age; but the double or counterfeit rings can be distinguished by a practised eye with the aid of a magnifying glass. These irregularities are due to some interruptions of the functions of the tree caused by defoliation, extreme climatic condition, or sudden changes of temperature. The breadth of the ring depends on the length of the period of vegetation. When the soil is deep and rich, and light has much influence on the tree, the rings will be broader. The amount of light and the consequent development of foliage are perhaps the most powerful factors in wood formation, and it is upon the proper use of these that the forester depends for his means of regulating the development and quantity of his crop.

A Portuguese Pine forest.—The road northward from Leca lies through the vast Pine woods which form so broad a zone along the Portuguese seaboard. The Pine of Portugal is, as a rule, the fast-growing Pinus maritima, very like our own Scotch Fir, and quite as ugly a tree when young. In some places the more picturesque Stone Pine is found, but it is of slower growth, and, notwithstanding the greater value of its timber and the use as food of its Filbert-like cone kernels, it is little cultivated. The commoner Pine grows rapidly in poor soil, and fine trees are often seen with their roots in mere sand. The Pine forest is in general monotonous and unpicturesque, for the trees are always cut before they reach the dignity of "two-ton timber," and the side branches are lopped year after year to within a yard or two of the tree top. The traveller passes league after league of straight-stemmed Pines, and wearies for the sight of a green field or vineyard. The Pine forest, too, as in other countries, is silent and deserted; blackbirds, jays, and magpies are the only birds commonly seen or heard. Now and then a wood owl flits out of the shadow of an ivied tree, and the occasional tap of a woodpecker's beak, or his sudden laugh-like cry, are sounds that a traveller feels to be a relief to the stillness. Human beings are rarely encountered, though the forest maintains its own peculiar population. Where the trees are rooted in anything but blowing sand, Gorse grows, and the cutting of it once in every three years affords some profit. Gorse in Portuguese farm economy is of great value, being used for the bedding of horned cattle, while the whole of the straw of the farm is used for their food—a system that has many obvious advantages, and others that are not so obvious. Every now and then, in the depth of the forest, a party of charcoal-burners is met with, or of sawyers and carpenters, who encamp in the woods, fell and saw up the Pines, and make the boards upon the spot into doors, windows, and boxes, that are carried long distances for sale. If the forest is in the neighbourhood of towns, the fallen needles and cones are collected by women and children and carried in nets on donkey-back for sale as fuel.

Abies bracteata.—This very ornamental and quick-growing tree is now bearing numerous cones which differ from all others of the Pine tribe that I know, being furnished with long bracts, from which it gets its specific name. It should be in every pinetum where ornamental trees are valued.—W. O., *Fota, Cork.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLOWER GARDEN.

HARDY PERENNIALS FOR POTS.

THE cultivation of hardy perennials in pots is only a natural outcome of the great advance in popular favour of this class of plants. Each season brings some old favourites more prominently under notice, as they receive some special treatment or are assigned some more conspicuous position in the garden. Their adaptability for pot culture is being recognised, and will, no doubt, soon be extended by gardeners, upon whom the demand for plants and flowers for all purposes is ever increasing. There is also a growing taste amongst the owners of gardens, ladies in particular, for a more natural arrangement of plants and flowers in the house and conservatory, as well as in the garden, and hardy perennials lend themselves equally as well to these arrangements as they do in the garden and shrubbery borders. There are certainly many things classed as hardy perennials which are now grown extensively in pots. I refer to the large family of Lilies, Irises, also Primulas, Christmas Roses, and many choice alpines, but those to which I wish to direct attention at the present time are regular occupants of the herbaceous border, but which, possessing some distinctive or striking characteristic, seem to merit extended culture in various ways. Most of them can be grown out of doors until wanted for gentle forcing. Others again simply need the protection of a glass covering to guard them from early frosts and cold, damp weather when in bloom.

One of the best plants for the above purpose is the Day Lily (Hemerocallis flava). This plant is easily increased either by seed or division, and a stock of plants suitable for forcing can soon be raised; its elegant, sweet-scented flowers are always prized, whilst used as a conservatory plant the green grassy foliage renders it ornamental. During the summer it succeeds best planted out, lifting it again as the foliage ripens. Doronicum Harpur Crewe and D. caucasicum flower very freely with gentle forcing. Many people do not recognise the Doronicum flowering in the greenhouse, and express surprise, not without disappointment in some instances, at being informed it is a common hardy plant. Its large starry, yellow flowers are bright and striking, and last a long time when cut and placed in glasses. Strong clumps divided now and potted can be had in flower in a few months' time.

Campanula pyramidalis is a well-known plant for growing in pots, but there are others of this genus worthy of a place in the conservatory, amongst the best being C. persicifolia alba and p. alba plena. These, if grown well, form strong single crowns, produce fine heads of bloom and are very effective, lasting a long time in perfection. Suitable plants for this purpose can be obtained now by dividing established clumps and selecting the strongest pieces, which should be potted and placed in a cold pit, when they will make a little growth through the winter, after which they will be ready for the pots in which they are to flower. Single crowns can be placed in 6-inch pots, or three may be put together into those of a larger size. Forcing is not advisable, but grown in a cool house fine plants are produced.

Perennial Phloxes, if treated liberally in the matter of stimulants, make very fine specimens when cultivated in pots. Few plants pay better for a rich diet than Phlox paniculata. Small plants with single stems and well-developed heads of bloom are beautiful, but large specimens, with from some sixteen to twenty shoots, are really grand objects. They can, moreover, be grown with less care and attention than are bestowed on a specimen Geranium or Fuchsia, no training being required beyond what is necessary to keep the shoots from crowding each other.

The Flame Flower when grown in pots is very useful for placing in entrance halls, corridors, and such-like positions, and a good companion for it is Galtonia candicans. This plant is most effective when a good number of spikes rise together, because the flowers being rather thinly disposed on the stems, their beauty is not seen to such advantage if the spikes stand out singly as when they are close together in a mass.

Dicentra spectabilis and Solomon's Seal are two plants commonly used for forcing, and well meriting more extensive culture in this way. The long arching stems of the latter plant are exceedingly beautiful. Strong crowns of both these plants if potted at the present time will soon be ready for forcing. The small pieces should be planted in rows to be grown on for another year.

Funkia grandiflora is a hardy plant, as far as the roots are concerned, but growing in the open border it does not often attain perfection, early frosts generally catching the flower-spikes before they have had time to expand. But grown in pots it forms a handsome plant, as the foliage is ornamental and the spikes of pure white deliciously scented flowers are very beautiful.

Senecio pulcher is another plant requiring a hot summer to bring it to perfection. Last season it was very good, but the flowers have not expanded freely this year. It is, however, such a distinct and striking plant under glass at this time of the year that it is well worth growing in quantity in pots, as it can be flowered better in this way than it can outside, except in a very favourable season. Equally beautiful for the same purpose is Lobelia cardinalis. This is a much more hardy subject, some large plants of it in full bloom having stood 8° of frost with us this year unharmed. They were, however, too beautiful to trust outside any longer, as wet and wind would be more likely to injure the blooms than frost, so they were lifted with good balls and placed in pots without receiving any apparent check. This old plant used to be more frequently met with in the greenhouse than it is now, but other plants, namely, Begonias, Primulas, &c., have increased so rapidly in favour that many old and valuable things have been lost or forgotten.

There are many other hardy plants besides the above which would well repay the extra attention bestowed upon them when grown wholly or partially in pots, so that their season might be prolonged either by forcing them a little or protecting them in the autumn.

Hindlip. A. BARKER.

Transplanting Christmas Roses.—One of our largest trade growers makes a practice of moving and dividing his Christmas Roses in October. That he has good reason for the practice may be easily ascertained by taking up a plant at that time of the year. It will be seen that new roots more or less long, according to the strength of the stool, are then starting away from the crown. When these new roots grasp the soil the safety of the plant is assured, and this they will do in a week if the transplanting is carefully done. The flow of sap is still going on, so that the cuts made in dividing become healed up before winter sets in. I moved some plants myself at the beginning of October, and was struck with the activity of the roots. By this time they have taken good hold of the ground, as may be seen by the swelling up of the flowering crowns. I feel confident that Christmas Roses would experience no material check if they were transplanted at the above-mentioned period. It is the waiting for them to flower before moving that checks them for a year or so. Hot weather sets in before they are established and they cannot then make a good strong growth.—J. C. B.

NEW YELLOW GROUND CARNATIONS.

OUT of the large number of seedling yellow-ground Carnations Mr. Dodwell has bloomed during the past two or three years, he is this season able to offer twenty-nine varieties, and, despairing of finding appropriate names for them, they are offered under number. All these have primrose, yellow, or apricot grounds, and they are flamed, flaked, pencilled, and Picotee edged, with fawn, mauve, rose, purple, and crimson edgings. There are also a few selfs among them. All are strong growers and the flowers in point of quality are up to exhibition form. Mr. Dodwell has a further batch of seedlings with yellow grounds which he designates as having the Souvenir de la Malmaison habit and the largest size of flowers, and possessing an especial beauty for the conservatory and general decoration, but are unsuitable, whilst the conditions requiring the flowers to be displayed on a plain surface remain, for the purposes of the exhibitor. Mr. Dodwell holds that the flowers of this dwarf, free-branching, vigorous-habited race, with others possibly of even wider divergence from presently accepted forms, "deserve and are destined to find a place and favour amongst Carnations with that of the Japanese section among Chrysanthemums, and who is there who having watched and delighted in the beauty of their tasselled, fringed, and fantastic forms would not welcome a similar variety in the Carnation?" But Mr. Dodwell goes a step further, and states that flowers of the character of Souvenir de la Malmaison should have the advantage of a glass structure for the development of the blooms. The development of the yellow Carnation is somewhat astonishing. Looking back upon the illustration of a yellow Carnation Thomas Hogg gave in his book, and comparing it with what can be seen in the present day, we are able to note what an advance has been made. But more especially is this seen even in the habit of the plants. From 1853 to 1858 I had some experience of the yellow Picotees grown in those days, and the same difficulties of culture beset them thirty-five years ago as it did in the days of Hogg. Of the twenty varieties or so grown in those days probably not one remains. Damp and over-watering were fatal to them. Now, in Germania, Will Threlfall, Pride of Penshurst and others we have varieties hardy enough to be planted out in the open and layered there. Mr. Douglas's new yellow Picotees and Mr. Dodwell's seedling yellow grounds all show a robustness of constitution unknown thirty years ago. R. D.

Some hardy autumn flowers.—Amongst the flowers of autumn the following are conspicuous: Senecio pulcher, rosy crimson, about 2½ feet high, and of striking appearance; a good mass of it is very effective. Great Ox-eye Daisy (Pyrethrum uliginosum) bears large white single flowers of the Ox-eye Daisy type, and are very effective in a mass in the border; it grows about 4 feet high. Solidago nemoralis is one of the most useful of the Golden Rods, and grows about 18 inches high. Anagallis (Phillip's)—flowers intense blue, borne in great profusion. I saw the plant in blossom last week in the Cambridge Botanic Gardens. It has a neat habit, and is worth looking after. Cape Fig-wort

(Phygelius capensis) has bright scarlet flowers, and the whole aspect of the plant is very effective. I saw this plant also in flower last week in the Cambridge Botanic Gardens. Statice tatarica, dwarf, neat habit, is very useful for cutting.—E. H.

The double crimson Primrose.—Your admirable illustration of this is well timed. It is the gem of the section, and when it blooms repays all the trouble necessary to its development. As I have already stated in your columns, the past cool, moist summer was favourable to its well-being round London, where it is generally difficult to bring it through the summer with anything like success. Of some, kept in pots all the summer at my seed grounds at Bedfont, one pot had three plants that had established themselves and put forth a good root-growth. These, some two months ago, I repotted into an 8-inch pot and they have done remarkably well, and the plants have now three and four crowns each. I hope, by next April, to have in bloom a specimen that shall justify your coloured plate. It is the very finest of all the double Primroses, and it would be interesting to know how it first originated. When visiting Mr. Samuel Barlow at his residence, Shomdda Hir, Llandudno, some time ago, I found that he had planted the crimson and other choice double Primroses upon a turfy bank in a cool and shady position facing the north, where they were thriving remarkably well. In planting, a hole was dug out and a suitable compost placed in it; then the Primroses were carefully planted, and this position appears to suit them well. All that is necessary is to keep the Grass cut away round the plants, so that they do not become smothered. This appears to me to be a good method of cultivating the choice kinds of double Primroses.—R. D.

Fuchsias in the open air.—Fuchsia Riccartoni is hardy everywhere, and ought to be more common It is just the plant for the amateur and cottager who cannot afford a greenhouse. Not far from where I am writing, on a small lawn in front of a villa residence, there is a large circular mass of the old Fuchsia globosa. It appears to have been there for many years, and in summer and autumn scarcely anything in its way can be more effective. Some years ago the crowns of the plants were covered with cocoa fibre, or some similar material, and this being now perfectly decayed, still forms an effective shelter to the roots in winter. Groups of Fuchsias would be very effective in the foreground of the shrubbery, jutting out, as it were, in advance, with their graceful drooping growth falling over on the Grass. A slender variety named gracilis, which, like Riccartoni, was half a century or more ago raised from Fuchsia macrostemma, is very pretty, and, like its relative, quite hardy. When we say these Fuchsias are hardy, we mean, of course, that their roots do not die. A severe winter will occasionally kill or disfigure the top growth, but the plants shoot all the stronger from the bottom for the check given. The newer forms of hybrid Fuchsias will also succeed very well in the open air if the crowns are sheltered in winter with a layer of coal ashes or cocoa fibre, and if allowed to remain in the same spot for a few years they will form a dense mass. Select good-habited kinds only, and prepare the site well before planting. When in full growth they appreciate an occasional soaking of liquid manure.—E. H.

Helianthus multiflorus grandiplenus.—I am glad to have met contradiction on this matter. It is not always I have been so successful. In sending blooms of this Sunflower to THE GARDEN office for observation, I think they must have been designated as having "quilled" florets or petals, meaning thereby after the manner of a Cactus Dahlia, and if Mr. Appleton will again read my description and put the word "quilled" for "frilled," he will understand more fully what I mean by a distinct plant. I still maintain that there are two forms in my garden—the one had from a London nursery as Helianthus multiflorus plenus, and the other a fixed plant known to me for a great number of years and quite distinct. If I could get the two sorts to act alike under the same conditions of soil, I should say Mr. Appleton was correct. No doubt the London plant did exhibit one or two blooms this season in character like what he describes, and in shape similar to a malformed Victoria Aster bloom devoid of the characteristic outer florets, the blooms then becoming very ugly, ill-shaped monstrosities, and not at all so beautiful as when in their normal condition. The "quilled" form always remains the same, no matter what are the conditions. I never saw it sport or lose its individual character, not even when left in immense clumps in exhausted soil, only that the flowers may be smaller, as naturally the Sunflowers are gross feeders and very soon impoverish the surroundings. I am quite certain that under starved conditions of soil the Anemone-flowered plant would be more likely to run single, just as an Anemone-flowered Pompon Chrysanthemum would if allowed to remain in poor soil. I confess I do not know what the double-flowered plant of ten years' standing is that Mr. Appleton refers to. The one I am interested in has been twenty years in my possession, the one from London only twelve months. A printer's error or a blunder on the part of a writer helps to create discussion, and some writers when they want a subject well threshed out will make seeming blunders for this very purpose. On my part the word "frilled" was unintentional.—SOLEIL D'OR.

NOTES ON HARDY PLANTS.

Colchicums, double.—Do the striped and pure white varieties revert to the typical purple colour? I think they do in two ways, viz., during a season the purple develops more than the white on a given flower. Then I have observed my pure white kind for two years has come with pale purple streaks, stronger this year than last. So far as I can see, I do not now possess a single pure white flower. Not only are these autumn flowers favourites, but the double kinds form a group which is desirable from its great showiness.

Anemone rivularis.—It is of little use to wait until the seeds of this choice midsummer bloomer are ripe, for they drop when green. The seed, however, will be found fairly ripe, and especially if kept two days in a dry place. I find many of the Ranunculads, such as Calthas, Pæonies, Ranunculi, Trollius, Hellebores, and Delphiniums, the better for being gathered a little under ripe, *i.e.*, they germinate more evenly and sooner. In the case of this Anemone, raising from seed is essential, since a great demand has lately sprung up for it, and it is not one of the readiest to increase by offsets.

Primula obconica.—I have heard of this being wintered out of doors in Yorkshire, but I have not proved its hardiness beyond the cold frame condition, where it stood some 5° or 8° of frost without damping. But what I wish to point out is the charming effect to be had from a patch several feet across in the autumn. From seed raised early in spring and planted out in May or June, nearly three months' bloom may be enjoyed. Hardly anything could be more free flowering and satisfactory, and few subjects give less trouble, and if the plants were left out and killed they would have paid their owner for his pains; but lifted and potted they would probably flower and winter indoors. It is well known that this Primula flowers through the winter, and from ten to fourteen months in succession.

Crocus Fleicheri.—I have grown the earliest autumn-flowering Crocus I know under this name since the year 1882, when one root was sent me by a friend as a variety. It is a glorious thing when seen in a good-sized pot, as I still grow it (it is quite hardy). It is in the way of C. iridiflorus, but larger. In the opinion of Mr. P. Barr it is that species, but it flowers much earlier than others I grow as iridiflorus; in fact, it is now nearly two weeks past, and as it lasted quite three weeks, its flowering period would begin in the middle of August. Possibly the pot culture may influence it, but I do not see how it can very much, as the pot stands out all the year plunged in sand. I believe others had this kind sent to them, and if this should meet the eye of any other grower of it, their opinion as to its identity and date of flowering might be of general interest. I consider it the best, and certainly the earliest, of the some fourteen kinds grown here.

Campanula pelviformis.—This, though by no means a tardy grower, is not so readily increased by division as many of the Bellflowers. It produces plenty of seed, but when it is raised it is found, like that of C. turbinata, to partially revert to the typical species, C. carpatica. According to my experience with a large batch of seedlings from pelviformis, none that have yet flowered resemble the parent or seed-bearer; but, what is as important, if not more so, there are some charming sorts evidently midway in form between the species and the parent. Whether the unflowered seedlings will come true I cannot say, but, on the whole, I think seed-raising in this case is likely to be more satisfactory than from C. turbinata.

Eulalia japonica.—This is hardy in Yorkshire in all but the most severe winters; for instance, it has stood out safely during the past three years with me, and my position is low and foggy, though I must confess that my soil is light. I find that, like Pampas Grass, this not only stands the cold better, but thrives better in dry and sloping positions. Moreover, in such conditions they both flower earlier, and the individual specimens attain a greater size and age before any signs of decay appear. There are many variegated forms of this Eulalia, and the typical green-foliaged one is by no means the least desirable. All the striped forms remain constant in their markings, but they do not flourish like the plain and barred kinds in the open borders. The handsome barred sort called zebrina is a rampant grower in rich light soil mixed with stones, but with me the bars die out entirely in two years. From experiments made with the same sort and the same stock, grown more steadily (I may say starved, in the comparative sense) in pots, it seems the markings may be preserved. At the present time, when the outside things have been cut down by 16° of frost (which occurred here on the morning of the 2nd October), and when the branches of shrubs were broken by the weight of snow, these hardy Grasses are noble objects in pots in a lofty greenhouse. I have always found that young plants raised from seed and fairly grown are the best for the open air. I do not think that the singularly beautiful inflorescence can be relied upon to develop well out of doors so far north as this, but, fortunately, this Grass has other charms.

Woodville, Kirkstall. J. WOOD.

Lathyrus magellanicus.—Can any reader of THE GARDEN tell me where plants or seeds of this, the Cape Horn or Lord Anson's Pea, may be obtained? It is figured in Sweet's "British Flower Garden" (2nd series), t. 344, and seems a beautiful Everlasting Pea, with clusters of six to eight blue flowers. It is, or has also been known as Lathyrus Armitageanus, and seems to be the Pisum americanum of Miller's "Dictionary" (ed. 7). It is said to have been introduced by the cook of Lord Anson's ship *Centurion* in 1744, and was grown by Miller in the Chelsea Garden. It bloomed in Osborn's nursery in June, 1837, and appears in Sweet's "Flower Garden" in 1838.—F. W. BURBIDGE.

Lilium speciosum album novum.—Although the experience of E. Jenkins, Oct. 20 (p. 358), does not agree with mine (previously given in THE GARDEN), I still maintain that it is easy to pick out the two varieties—album novum and Kraetzeri—from each other before they flower, and on that point I may say that having under my observation a considerable number of Lilies from Japan imported as Kraetzeri, I picked out nearly three dozen of them as album novum before a single bloom had opened, and when they flowered I found that in no instance had a mistake been made, while the whole of the remainder turned out to be the true Kraetzeri. Such should be a proof that the two can be distinguished from each other before they flower. As mentioned by me in THE GARDEN, Oct. 6 (p. 319), the leaves of album novum are rather larger than those of Kraetzeri and less pointed, while on the upper part of the stem they are mostly arranged in two rows, which particulars are quite sufficient to distinguish the one from the other, though really the points of difference between them are not great. My opinion of the relative merits of the

two Lilies was shown in the same article in these words: "As far as its (album novum) ornamental qualities are concerned, it and Krætzeri are almost identical, though perhaps Krætzeri is rather the better of the two." L. album novum is to me by no means a novelty, as I have had it for the last seven years. My first bulb made its appearance among an importation of L. Krætzeri.—H. P.

FLOWER GARDEN NOTES.

BORDER CARNATIONS AND PINKS.—Having no frame room to spare, all the Carnations we grow (except a few of the tree section) have to take their chance in the open ground, and severe as the past two winters have been very few have been killed. We began layering the first week in August and have just completed planting them in permanent positions. The ground was deeply dug, and a few loads of fresh loam added, together with the best decayed manure that could be had. The planting has been done in clumps of three, ranging from 6 inches to 9 inches apart, according to the habit of growth. The upright-growing kinds are, of course, planted most closely together. Early autumn planting is much preferable to spring, for the reason that the plants never fail to flower most freely, which rarely happens with plants put out in spring. When it can be conveniently done, a thick mulching of Cocoa fibre is a great help to the well-doing of the plants, as it assists in retaining the little warmth there is in the soil and prevents the entry of cold. Manure is not good for winter mulching, because birds scatter it about, and in doing so not unfrequently destroy numbers of the plants. Pinks we treat in exactly the same way as regards planting them in clumps, and autumn planting of these is also the best. Unfortunately, the best portion of our cuttings was late in being put in, so that but few are ready for planting out, and in respect of these we have no choice but to defer planting till spring, and those not having extra good plants to put out would act wisely if they did the same.

PERENNIAL SUNFLOWERS (Helianthus).—The full merit of these perennial Sunflowers has never till this season been so apparent. Several of them have been in fine flower since the end of July, and some are so still, and the hardiness of the flowers of all the varieties was thoroughly tested on the morning of October 3, when the thermometer registered 7° of frost. There was not a flower damaged, and since that time, though there has repeatedly been from 6° to 9° of frost, all the varieties we possess are still flowering freely, and, in fact, have been and still are the most conspicuous of the flowers remaining in the herbaceous garden, and without which it would look gloomy indeed. The varieties in the greatest favour here are H. multiflorus maximus, a perfect giant amongst perennials. It has reached a height of 8 feet, and is at the present quite covered with large golden flowers some 5 inches across. H. multiflorus plenus is a double counterpart of the foregoing, except that the plant does not grow higher than from 5 feet to 6 feet, and the flowers are also a little smaller. H. rigidus is another tall-growing and profuse single-flowering variety, invaluable for use as cut flowers, in which state I have known it last over a week. H. japonicus differs little from rigidus, except in the colour of its flowers, which are a deeper yellow and of better form; it is earlier to flower, yet lasts as long as the other. All the varieties have this season, owing to the premature loss of Dahlias, &c., been of exceptional value for decorations at harvest festivals, as they have also for furnishing large vases in rooms, and which they still promise to do till severe frost destroys them. They are readily increased by division of the roots, which process may begin at any time after they have done flowering. They look noble in groups of three along the back lines of herbaceous borders, and are specially pleasing when well backed up by a belt of Evergreens.

LATE-PLANTED AURATUM LILIES.—Being very anxious to have a long succession of this Lily, a quantity of bulbs were packed closely together in hallow boxes of cocoa fibre and placed in a cool cellar, and there they remained till early in May, when they were brought out to the light, lifted out of the boxes, and potted singly in 5-inch pots in leaf-soil and loam. They were then placed under a north wall until roots had worked into the soil, and about midsummer planted in the widest spaces amongst Roses, in which position they have done remarkably well. Some of the bulbs began to flower early in August, and there has been a regular succession of bloom until the present, the frost, notwithstanding. The success attending this experiment will encourage us to follow the same plan on an extended scale, and besides planting in Rose beds, plant some also amongst herbaceous plants and in shrubbery clumps that are not too thickly overgrown. We have a few in the latter positions, and leave them there from year to year, but they do not flower so freely nor are so fine as fresh imported bulbs.

A WINTER FOLIAGE BED.—It is simple, but very striking, and if I were not the designer I should say that, as a piece of winter colouring, it was perfect. The bed is one of a pair planted exactly alike, and forms the centre in a series of beds long, oval, and circular in form. It has a raised edging of the mossy Herniaria glabra, then a marginal band 6 inches wide of the beautiful grey Sedum glaucum, and then a series of small circles worked out in a band of the same width, with the hoarfrost-coloured Antennaria tomentosa, the whole being enclosed in a framework of Herniaria glabra. The small circles formed with Antennarias are filled with Erica herbacea, and the angles with Cocoa fibre, and in each there is a central plant about 15 inches high of Cupressus erecta viridis. The large central circle is filled with a golden Holly a yard high, and round it small, well-berried plants of Cotoneaster, the outer line being a repetition of Erica herbacea. The arrangement is one of the most pleasing it has ever been my lot to attempt, and for the winter season I think it quite equal to any of the summer-colouring arrangements, and so much the more easy to carry out, because the material is more abundant.

GENERAL WORK.—To complete the planting of bulbs and spring-flowering plants. To clear away decayed stems of herbaceous plants and lift, divide, and replant such kinds as have died down. Dahlias, Gladioli, Hyacinthus, and Tigridias, to lift and store beyond the reach of frost. Beds and borders that are not intended to be planted with either shrubs for the winter or with flowering plants for spring should at least be made to look tidy by digging or trenching according as may be required for next season's summer bedding. Ornamental shrubs of all kinds may now be transplanted with safety, and the top-dressing with fresh soil and manure any lawn plants that require such assistance ought also to be done in the autumn, in the interests of both shrubs and turf. W. W.

SHORT NOTES.—FLOWER.

Scabiosa caucasica is one of the best of the genus, its lavender-blue flowers being most useful in a cut state. It is still flowering in the hardy border and appears to be almost perpetual, as a few plants forming a small group planted in March were in flower by May. They have not ceased flowering since that time, and even now (Nov. 1) there are large flowers nearly 2 inches in diameter, and buds to expand (weather permitting) that will keep up a supply till December. This is a hardy plant of sterling merit.

Eulalia japonica var.—In answer to query in THE GARDEN (p. 358), I may say that I have seen this Eulalia stand 30° below zero, but I consider zebrina more handsome, although there is no difference in the flower of this, zebrina, and the plain-leaved japonica, of which I saw several hundred plants in full beauty in Pennsylvania lately. There being no Indian summer in the English gardens, it is necessary to cut the flower-stems and place them in vases (without water) in dry, warm rooms to obtain the full beauty of the plumes. We have now plumes cut last year standing in rooms so fresh that I inquired to-day if they were of last year's or this year's growth. Pampas Grass is not hardy here.—J. TAPLIN, *Maywood, N. Y.*

Seeds.—Judging from the nature of the past summer, it is evident that almost all kinds of seeds will be much below the average in quality. Warmth is so necessary to the perfect ripening of seeds that a lack of sunshine must prevent their attaining the substance indispensable to perfect germination. For many years July and August have not been so inclement as this season, and it is in these months that most seeds ripen. I sowed two breadths of Cornflowers for early bloom, and not more than one per cent. of the seeds came up, although proper attention was paid to keep the ground moist. This shows how defective choice seeds will be in germinative power, and it will therefore be necessary to sow much more thickly than usual.—J. C. B.

PROPAGATING.

SCHUBERTIA GRANDIFLORA.—This stove climber which has recently attracted a considerable amount of attention is by no means a difficult subject to increase, for seeds which germinate quickly and grow away freely afterwards can often be obtained, while cuttings of the young growing shoots strike root readily enough if treated in the same manner as those of Crotons, Dipladenias, &c.

WEIGELAS FROM SEEDS.—These pretty flowering shrubs are usually increased by means of cuttings or layers, and, of course, they are the only methods available for the propagation of any particular variety, still many of the plants often ripen seeds which germinate readily. Specimens that ripen the greatest amount of seed are those in a spot fully exposed to the sun, especially if they are against a wall or fence. The seed ripens early in the autumn, when the pods should be picked and placed in a dry place to open. When the seeds are shed they should be separated from the husks and sown at once in boxes or pans, where if protected by a frame the young plants make their appearance during the following season. When large enough to handle they should be pricked off in a sheltered spot, and will then soon make rapid progress.

PULPY SEEDS.—A great many of the most ornamental among our hardy trees and shrubs have their seeds embedded in pulpy fruits, and in the case of many of them considerable time elapses between the sowing of the seed and its germination. As in many cases several seeds are packed closely together in one fruit, it is necessary to remove the pulpy matter before the sowing of the seed, and this is effected by various means. Where a considerable quantity exists, the usual method is to mix the fruits with sand and allow them to remain in a heap for a year before sowing them, as in this time the pulp will decay and the seeds can be easily separated. In the case of small quantities of any particular subject the fruit may be at once rubbed up with a little silver sand and the seed sown in a few days. In this case, however, they are better sown in pots or pans and kept under glass.

YUCCAS.—These plants are so extremely useful in a small state for various purposes, that it is often desired to propagate them rather largely, and in the case of many of them the large underground roots or dormant buds, generally known as eyes, afford a ready means for their increase. Where any are being transplanted it is often possible to take off a few of these stout, fleshy roots, which if laid into boxes or pans of sandy soil and protected by a frame, will in the spring push up a small crown of leaves. In the case of plants in pots these dormant eyes will generally make their way to the side; when, if the ball of earth is turned out of the pot, it will, in most cases, be possible to remove them by means of a sharp knife without injuring the plant that they are taken from in any way. The beautifully variegated forms of Yucca aloifolia and Y. filamentosa are both propagated in this manner, and in the case of Yucca aloifolia, which is somewhat liable to run up with a naked stem, it may be cut up into lengths of 6 inches or thereabouts, and laid in sandy soil in a gentle heat, when young plants will make their appearance from various parts of the buried stem, and when large enough they may be taken off and potted.

BEDDING PLANTS.—Cuttings, especially of the various Pelargoniums, that were put in rather late

will need special attention in the matter of watering, for where they are but slightly rooted an excess of moisture will often cause many to decay, as will also happen if the atmosphere of the structure they are in is too close, for some of the leaves will damp off, and the decay once commenced will often destroy considerable numbers. Cuttings formed of the sturdy short-jointed shoots are far less liable to perish than the stouter and more succulent ones, and consequently in selecting cuttings this should be borne in mind. T.

NOTES OF THE WEEK.

Habrothamnus aurantiacus.—A spray of this beautiful climber, better known as Cestrum aurantiacum, from Mr. J. Harris, Woodlands House, Dorset, reminds us of its usefulness at this season. He mentions that it is growing here on a conservatory wall and blooms most profusely twice in a season. At the present time the plant makes a grand show.

Cosmos bipinnatus.—I send a small gathering of Cosmos flowers for your inspection. Although the seed was sown in the spring in the usual way with other half hardy annuals, the plants showed no signs of flowering last year, and this year they did not bloom until quite the end of September. Having a few seeds left, I sowed them in a pot about seven weeks ago, and the plants have all shown flower.—H.

Cattleya Gaskelliana.—Herewith I send you some blooms of Cattleya Gaskelliana. I have over sixty flowers fully expanded just now and others coming. All are imported plants, purchased by me in August last year, and all have done well. They look beautiful at this dull season of the year. The more I study this Cattleya the more I am inclined to think it is just the old autumn-flowering labiata in variety. It blooms at the same season of the year as C. labiata, and some of the blooms which I have are equally as fine.—Alex. Paterson.

Chrysanthemums are later than usual this season, and, as a rule, will not be of the finest character. The frost of the 2nd of October worked considerable mischief, and from many parts of the country we hear complaints of its destructiveness. Those who housed their plants at the end of September were safe, and will have a good display of creditable blooms. Such a sudden frost teaches a lesson—that of not leaving the housing of the Chrysanthemums until October.

Autumn flowers.—I enclose a few blooms each of Gaillardias and Scabiosa caucasica cut today (Oct. 31) from plants growing in an exposed situation in our nursery, where nearly all the other hardy flowers were destroyed by the severe frosts during the earlier part of the month. Although the blooms sent are only about one half their usual size earlier in the season, they prove, I think, what two fine perennials they are for late blooming, as the Gaillardia has been in constant bloom from the early part of June, and is a very fine variety of the grandiflora form. It is thoroughly perennial, scarcely losing its foliage during winter. The plants of both are full of flower at present.—E. Burrell, *Howe House Nurseries, Cambridge.*

Begonia Octavia.—To those who have an interest in the tuberous Begonia fresh surprises constantly occur, and one of the latest triumphs in the double-flowered class is this pure white variety of Messrs. Cannell and Sons, of Swanley. It is the true embodiment of a first-class double-flowered Begonia. The bloom is of faultless rosette-like shape, not so formal as that of a Camellia and a trifle larger than the flower of a Gardenia, but of equally regular outline and doubleness. With these great qualities there is an excellent dwarf, bushy habit and a profusion of bloom that is astonishing. Even small examples flower freely, and a batch in 2½-inch pots showed that this latest acquisition is useful for table decorations. Many wish for a double white flower in the autumn; then here we have the variety that ought to please. Some have, we are told, found some difficulty in growing it, but the plants at Swanley show a robustness of habit and mass of bloom that scarcely betoken a weak constitution. Those who grow for market should make a note of it. Another double variety of a lovely gold-yellow colour is Rev. E. Lascelles, and this also has an excellent habit and freedom of flowering to recommend it.

Iris stylosa alba.—The above Iris is now in flower here, being in pots, and kept growing through the autumn. This, I suppose, has caused it to flower out of its natural season. This Algerian plant, when better known, will doubtless be much grown and valued, but, like many others of the same family, the flowers last but a short time.—W. O., *Fota.*

Stachys tuberifera.—I send tubers of the new Chinese vegetable, viz, Stachys tuberifera (Naudin), of which Sir H. Thompson spoke favourably last year. Messrs. Vilmorin have a nice figure of it in their 1888 catalogue of bulbs and tuberous-rooted plants. Mr. Smith, of Newry, finds it increase fast, as is also the case here in light sandy soil and leaf-mould. The tubers are said to be nice boiled as Potatoes are, or they may be eaten raw in salads, or alone like Radishes.—F. W. Burbidge.

The Pomegranate.—One of the most beautiful shrubs ever planted against a house is the Pomegranate. If it is not restricted too much, merely securing the main branches to the wall and allowing the spray to grow outwards, these little shoots in summer and autumn produce numbers of the beautiful orange-scarlet flowers. A large specimen clusters against one corner of the house at Leonardslee. Last summer it ripened fruit, which was used for dessert. During the month of October the Pomegranate was still flowering freely upon the wall at Offington, quite regardless of early frosts.

Plumiera bicolor.—Flowers of this beautiful plant were recently brought to a committee of the National Chrysanthemum Society by Mr. H. Cannell, of Swanley, and as it is uncommon deserves a note. The Plumieras comprise an interesting genus of plants described as stove trees, and belong to the Apocynaceæ family. They comprise about forty described species, not the least beautiful of which is P. bicolor, that has flowers of a waxy texture, white, with the centre tinged with orange, and the fragrance is as strong and sickly as that of the Tuberose or Gardenia. We should like to see more of the Plumieras in our stoves, as they are scarcely plants to be entirely neglected.

Maiden-hair Fern and Pandanus.—At Horsgate Mr. Stringer has adopted a simple, but graceful plan of combining and growing in the same pot Maiden-hair Fern with other plants used for table decoration. The leaves of Pandanus Veitchi are always beautiful, but as seen at Horsgate rising up from among the Fern fronds their beauty is enhanced. The variegated Pine, whose leaves are even more beautiful than those of the Pandanus, was grown in the same manner, and in Mr. Stringer's opinion it was benefited by its companion, for being a plant impatient of much moisture at the roots, the Fern assisted in absorbing any superfluity of it.

Tillandsia usneoides.—This is the Long Moss or Old Man's Beard of the West Indies. It is a singular looking plant, deriving its nourishment from the atmosphere. We recently noted a plant suspended from the roof in the Orchid house at Ketton Hall. It resembles a tangled mass of greyish Grass, which keeps growing and producing insignificant, greenish-white flowers. The plant at Ketton was sent from Florida, where in the forest upon the trees it grows into huge impenetrable masses. It is used, like English Moss, for packing, and from some so used and sent to Ketton, Mr. Divers selected the plant in question.

Greenhouse Rhododendrons increase in number and beauty. We have in the more recent varieties a bolder truss, larger individual flowers, and of greater substance. The variety Yellow Perfection is well named; it is absolutely quite yellow, and was certificated at the last meeting of the Royal Horticultural Society. Messrs. J. Veitch and Sons, Chelsea, have several good kinds in bloom now. There is the beautiful, dwarf, and almost perpetual-blooming R. jasminiflorum carminatum, the flowers long-tubed and scarlet. R. luteum roseum has a good flower, the colour yellowish pink, and another variety in the same way is Ophelia. A useful kind is Indian Yellow, the flowers being gold-yellow, large, and free. An intermediate temperature is required by these plants. The term "greenhouse" is rather misleading, as they need more warmth than usually afforded by this structure.

The great Ox-eye Daisy (Pyrethrum uliginosum).—The severe frosts have left this autumn-flowering plant comparatively uninjured, save where the blooms were bruised by winds beating them against each other. It is one of the best subjects we have for the herbaceous border, or, as we have it, growing in the shrubberies, where its white flowers contrast well with the Evergreens; in fact, in no place does it show to more advantage than this, especially if it is not too much overcrowded. Given a fair amount of space, it will rear its head above its neighbours in almost any kind of soil.—A.

Michaelmas Daisies.—Why are these not more largely grown? There are many beautiful varieties to be had. Early frosts hurt them not, rain does not damage them, and they are no trouble to grow. They are not beautiful as sometimes seen tied up into fagots at the back of a border; but we recently saw a splendid picture in a Sussex garden produced by these autumn flowers. The Daisies had been planted among a thin plantation of Rhododendrons, between which they grow, and are thereby supported, while their long sprays of flowers fall gracefully upon the Rhododendrons. By annual transplanting the plants sent up strong shoots, which flower profusely, but no words can adequately describe their beauty as we saw them in waving masses late in October.

Arundina bambusæfolia.—Though this is an old garden Orchid, having been named by Lindley, it is very seldom seen, especially in flower, and the fact that it is in great beauty at Kew at the present time is worth recording. It is an exceedingly beautiful plant, and most graceful in growth, having slender stems a yard high with narrow leaves, like those of some of the Bamboos. The flowers terminate the stems, and are about 2 inches across, in form like those of a Sobralia. The sepals and petals are rosy pink, and the prettily shaped lip, which has a rounded frilled lobe, is of a rich crimson-magenta, with markings of yellow and white inside. Every orchidist would be charmed with this plant, and it is worth the consideration of importers, seeing that there are so few in collections.

Selenipedium Elliottianum.—This is the name of a grand new species of Slipper Orchid imported from the Philippines by Mr. Sander, of St. Albans, and which opened its flowers in the case on its journey home, so that we are able to judge of its great beauty and distinctness. The collector says he has seen it with five flowers on a scape; so here is another grand beauty to add to our collection of these deservedly popular Slipper Orchids. It is a bold-growing species, the leaves being two-ranked, 18 inches long by 2 inches broad, with an obtuse apex, deep green, and leathery in texture. Scape erect, bearing five flowers, which, judging from those opened in the case during the journey home, are very large; the upper and lower sepals are large, ovate, and pure white, banded with distinct lines of rich chocolate, which extend from base to apex; the petals are broad at the base, lengthened into tail-like points. In the specimen before me they are about 4 inches long, but these delicate members have been injured in their confinement, and, I should imagine, it will prove to be one of the longest-tailed of the eastern kinds; the colour is pure white, marked at the base with large spots and blotches of chocolate; lip somewhat in shape like that of C. Stonei, pure white beneath, suffused and netted with rose in front, the upper edge being yellow. The staminode is very peculiar, being bent down like a large bird's beak, bifid at the apex, with thick, mossy, chocolate hairs. The bracts on the scape are large, streaked with chocolate like the dorsal sepal. It is a grand addition to our cultivated Cypripediums, and should have a great future before it.—W. H. G.

TREES AND SHRUBS.

OZOTHAMNUS ROSMARINIFOLIUS.

THIS lovely shrub, known also as Helichrysum rosmarinifolium, is a native of the Australian mountains. Where it can be grown in the open air it is certainly a most ornamental and useful plant. The tiny starry flowers, which resemble miniature white Daisies, are produced in the greatest profusion on well ripened wood, reminding one of snow resting on branches of Coniferæ in winter. The sprays make a very natural white wreath, and if the branches are cut just when the bloom is at perfection, and put away in large air-tight paper bags, and suspended in a dry room, they are as white at the Christmas following as when cut in May. Even when intermixed at once with dried Grasses or Pampas Flowers in the decoration of apartments they last for two or three years in excellent condition. The finest specimen I have seen was in a neighbouring garden, about ten years ago. It was quite 20 feet in height and as much in diameter, but was destroyed during the severe winter of 1878. My plants are resting against a south wall, but in most gardens about this Blackrock district it may be seen as bushes, and does best when kept stunted and grown in stiff, rather poor limestone soil. Some fine specimens, always admired by tourists, are on the slopes of the railway embankment near Blackrock station.

I may also add that the flowers after a heavy dew or rain fill the air with the perfume of newly-mown hay. It should be quite hardy in the south of England, and ought to make a most desirable pot plant if the wood is well ripened the previous summer, using rather stiff loam and old mortar in potting. If the sprays were once introduced to the florists' shops of London for wreath-making, they would be in great demand.



Ozothamnus rosmarinifolius. Engraved for THE GARDEN from a photograph sent by W. B. Hartland, Cork.

WILLIAM BAYLOR HARTLAND.
Temple Hill, Cork.

The Quince and Medlar as ornamental trees.—Occasionally we are reminded of the great beauty of the Quince and Medlar when we quite unawares come upon an aged specimen in some beautiful old Sussex garden. A short time back at West Grinstead Park we saw a pond surrounded by Quinces, and more recently still, in an old garden, we saw two Quince trees overhanging a small sheet of water, and literally breaking down with the weight of the enormous fruits. If the fruit was useless, neglect would be more consistent, but Quince jelly is an excellent preserve. Again, take the Medlar, and we have a tree beautiful in foliage, flower or fruit, and fit for the adornment of any lawn.

BERRY-BEARING TREES AND SHRUBS.

DURING the autumn and winter months many of our hardy trees and shrubs present a most attractive appearance by reason of their profusion of brightly coloured fruits, though in some instances they are not so richly tinted as usual this year, owing, no doubt, to the absence of bright sunshine during the summer. A notable instance of this is to be found in the case of Maule's Pyrus (P. Maulei), of which we have a number of plants, and though they are laden as profusely as ever with fruit, yet even the most showy are wanting in the bright colours usually to be found amongst them. Maule's Pyrus, however, even when laden with fruit, does not form so conspicuous an object as one might think, for the small Apple-like fruits, though thickly arranged round the stem, are not far from the ground, and during the early part of the autumn they are hidden by the foliage. Of hardy shrubs with conspicuous fruit at the present time, the two that stand out superior to all others are the Fiery Thorn (Cratægus Pyracantha) and the Sea Buckthorn (Hippophae rhamnoides). The Cratægus and its variety Lælandi are now on a wall quite one mass of the bright scarlet berries, but unfortunately the birds are apt to quickly rob the plant of its beauty. One particular specimen we protect by means of a net, but this can only be carried out in exceptional cases. I find that the very best variety does not come true from seed, so that the better way is to increase it by means of cuttings. The second plant especially mentioned—Hippophae rhamnoides—is a large, rather loose-growing shrub with long, slender twigs, which are clothed for about a foot of their length with crowded clusters of bright orange-coloured berries about the size of Peas. These berried twigs are terminated by the current year's shoots, furnished with shining, silvery Willow-like leaves. This shrub is, as its English name suggests, a first-rate subject for the seashore, as, irrespective of fruit, the long, flexible shoots clothed with silvery foliage are very conspicuous, especially when stirred by the breeze. Close proximity to the sea is, however, not necessary to its well-doing, as it will thrive in quite inland districts and fruit there with the same profusion as on the sea-coast. Of other fruit-bearing subjects may be mentioned nearly all the different kinds of Cratægus, many of which, by the way, come more directly under the head of trees than of shrubs. Conspicuous among the members of this extensive genus are the scarlet-fruited Thorn of North America (Cratægus coccinea), which is one of the most ornamental of late-blooming Thorns, as the flat corymbs of white blossoms are borne in great profusion, and being succeeded by fruits which change to a bright red when ripe, a tree of this species is a highly ornamental object during the autumn. The Tansy-leaved Thorn (C. tanacetifolia) has almost the largest fruits of all, and they differ widely from the berries of the Hawthorn class, as, besides their size, they are flattened somewhat in shape, and have very large bracts still attached to them when ripe. Their colour is yellow, as also are the large fruits of C. Aronia. The common Hawthorn has two very distinct varieties, one in which the berries are yellow, and another which has black fruit. The berries of the North American C. Douglasi are also black.

A genus of plants especially notable for the fruit-bearing qualities of the different members of it is the Cotoneaster, and of the large-growing kinds the finest is the Himalayan C. affinis, which is of quite a tree-like habit, and bears large clusters of glowing crimson-coloured berries. So heavy indeed are these bunches of fruits, that they often cause the shoots which support them to bend over with their weight, and from this circumstance when the plant is tall they are rendered more conspicuous than would otherwise be the case. Though C. nummularia is of a very pleasing habit and the berries are borne in great profusion, their colour (blackish brown) prevents them from forming at all a conspicuous feature. C. Simonsi is a beautiful shrub,

much dwarfer in stature than any of the preceding, for it assumes the character of a much-branched, but upright growing bush, the slender shoots of which are thickly studded with orange-scarlet-coloured berries, so that a good specimen of it forms a rich and glowing object. Though it will succeed fairly well in a shady spot, to fruit it successfully this plant needs a sunny position. The evergreen species, C. microphylla, whether employed for clothing sloping banks, treated as a wall plant, or established on some large arrangement of rockwork, bears, as a rule, its brownish crimson-coloured berries in the greatest profusion, and I do not find that the birds interfere with them to the same extent as the others.

Nearly all the Roses bear very showy fruits, but none more so than the Japanese R. rugosa, though the bright crimson berries of R. cinnamomea, the almost black fruits of R. spinosissima, and the scarlet-coloured R. villosa, with its long prominent bracts, are all both distinct and showy.

The finest of all the Pyruses is the Mountain Ash, or Rowan (Pyrus Aucuparia), which is often passed over because it is so common, yet it is certainly one of the showiest of trees when in fruit. The different varieties of the Siberian Crab with their Cherry-like fruits are all remarkably attractive in the autumn, and besides the ordinary cultivated varieties of Apples and Pears (some of which, by the way, are extremely handsome) we have the transparent Crab and the variegated-fruited Pear, the fruits of which are sometimes most beautifully mottled and striped with yellow and red, but they vary a good deal in their markings. Where planted in a rather cool shady spot the little Skimmia japonica will be laden with fruit, and under such conditions the foliage assumes a deep green tint, which it can never be induced to do when in a hot and sunny spot. The Snowberry (Symphoricarpus racemosus) stands out conspicuously by reason of the berries being pure white and of a good size, besides which they are very freely borne, so that a thriving specimen is very ornamental.

The various Barberries include among their number some very showy kinds, but as far as the beauty of the fruits alone is concerned the common Barberry (Berberis vulgaris) is second to none of the others, when the bright colour of its berries, and the profusion in which they are borne, are both taken into consideration. Another great advantage of this shrub is the fact that it will not only hold its own, but thrive under very disadvantageous conditions. The Chinese Barberry (B. chinensis), which was recently so highly spoken of by some of the American correspondents of THE GARDEN, seldom fruits very freely in this country. It is certainly a pretty little shrub, and when thickly studded with its little oblong berries is very bright and cheerful, for the fruits are of a glowing red colour, like pieces of sealing-wax. Darwin's Barberry (B. Darwini) often fruits very freely, but the berries which ripen towards the end of the summer are not so conspicuous as those of the preceding, being of a purple hue, and covered with bloom like those of a well-finished Grape. Besides this they nestle among the foliage, and are, therefore, more liable to be passed over unobserved. A near ally of the Barberries is the Japanese Mahonia or Berberis japonica, a stately growing plant with large pinnate leaves and fruits much the colour of those borne by Darwin's Barberry, but superior in size. M. japonica, however, flowers during the early months of the year, so that it may be regarded as a summer rather than an autumn fruiting subject. No mention of berry-bearing trees and shrubs would be complete without the Holly. There is one variety (the yellow-berried Holly) that is not so much seen as one would expect when its very distinct character is taken into consideration. The European Boxthorn, whose long pendent branches are thickly studded with bright scarlet berries, is very ornamental when allowed to ramble over some outhouse or in a similar situation. Although scarcely to be included under the head of berry-bearing subjects, some of the different kinds of Euonymus are so ornamental when in fruit as to merit a word or two in their favour. The broad-leaved Spindle Tree (Euonymus latifolius) is the showiest of all, and, strange to say, though introduced into this country a century and a half ago, it was almost unknown till brought forward by Messrs. Veitch at a meeting of the Royal Horticultural Society about half a dozen years since, when it was unanimously awarded a first-class certificate. The fruits of this kind are larger than those of the common Spindle Tree (Euonymus europæus) and of a bright red colour, and when hanging in clusters suspended by long slender stalks they are highly ornamental. Quite an additional feature is imparted to a specimen when the fruit is quite ripe, as the capsules then open and the bright orange-coloured seeds hang suspended therefrom for a considerable time. The common Spindle tree, too, behaves in a similar manner, but it is less showy than the preceding. There is, however, a variety of it in which the fruits are white, and it is therefore worth a place, being very distinct from any of the others. Blue-fruited shrubs are not to be found among hardy subjects, and on that account the variety Vitis heterophylla (humuliæfolia), which has berries of that hue, though it be a climber, must not be passed over, as in a suitable season it will produce clusters of small, Cherry-like fruits, of a wonderfully pleasing shade of blue, in the greatest profusion. While last year we had a remarkably fine display of fruit, the reverse is the case this season, as no doubt, owing to the wet and cold summer, we have now to be content with the remembrance of last year's display.

The Pernettyas are a class of shrubs that have attracted very much attention within the last few years, not only for the beauty of their berries, but also for the variety that is to be found amongst them. When a coloured plate of some varieties of Pernettyas was given in THE GARDEN, May 26, 1883, comparatively few were aware of the wide range of colour to be found in the fruits, and still fewer when they were exhibited at Kensington a few months previously, at which time half-a-dozen of them were awarded first-class certificates, viz., alba, carnea nana, sanguinea, nigra major, purpurea, and macrocarpa. These improved Pernettyas are the result of many years' selection, carried out by Mr. Davis, of Ogle's Grove Nursery, Co. Down, Ireland, who has since put into commerce the above and other varieties. These Pernettyas are an extremely useful class of low-growing shrubs, as they are grand objects when grown in clumps or masses, that is if the birds will leave the berries alone, but, unfortunately, they will sometimes devour the fruits with avidity. As rockwork shrubs the Pernettyas are well suited, and I have seen them employed for another purpose, viz., potted up and used for greenhouse decoration. Protected in this manner they were very attractive from autumn till the spring, and being thoroughly hardy a temperature just sufficient to keep out the frost was ample. H. P.

Desmodium penduliflorum.—Each recurring autumn we have been accustomed to see this Desmodium in great beauty, as it is a most profuse bloomer, and the flowers are produced at a time when nearly all outdoor flowering shrubs are past. This year, however, we shall scarcely have a single bloom, for the summer was so dull and cold that the flowers were much later than usual, so that when we experienced the very sharp frosts in the early days of October, none of the blooms had expanded, and all of the unopened buds, except in especially sheltered spots, were killed. This was unfortunate, for a large, thriving specimen when well grown forms a very attractive object, and with favourable weather retains its beauty for a considerable time. This Desmodium is a plant of a half shrubby character, that after flowering dies down nearly to the ground, and pushes up the following season's shoots from a few large, plump buds near the base of the plant. These shoots are long and slender, the tallest, under favourable conditions, reaching a height of about 6 feet. A very good way to treat the plant is to support a few of the principal shoots, as then the minor ones will dispose themselves in a very graceful manner, and the whole forms a most elegant mass. The shoots are rather thinly clothed, especially towards their base, with trifoliate leaves, and terminated by crowded racemes of rosy-purple pea-shaped blossoms. Though the flowers are liable to be injured by early autumn frosts, the plant itself is quite hardy even during most severe winters. The roots run very deeply in the soil, and on that account the Desmodium can resist drought in the summer better than many other shrubs, as we experienced last year, when, in spite of the dry summer, we had a grand autumnal display of blossoms.—H. P.

MOUNTAIN ASH BERRIES.

I AM much interested in noticing how the starlings are clearing the Mountain Ash trees of their berries. While I cannot envy them their necessary food, I regret that they are taking the berries, because just opposite my house are two large trees that were laden with them, and they had quite a picturesque appearance. Some days ago the starlings settled upon the topmost boughs, and commenced to feed there. They have gradually cleared the trees of the crop quite half way down, and in course of time every berry will disappear. One scarcely wonders at the birds being so much attached to the berries as an article of food, because we are told that the fruit is eaten by the residents in some parts of Scotland and Wales. It is also said that in some parts of the north of Europe the berries are dried and ground into flour, and used as a substitute for the flour of Wheat in times of scarcity. The two trees I have mentioned stand side by side in a forecourt garden, and they are in all probability seminal varieties, as while the trees are similar in general character and outline, one has much finer cut and paler-coloured foliage than the other, and is several days earlier to bloom. The former has an erect growth, the latter more pendulous; the berries of one are of a pale reddish orange colour, those of the other deep coral-red. But both are exceedingly handsome when densely laden with their clusters of berries as they were this season.

The Mountain Ash is almost unrivalled as an ornamental tree. While it attains to a good height, it is always graceful in outline, rarely, if ever, growing out of shape, and requiring little, if any, pruning. Mr. Leo Grindon points out that the Mountain Ash has two distinct festal seasons—

> In May and June the light green of the beautiful foliage is set off by cream-coloured bloom, more than exuberant. Then for a time it is unattractive, and we almost forget it. In September it again becomes conspicuous, but now with glory of fruitage, first, of a rich orange colour, when ripe lucid vermilion, such as attracts the most indifferent.

The Mountain Ash is known in Scotland as the Rowan tree. It is supposed that the term Rowan is derived from the Scandinavian word *runa*, a spell or charm, meaning also to have power to avert the "evil eye." The fame of the tree in ancient witchcraft is well known; it is not dissipated, in truth, even yet.

Thousands of seedlings are raised from the berries, which are sown in the open ground, and they will remain for a year or more before they germinate. When they are one year old the seedlings are planted out in nursery quarters to grow into size. The Mountain Ash is also propagated by means of layers, but it is found by experience that seedlings make handsomer trees than layers.

R. D.

The Witch Hazel (Hamamelis virginica).—This shrub is remarkable for the singular fact that it does not bloom till the leaves begin to fall, and when in this stage it has a very interesting appearance, as the branches are then studded with the peculiarly formed flowers, whose only conspicuous feature is the four long, narrow, yellow-coloured petals. The blooms are certainly not particularly showy, but being produced in large numbers, they form quite an attractive feature at a time when few other shrubs are in flower. The Witch Hazel is a native of the United States, and according to Loudon was introduced in 1736. In this country it assumes the shape of a somewhat open bush, and is seen to

the greatest advantage when about 6 feet high, though in America it attains greater dimensions. Besides this American species of Hamamelis, there are two others, natives of Japan, both of which flower during the first two months of the year. They are H. arborea, reddish, and H. japonica, with lighter coloured blossoms.—T.

CHRYSANTHEMUMS.

E. MOLYNEUX.

KEEPING THE BLOOMS.

MANY blooms are lost through a want of knowledge of how to keep them when they are developed. Many persons cut them too soon, while others do not cut them soon enough, allowing them to remain on the plants several days after all the florets have been fully developed. When it can plainly be seen that the flowers are fading around their base, then they are cut with the idea of preserving them. This is a mistaken idea, as many find out when too late. Much better is it to time the blooms by regulating the plants in different temperatures according to the time required for the expansion of the flowers; by this means all are brought to a level at a particular date without the necessity of resorting to the cutting of any blooms long before the day appointed. To have blooms in the best possible condition on any given date, four days previous is quite soon enough to cut them. If cut earlier the florets lose their natural solidity, thus causing the blooms to be of smaller dimensions than they would be if the florets stood out fresh. Particularly noticeable is this in plants of the Japanese section, where the florets do not possess that amount of crispness which characterises those of the incurved class. Some growers strive to keep the blooms fresh as long as six or even eight days after they are cut, but only in a few instances can this be done, as the colours fade. This is a serious loss to the stand, as rich colouring is considered of great importance, and rightly so. Those varieties possessing the darkest shade of colour—the chestnuts, bronzes, and the deepest lilacs and roses—retain their freshness the shortest time, while lighter coloured varieties, as primrose, white, and yellow, keep fresh the longest. When cut the flowers should be perfectly developed. The commencement of decay can best be ascertained by feeling the lower florets, which should be crisp and solid, not soft and flabby. When this occurs the white varieties will soon assume a pink tinge, notably Empress of India. This by some is not regarded as a defect; but if it is not, how can the bloom be regarded in its true character, because the variety Empress is pure white in colour? Prince Alfred is what is called a bad keeper; a faint brownness in its bottom florets quickly points to waning beauty. The removal of these reduces the depth of the bloom. The blooms should be cut with a long stem, say 12 inches, so that a small portion can be taken off every day. Place the stem in a bottle previously filled with water to which is added a little salt, say three-quarters of a teaspoonful to three half pints of water. It matters not whether the water be hard or soft. Place the flowers in a cool, slightly darkened room having a dry atmosphere. This is the manner in which I have found them keep the best in a cut state, but I prefer to allow them to remain on the plants until required, or at least two days before, when they may be cut with safety and treated in the manner described.

I have found the following method best to keep the blooms upon the plants: When it is seen that a flower is likely to be too early, growing as it is in the coolest part of the house and protected from sun, the moment it is at its best remove the plant to some cool structure, which can be partly darkened, and having a northern aspect, if possible, and where air can be admitted freely—a potting shed, a Mushroom house not in use, a large open barn, a coach house; in fact, any place having the necessary requirements, viz., coolness, dryness, and partly excluded light. No more water should be given to the roots than is absolutely required to keep the leaves from flagging, as at this period of the plant's existence the functions are torpid, and the work, as regards the development of bloom, is completed. Sometimes a week or more will elapse before the plant requires water; particularly is this so if the soil be of a retentive character. The pot, when sounded in the orthodox manner, may ring clearly, still the soil may be moist enough. In this case the best indication of the plants requiring water is by examining the leaves, and if they are at all soft and devoid of freshness, then apply clear water enough to soak through the soil, and give no more again until the leaves are again limp. The water which drains from the pot should be at once dried up to prevent damping. Should any signs of this occur at once remove such damaged florets, which only serve to contaminate others near them. Flowers managed in this manner will keep fresh and in good condition ten or twelve days, sometimes longer.

Chrysanthemums in the Temple Gardens.—If evidence were wanting of the adaptability of the Chrysanthemum for smoky towns we have only to visit the Temple show, where the plants are in the best of health in spite of adverse circumstances. The exhibition this year is of average excellence. The plants are later coming into bloom than usual, but there is plenty to see, especially of the earlier kinds, as Mlle. Lacroix and the crimson reflexed variety George Gordon or L'Africaine. The reflexed Mons. Holmes is in full beauty, and few early-blooming varieties are of such a depth of crimson. It is chiefly the Japanese varieties that are in bloom now, and these comprise Curiosity, synonymous with Mme. Bertier Rendatler, a full solid flower of a rich yellow colour, slightly tipped with bronze; the pure white Elaine, Wm. Robinson, bronzy orange; Flora Townsend, yellow, and in the way of gloriosum; roseum superbum, dull pink, Lady Selborne, white; James Salter and Mandarin, lemon yellow, and the petals short. Amongst more recent kinds was the Japanese variety Mr. H. Wellam, which has white flowers of great massiveness. There were also good blooms of Webb's Queen, a pink-coloured reflexed variety, synonymous with Emperor of China.

SHORT NOTES.—CHRYSANTHEMUMS.

Pompon Mrs. Cullingford—This is a most useful white-flowered Pompon, and does well in pots. We have none too many white flowers at this season, so Chrysanthemum growers should make a note of this Pompon.

Chrysanthemum Delphine Caboche.—In the catalogue of Chrysanthemums just issued by the National Chrysanthemum Society this variety, known also under the name of Miquellon, is classed as a Japanese; whereas it is really a summer flowering Pompon. Such a mistake shows how difficult it is to prevent an error creeping in now and then, but still it should be noted to prevent further complications.—H. P.

Pompon Blushing Bride.—There are signs of an increasing interest in the Pompon Chrysanthemums, and we are glad to see a revival in this extremely pretty class of flowers. One of the most beautiful is this variety, that is remarkably free, and has neat, true Pompon-like flowers of delightful rose-blush tint. It is dwarf, bushy, and just the kind of Chrysanthemum for the amateur.

Chrysanthemum Lakme.—This Chrysanthemum was sent out by M. Délaux in 1885, and seems already to be nearly forgotten; still it is a very desirable kind, and one of the most useful of its class. It is of a short, stiff habit of growth, while the blooms are in shape a good deal like those of Mr. William Holmes, but instead of the bright crimson of that kind they are of a reddish crimson colour. Both of these belong to the October-flowering Chrysanthemums, an extremely useful class where flowers are in request all the year round.—H. P.

CHRYSANTHEMUMS AT PUTNEY.

THE season has come when the Chrysanthemum fancier reaps the fruits of his labours for the past twelve months, and throughout the year he has had a hard battle to fight. The abnormal character of the spring and summer gave him ceaseless care and anxiety, and in many instances his hopes were crushed by the untimely destruction of the plants through the frost of the 2nd ult. Those who were fortunate to house their specimens in safety will have a good display, though nowhere will the flowers attain that excellence they have done in some seasons, and everywhere they are later than usual. Where a speciality is made of Chrysanthemums, there is, however, always a good show, whether early or late in the autumn, and at Mr. Stevens' nursery at Putney there was, a few days ago, many specimens in full bloom, and the numberless expanding buds gave promise of the harvest to be expected. There are three or four large houses devoted to the plants, one of which was monopolised wholly by the pure white-flowered Elaine, a flower that for market purposes at this season of the year is hard to beat. As much as sixpence each was being realised for them, and where there are 1000 plants in full bloom, two in a pot, a considerable sum is obtained. The cuttings are struck in the autumn, and the plants grown on carefully.

The Japanese varieties are always the first to bloom, and there were excellent flowers of the white variety Mlle. Lacroix, Mons. H. Jacotot, crimson and gold, and gold reverse to the petals; Mons. Freeman, rose and white, and the old Baronne de Prailly, a flower of a lovely white and rose tint; and here we may mention that the increase in the number of Japanese varieties is incredible. Standard varieties a few years ago were scarcely seen, while in the incurved section an opposite condition of things exists. Here there are very few new varieties of any value. The reddish-bronze-coloured Criterion holds its own, and Mr. Stevens has good blooms of it, also of the rich yellow-coloured M. Garnar, a variety with thread petals, and as yet not much known. La Triomphante, Peter the Great, Joseph Mahood, and Mme. Bertier Rendatler are varieties known to all; of these there were excellent specimens. Of the newer kinds an acquisition is Florence Piercy, a Japanese variety with white flowers and crumpled petals; it wants cultivating, however, as it is thin. Miss Stevens is a soft lilac-coloured variety, very free and beautiful, far different from C. Orchard, which is of a gold and reddish bronze and of the Edwin Molyneux type of flower. A few blooms were expanding of the curious variety, Macaulay, that has golden bronzy yellow petals cut like Endive, and is scarcely beautiful. The exceptionally handsome reflexed Mons. Holmes was represented by 800 plants, and it will be difficult to beat the lustrous crimson colour of this variety. Another reflexed kind is Mrs. C. Orchard, the colour of a lovely, clear, self bronze, and the flower full and solid. Avalanche is a Japanese Chrysanthemum that will certainly become the best of its class. It is like a mound of white, the flower very large, of the purest white, full, and solid. Gorgeous is brilliant yellow, and reminds one of Peter the Great. Lady Lawrence is another Japanese kind of great promise; the petals are very broad, creamy white, and the whole flower of great width and substance.

The incurved varieties are later than the Japanese, but there were excellent blooms of the golden-coloured Mr. Bunn, which is in the best condition in most collections. Mr. Stevens also has good blooms open of Lord Derby, a purple-maroon-coloured incurved; White Beverley and George Glenny; while such kinds as Empress of India promised well.

The Anemone Japanese class wants improving, and Sabine and Nelson are two welcome additions. These are both described in THE GARDEN (p. 402), and of the first of the two there are excellent flowers.

Two Pompon kinds that are of great beauty and usefulness are Flora, yellow, and Snowflake, white, both of which give a good supply of blooms for cutting. The Pompon Chrysanthemums are more grown than formerly, and are certainly entitled to a little of the care given to the incurved and the Japanese. An exceptionally neat-flowered Pompon that is as regular in contour as the bloom of a China Aster is Eliza Dordan, the colour bright lilac.

SEASONABLE NOTES.

As the plants advance towards flowering the details of culture narrow themselves considerably. As the blooms develop notes should be made for future guidance as to the peculiarities in the growth of varieties, &c. Much valuable experience may be gained by close attention to small matters. It is only by studying the plants in all stages of their growth that a thorough knowledge of the Chrysanthemum is gained. The cultural notes must of necessity be of a limited character. The flowers of the earliest varieties of the mid-season class, such as Mrs. G. Rundle, George Glenny, Prince Alfred, Lord Wolseley, Jeanne d'Arc, and Mr. Bunn, will now be three parts developed, while blooms of the later flowered incurved kinds, such as The Queen, Hero of Stoke Newington, Princess Teck, Princess of Wales, will be about half expanded. The earliest-flowered plants in both sections, incurved and Japanese, will need the treatment slightly altered from this date as regards watering. The earliest flowering varieties should have clear water only, as stimulants would not be of any service after the blooms are three parts developed. Clean water only should be given to the plants when they are approaching dryness, as the flowers last a longer time in perfection when expanded if the plants are carefully watered, none being given except when necessary. The later-flowered sorts should still receive a liberal allowance of liquid manure—in fact, they should have it every time the plants require water. This treatment will serve to develop blooms of a deeper character than would be the case if the use of stimulants was stopped directly the colour of the flowers can be seen, as some growers aver should be the case. Whatever watering is needed should be done early in the morning, allowing ample time for the surplus water which runs from the pots to dry up, and so prevent the damping of the florets which would be aggravated by closing the house with a moist, stagnant atmosphere. If blooms are thought to be advancing too quickly on individual plants, shade such plants without interfering with those which require all the sun possible to assist them to unfold their florets in time for any particular date. Nothing is better than thin tissue paper, which, if no other means are at hand to avoid this, may be laid on the flowers themselves. Where the blooms are developing freely, give abundance of air without causing a direct draught over the plants during cold, cutting winds, as such treatment often makes the petals decay or wither up. Should the weather be at all damp or foggy, warm the pipes of the house to dispel moisture. Sometimes one bloom on a plant, through being tied too closely to the stakes, will rub against its neighbour, thus causing the florets to decay. Remove all dead or decaying florets as fast as they appear, as they only serve to contaminate the others. On the top of some of the buds will be seen a hard, scaly substance which prevents the florets from unfolding evenly; it is easily noticed by some of the florets managing to struggle through here and there. The scale should be removed carefully with the point of a knife or tweezers. Much care should be exercised in performing this operation, or the florets under the scale will be injured, and it is surprising what great disfigurement will follow from even so small a puncture when the florets occupy so small a space. E. M.

ROSE GARDEN.

T. W. GIRDLESTONE.

WINTER PROTECTION OF ROSES.

I THINK "D. T. F.'s" unqualified statement that "the longer and later Rose plants bloom the more tender they become" is somewhat misleading. Of course, it is obviously true that all plants when covered with young bush growth show the effects of frost more than when at rest, but it does not at all follow in the case of Roses that the results are ultimately more serious to the plant in the one state than in the other. The terms hardy and tender, as applied to plants generally, mean that such plants will or will not survive an ordinary winter out of doors without serious injury, and while in the case of some hard-wooded plants the unripeness of the wood may be such that an early frost will kill the shoots of the year a long way back, the case of Roses blooming late in autumn is not by any means parallel. And for this reason, that it is a secondary growth that carries the autumnal bloom of Roses—a growth whose very existence is an indication that the main growth or wood for next year's blooming is already matured. When the Tea Roses have bloomed in June and July, there generally arise from the base of the plant strong sucker-like shoots surmounted by immense trusses of bloom, and soon after the topmost eyes or buds on the wood that has already flowered push again and carry another crop of blossoms, continuing often into late autumn. It is this secondary growth which, in the opinion of many cultivators, is of value, independently of the flowers, in further developing and ripening the summer wood, that is frequently green and growing even as late as November, and is consequently generally much cut by frost. But its loss is comparatively immaterial; in all probability it would in spring be removed by the pruning-knife, if not by frost in winter, and so far from increasing the risk of injury to the plant, the leafy crown that constitutes such an attractive feature in the case of the Tea-scented Rose trees in autumn affords a substantial protection to the lower main shoots from the white frosts of the still clear nights of early autumn.

The fate of unexpanded buds and blossoms whose preservation "D. T. F." proposes to effect by covering them with Bracken would hardly differ from that of the Irishman's friend who was condemned to be hanged, "but just saved his life by dying in prison," for to avoid being frost-bitten by being smothered with Ferns hardly seems a change for the better, and, in fact, considering that being buried alive is, as Gilbert says, "such a stuffy death," a short, sharp, sudden frost might appear decidedly preferable.

But in any case the harm that would be done by wrapping up the plants with protecting material early in October, when there is almost invariably a considerable period of sunny and often warm weather to follow, would be far in excess of any possible advantage that might accrue from the preservation of unripe secondary growth, even assuming it to be effected. The covering of Rose trees with Bracken for a long period and in mild weather weakens the wood to an extent that no preservation of green shoots can compensate, even could their value be proved to be far greater than it is. The fact is that the winter protection of Teas is an evil—in certain localities and under certain circumstances a necessary evil, but an evil nevertheless—and, like other evils, the longer it can be put off the better.

It is rarely, if ever, needful to cover up Tea Roses before the third week in November, and it should never be done at all until there is clear evidence of immediately approaching severe frost. As soon as the frost is past the covering should, if possible, be removed and not be replaced until there is a prospect of the recurrence of cold weather. This naturally involves a considerable amount of labour, which in some gardens where there is a large collection of Tea Roses and also many other things to look after cannot always be afforded. But where it can be managed it is never labour thrown away, for if the Roses remain covered up during mild weather they begin to grow in an unhealthy way and the bark becomes green and tender, so that they are unable to withstand the east winds on being uncovered in spring.

Considering that Tea-scented Roses on dwarf Brier seedling or cutting stocks are able unprotected to survive 25° of frost, it cannot be said that the odds are against them in an average English winter, as the conclusion of "D. T. F.'s" note would seem to imply when reasonably protected; but the protection should not be afforded until it is wanted, and, if possible, it should be withdrawn as soon as the need of it has ceased.

Rose Reine Olga de Wurtemberg.—I am surprised that in the article on Michaelmas Roses in your issue of the 13th ult. no mention was made of Reine Olga de Wurtemberg. It has been in flower here since the middle of June, and its lovely cherry-coloured buds are still bright and uninjured by frost. It has the handsomest foliage of any Rose I know, and when in full bloom attracts much admiration. Rosa pomifera has fruited well here in a very exposed position. It has made some strong shoots, and seems likely to make a good climber.—MRS. AMES LYDE, *Thornham Cottage, King's Lynn.*

*** Reine Olga de Wurtemberg would undoubtedly have been amongst the climbing Roses in bloom at Michaelmas had not the plant, unfortunately, been broken down during the summer, whereby it was throughout September a mass of green growth, luxuriant enough, but which had not yet had time to flower again. There is no doubt that it is an invaluable autumnal, one of the two best red-flowered climbers (for in some respects, though its flowers are not so large and full, it even excels Reine Marie Henriette), and fully deserving of all that is said above in its favour. Mr. Paul, of Cheshunt, writing to endorse the recommendation of the red-flowered climbing Rose Max Singer, given on p. 335, mentions the magnificent climber Reine Olga de Wurtemberg as having proved this year again one of the most valuable of all autumnals. The bright crimson buds are very freely produced, and appear to have withstood the early frost remarkably well; their fragrance is most conspicuous, and the splendid foliage with which the plant is always clothed renders it one of the most striking climbers at any time.—T. W. GIRDLESTONE.

SHORT NOTES.—ROSES.

National Rose Society.—We understand that Her Royal Highness the Princess of Wales has graciously consented to become Patroness of the National Rose Society.

Rosa berberidifolia, the rare species from which R. Hardyi was raised, is again in commerce, being now catalogued by several nurserymen on the Continent and in England.

Rosa microphylla.—This is a small-leaved species which would appear to be more deserving of cultivation. We saw it recently against an old wall at Muntham Court, Worthing. It was in flower, and had been blooming for a

long time. The buds have a striking and characteristic appearance, in shape much resembling a large acorn. The flowers are of a rosy colour and double.

Rose Gloire Lyonnaise.—To those who require Roses in quantity and can give this one a good border under glass, I can strongly recommend this variety. Under glass the colour is so nearly white that its creamy shade is not so noticeable as when grown in the open, and the half open buds are so handsome and the foliage so clean that everyone admires them. Add to this its thoroughly perpetual character, and I think no one can wish for a more serviceable Rose. It is also a suitable variety for pot culture, and I find it to be one of the easiest Roses to strike from cuttings. I expect to hear a diversity of opinion about its being a good perpetual, but its behaviour with me quite warrants its perpetual flowering character.—J. C. C.

THE EVERGREEN JAPANESE ARALIA.

(A. SIEBOLDI.)

THE well-known Aralia illustrated in the annexed engraving is one of the best of all room plants. It will stand an amount of ill-treatment and neglect that few other things would bear, and yet live; at the same time any reasonable care bestowed on its culture will be amply repaid. It is easily propagated, either by cuttings or single eyes. Plants that have lost the lower foliage, and, therefore, much of their beauty, may be cut up to increase the stock. Use sandy peat for cuttings and eyes; keep them in a comfortably warm close frame for a time; they will soon take root, and then can be potted off singly. Peat and loam, with a little sharp sand added, make an excellent compost for them, adapted to all stages of their growth. Large-sized pots are not requisite; they may be grown to perfection in 4½-inch and 6-inch ones. Drain these well, as the Aralia during its period of active growth is a large consumer of water. A light, airy, and comfortably warm greenhouse is about the best structure in which to grow them, and during hot, dry weather syringe freely night and morning with soft water (if hard water be used, a deposit often remains on the leaves), and thus the foliage will be always preserved in a clean and bright condition. When placed in living rooms, it is a very good plan to occasionally sponge the leaves; this frees them from dust and greatly assists their well-being.



Aralia Sieboldi as a table plant.

TABLE PLANTS.

IT does not matter how carefully the selection of suitable plants for decorating the table is made; if there is not room to grow them properly, the most skilful cultivator cannot produce well-furnished plants. While growing there must be room for each plant to stand clear of its neighbour, or the bottom leaves will become discoloured, and then the beauty of the plant is spoilt. Unless there is a stove temperature available for the greater part of the year there is not a great choice of first-class table plants. But with the aid of sufficient heat the list may be lengthened sufficiently to suit a variety of tastes. The Aralias, which require a stove heat, are undoubtedly the most elegant of all foliage plants. The best of those with variegated leaves are, I think, elegantissima and gracillima, as when well grown they are decidedly handsome. My choice of those with green foliage are filicifolia and reticulata. Crotons are very attractive plants on the table. There have been many varieties introduced of late years, but I doubt if there is one of the new sorts more suitable as a table plant than Johannis, which is, perhaps, one of the oldest of those with highly coloured leaves. Warreni is scarcely so bright in colour, but more graceful in growth. The variety Princess of Wales has the same habit and a striking colour when well grown, but it is a little too heavy in appearance, except for a centre-piece or a rather large table. There is a good choice amongst the Palms, and they are indispensable where variety is required. The best of those requiring moderate warmth are Cocos Weddelliana and Geonoma gracilis. Dracænas are as useful as any I have yet mentioned, and for general purposes in the house there is none better than Cooperi, which is an old variety, but still one of the best. Small plants of D. Goldieana are also desirable for the sake of variety. One of the easiest of all stove plants to grow for the table is Pandanus Veitchi. Well-coloured examples are very attractive, as the leaves arch gracefully. Jacaranda mimosæfolia is an elegant green-leaved plant that is not much grown, but, notwithstanding its apparent unpopularity, it is a beautiful subject for the table. The foliage is deeply serrated and of a lively Pea green colour. As compared with this plant, the popular Grevillea robusta is little better than a weed. As a subject suitable for cultivating in the greenhouse there are one or two Aralias that are very useful. These are leptophylla and trifoliata, both of which have a good habit of growth and handsome foliage; the same remarks apply to the green-leaved Dracænas, and of these congesta and indivisa are both useful. The well-known Grevillea robusta is deserving of notice when in good condition, but as it is often seen with naked stems and badly coloured foliage, it is not an attractive plant. To have it in good condition it requires to be kept in an intermediate temperature. It is fortunate that there are several Palms that may be successfully cultivated in a warm greenhouse, or the list of plants suitable for growing in that structure would be a short one. Areca Baueri is no doubt the most elegant of those that will endure a medium temperature. Kentia australis and Phœnix rupicola are also desirable subjects for the table.

FLOWERING PLANTS.—With regard to flowering plants, such subjects as Primulas and Cyclamens are so well known, that it is not necessary to do more than to mention them. If there is one flowering plant deserving of notice more than another, it is the Zanzibar Balsam (Impatiens Sultani), for as a table plant it is undoubtedly unsurpassed. If the plants are grown from seed they are furnished with growth down to the rim of the pot, and the points of every shoot for a considerable part of the year produce a constant succession of bright rosy red flowers that are as attractive by candle-light as by day. To grow this plant successfully it requires an intermediate temperature, and must not be over-potted. For flowering during the winter there are few more useful plants than the double-flowered Pelargoniums, as the colour of the blossoms is particularly bright and they last well. The habit of the plants is, unfortunately, rather stiff, but with a little tying out that defect may in some measure be remedied. Now is the time to strike the cuttings to form plants to flower in the coming winter. After the end of June they are best grown in the open air until the autumn, but it is a good plan to get the plants in the pots in which they are to flower before they go out of doors.

J. C. C.

KITCHEN GARDEN.

IMPROVING SUBSOILS.

As a rule, kitchen gardens are formed where they are either conveniently near the proprietor's house, or where they will least offend the eye of those who object to a view of various outbuildings, heaps of manure, soil, fuel, and other unsightly and inevitable accompaniments. Little or no regard is paid to the nature of the soils and subsoils, the results in consequence being very frequently anything but satisfactory to those who have to cultivate them. In some instances a garden may be rendered fertile in a short space of time or from the outset, but in many others the improvement is only effected after much expense and many years' labour. Trenching is supposed to be the surest and indispensable means of improving land, and this is not unfrequently carried out directly after, or at the same time as the system of drainage is being perfected. When the subsoil is of a fertile character or consisting principally of alluvial deposits, no harm, but, on the contrary, much good may result from this treatment. Such, however, are exceptional instances, and more often than not the subsoil is either of a poor, loose character, abounding perhaps in gravel or sand, or it may be little better than solid clay. The former can certainly be most quickly rendered more adhesive and fertile; but most clay soils are very difficult to manage, and should therefore be brought to the surface in small

quantities only. Drains ought always to be deep—or, say, from 3 feet to 4 feet in depth according to circumstances—and the formation of these always unavoidably brings much poor or clayey soil to the surface ; but when draining and trenching are carried out simultaneously, perhaps, or almost surely in all weathers, much harm may result. This, let me add, is no imaginary occurrence, as instances could be given where gardens have been thus treated from twenty to thirty years ago which are not yet got into good working order. Trenching or the reversing of the positions of the top and bottom spits is a most risky proceeding, not to be resorted to in a reckless manner. It is unwise to bring a quantity of very gravelly soil to the surface, and little short of madness to bury fertile and fairly free-working surface soil and substitute what is little better than solid clay from underneath. The admixture of a variety of soluble and insoluble substances to clay or clayey loam may keep this from running together for a time, but the first blunder in the way of digging and working on it in wet weather will undo all this labour and render the ground difficult to crop and comparatively infertile for two or three seasons.

That trenching answers well in some few instances I do not deny, but more often than not less risk and better results attend the practice of double digging or bastard trenching. This, the uninitiated ought to be informed, consists of manuring and digging the ground two spits or more deep without changing the position of the surface and subsoils. Not only is this the best method of increasing the depth and maybe the fertility of the newly-formed gardens, but it is also the most profitable treatment of any that have been in cultivation for a few or many years. In the former instance it is usually unwise to bring a particle of subsoil to the surface, as in all probability the lowest portion of the top spit has never previously been exposed, and to increase the bulk of this only increases the difficulties of the cultivator without improving the fertility of the garden. If it is unwise to bring to light poor, unworkable subsoil, it is still more so to bury the turf in the subsoil where it will be either out of reach of the roots of most vegetables, or else entice the roots of fruit trees to an injurious depth. Where it is a good practice to bring a little of the subsoil to the surface is in the case of surface soils being over-rich or little better than a mass of humus. Such are invariably unfavourable to the growth of good vegetables in abundance, and may be corrected by the judicious admixture of a portion of the subsoil with them. In some few gardens the subsoil is of such a nature as to prevent trenching in any form, and in this case the surface soil can be corrected and increased in depth by the liberal addition of various accumulations of soil and decayed refuse, and more especially by the best of the soil and turf wheeled out when the foundations of new houses or walls are dug. Some of the most productive of gardens in the country have been formed in this manner, and seeing that there is no bad subsoil that can be brought to the surface or for the roots to find their way into either, double digging or bastard trenching may be carried out as often as those in charge determine. Whether it pays or is necessary to be constantly double-digging or trenching ground is another matter, and I shall not attempt to discuss it beyond remarking that it may easily be over-done.

The mere act of breaking up the subsoil may to a certain extent improve the drainage of the garden, but that alone is not the only aim of the intelligent cultivator. In order to really improve or render it sufficiently fertile and congenial to deep running roots, various substances ought to be freely mixed with it. Without admitting that it is wise to encourage deep root action, we may yet safely say that it is hardly possible to err in making the subsoil more fit for the reception of any roots that find their way into it than it would otherwise be if untouched. Very few fibres are formed by the deep running roots, and if therefore the plants do not generally derive much assistance from them, there are times, notably, dry seasons, when, with the help of the deep roots, they are the better enabled to subsist. I attach the greatest importance to the treatment of the surface, or say to a depth of not less than 18 inches, and this includes bastard trenching wherever the nature of the subsoil will permit it. The present is a good time to double-dig any vacant ground, as if this is delayed much later there is not time for the ground to settle as much as desirable prior to cropping, nor is the fresh soil brought to the surface sufficiently pulverised. Commence by first marking out at one end a width of not less than 2 feet, digging out and wheeling back the top spit to the opposite end. If the ground has been previously trenched or the surface wants correcting, the shovellings or loose soil left after the spits have been taken out may also be added to the top spit. The next proceeding is to break up the bottom spit, and this is best done with a fork before the addition of manure or any other substances, as these should be mixed with, not buried under, the newly disturbed subsoil. If the latter is of a clayey or loamy nature it will be greatly improved by the admixture of sand, lime-rubbish, ashes, leaf-soil, garden refuse, and strawy manure. If either gravelly or of a calcareous nature, there is little or no need to add insoluble substances, but more solid manure, or other decaying matter, should be used, in every case as freely as possible—weeds and rubbish generally to be buried deeply. Warmth is more needed than manure by the heavy subsoils, and that is the reason for recommending the addition of anything that will keep it more porous. The bottom spit being finished, the top spit, from the next duly marked out width, with or without the shovelling, ought then to be roughly thrown on to it, and so on till the whole of the breadth or quarter is completed. If root crops only are to be taken from this newly-trenched ground, it is not advisable to mix any manure with it or bury it under the top spit, this causing the tap roots of Beet, Carrots, Parsnips, Salsafy and Scorzonera to fork badly, and also fosters a too rank top-growth of these and Potatoes, Onions and Turnips. Nor is it wise to heavily manure for Broccoli, Cauliflowers, Brussels Sprouts, Borecole, and Savoys, or these will grow much too coarse. For permanent crops, such as Strawberries, Asparagus, and Globe Artichokes, it is usually necessary to enrich the surface soil, and a deep, yet firm, root-run generally answers well for Peas and Beans.

W. Iggulden.

Will all varieties of Potatoes degenerate?—That American varieties of Potatoes, raised in a warmer climate than any part of the British Isles, will degenerate seems not only reasonable, but to be expected. At the same time the vitality can be not only maintained, but extended by planting early and then "greening" the future intended "sets" in the full sunshine, say spread out on a south border for a month or so. This is how Early Vermont, Early Rose, and Beauty of Hebron have been kept for so many years since their introduction. Looking back, say for a quarter of a century, and over a list of thirty varieties I was experimenting on at the Government Farming and Gardening Institute at Glasnevin then, there is not now a single late variety then in use grown now. The old Ashleaf Kidney, by no means easy to find, even for money, is the best illustration of a Potato that does not degenerate. Mr. Robert Cooke, Kiltnian Castle, who takes a great interest in farming and gardening matters, kindly brought me some time ago some specimens of old Ashleaf Kidneys grown continuously in his garden for the past forty years.—W. J. Murphy, *Clonmel.*

TALL *v.* DWARF PEAS.

I generally grow a good quantity of different sorts of both tall and dwarf Peas during the season, and when I come to compare notes I cannot find that I am a gainer by growing the tall kinds, by which I allude to such sorts as Telegraph, Emperor of the Marrows, British Queen, and others that grow over 5 feet high. Such sorts take up too much space, are more costly for sticks, and are liable to much injury from strong winds, and if they are more continuous in bearing and the flavour a degree or two in advance of that of the dwarf growers, which is not always the case, I hold that it is an advantage insufficient to give or secure them the preference over the dwarfs, unless they possessed the desirable quality of producing pods from the very bottom ; at present I know of none that will do that. If a sowing of tall Peas be made, the rows should not be less than 6 feet apart, so as to secure sufficient light and air, but no crop can be grown between them; whereas if dwarf sorts are sown and allowed the same distance, there is room between to grow a crop of some kind, or more rows of Peas can be sown at a less distance apart on the same space of ground, while the crop would be quite as abundant or even more so, and a succession of young and tender Peas quite as fully ensured as if tall sorts were grown and with much less risk of injury from winds. In this locality during the past season Peas of all kinds have exceeded their usual height, without a corresponding amount of produce; but the dwarf sorts, excepting Yorkshire Hero, which was grown on a soil too poor, have yielded much better in proportion to their height than the tall ones. Ne Plus Ultra, Champion of England, and the others above-named were so overgrown and injured by the winds, as to be rendered inferior and almost useless.

In my opinion there are too many varieties of Peas and a great sameness about most of them, especially the early kinds. The contending point in most catalogues is, which is the earliest? and each locality appears to possess "the earliest Pea in cultivation," but the point with me and doubtless many others is to secure a good and sure early sort, hardy, and that will carry a good crop; the earliness, without the other qualities, is of little value where many Peas are wanted. I generally rely upon Ringleader and William the First for my earliest outdoor crops, and have always found them satisfactory for cropping and flavour.

A soil moderately rich and open, deeply tilled and well pulverised, is a safe one for Peas, but for early sorts it is a mistake to sow the seed either deep or thickly; if too deep, the plants come up weakly and tender; if too thick, blanks in the rows occur through the seed rotting in the ground. Several sorts have not filled out their pods so well owing to so much damp, cold weather at flowering time. Among the best were Veitch's Perfection, Advancer, Dr. Maclean, and Hundredfold. G. F. Wilson grew very strong, but did not yield well, a dry season best suiting this Pea. My latest sowing was made in the latter half of June of Maclean's Best of All and Princess Royal. The last-named has proved an excellent late sort. My last dish will be gathered October 27. I send you some of them for your opinion as to quality thus late in the season.

T. R. F.

*** The pods referred to were of good size, the Peas being quite fresh and green and of good flavour. —Ed.

KITCHEN GARDEN NOTES.

Value of Garden Refuse.

A rubbish heap is, in the eyes of many owners of gardens, a necessary evil, being both unsightly and objectionable from a sanitary point of view. It is in the autumn when the accumulations are most conspicuous, and it is then when decaying matter becomes most offensive and, it may be, injurious to health. Advantage ought, therefore, to be taken of a dry time for the conversion of rubbish into a heap of valuable compost. As a rule, a great variety of substances are all thrown together, some being of a soluble or quickly decaying nature, while others of a more woody texture require to be reduced to ashes by fire before they are of any manurial value. The first proceeding ought to be the separation of the soluble from the insoluble rubbish, the former being thrown into a large square heap, as it is not yet fit to wheel on to the ground. To the heap of decaying rubbish, soil, and other accumulations, quicklime may well be added at the rate of one load to every five loads of refuse. This being thoroughly mixed with it causes a more rapid decomposition, and otherwise improves the manurial value of the heap. While this is being done, the other portion of rubbish ought to be charred or burnt. What is known as a "smother" should be formed, this being the least wasteful method of burning rubbish. First start a rather fierce fire with the aid of fagot or other rather substantial wood, this, before its energies are spent, being enclosed by the most combustible of the rubbish, the latter then being covered with a good thickness of the less easily burnt material. An opening ought to be left in the front facing the wind to ensure a good draught, and if rough turves can be had the heap may be well banked over with these. No opening whatever should be formed at the top or sides of the heap, the aim being to confine the fire and heat as much as possible, and whenever the fire breaks through at any spot this ought to be at once well closed with turves or the more solid portion of the rubbish heap. Large fires of this description—and they may be made of almost any size—ought to smoulder or burn very steadily for two or three weeks, or even longer, a mass of charred rubbish, soil, and ashes eventually resulting. Its value can hardly be over-estimated, and so well does this "burn-bake," as it is locally termed, suit the roots of Vines, Peaches, Nectarines, and various other fruit trees, that we not unfrequently store a heap of it in a dry place, especially for mixing with composts used when planting or potting any of these. It is also most valuable for stirring into the surface of ground being prepared for Onions, Carrots, and other root crops. A liberal dressing mixed with the top spit of heavy or stiff land keeps this from binding together badly, the effect being of a lasting character, too. If not wanted for any of the purposes named, the "burn-bake" ought to be mixed with the other heap of decaying refuse and lime, rendering this of still greater manurial value. We find a compost thus formed the very best form of manure for Potato ground. We have a large breadth that, unfortunately, cannot be profitably devoted to the cultivation of any other kind of vegetables, and this has received little else but the compost just described for a period of eight years. Yet this annually produces good average crops of Potatoes of the best possible quality. The heap is carted on to the ground as soon as this is well frozen over and duly spread and dug in.

The Manure Heap.

Garden ground being kept closely and heavily cropped requires liberal dressings of manure to keep it sufficiently fertile to maintain the great strain put upon it. In many instances either insufficient manure is used, or else the quality or value of the material used is not nearly so good as it appears to be. Too often what is little better than a heap of dry straw is all the manure available, and it not unfrequently happens old hotbed manure is the principal supply. Contrast this with the short and only partially decayed manure used by most market gardeners, and no surprise need be felt if the latter are able to point to surprising crops of vegetables. One load of short manure, such as both farmers and market gardeners are enabled to use, is of equal value to four or more loads of the strawy litter that finds its way to the majority of private gardens. That strawy manure freely dug into heavy land now is most beneficial I readily admit, but, as a rule, the bulk of the litter wheeled out of stables owned by the well-to-do classes ought either to be sent to a farmyard for a time or else be specially prepared prior to being dug into the ground. Horses and cattle soon convert straw only slightly stained into rich manure, which is both cool and lasting in character. If the fresh stable litter cannot be spread out in a farmyard for a few weeks, it ought not to be left in a dry, mouldy state for a long time, and at the end be no nearer decomposition than when first wheeled out of the stables. Instead of this it ought to be well shaken and thoroughly moistened with water, or, better still, liquid manure of some kind—nothing better than the drainings from a farmyard, or even a large manure heap. This will start the decomposition of the heap, but is only one step towards converting it into manure. Before the centre has become quite dry, owing to the great heat generated and consequent loss of moisture, the heap should be re-turned and again well moistened with liquid manure, and if somewhat solid rather than strawy manure best suits the ground, yet another turning and watering will be needed. In all cases it is advisable to form rather solid heaps, this ensuring slower fermentation and the preservation of a greater proportion of ammonia. When the manure is obtained from a farmyard, and is therefore very moist and more rich in fertilising matter, much of this will be wasted unless good care is taken of it. If left in heaps, much as it is carted or wheeled out of the yards, heavy rains soon carry away the more soluble portions, and this ought to be prevented as much as possible. The best method of preserving the drainings, and at the same time materially increasing the bulk of manure, is to form a good foundation with any kind of loamy soil, say to a depth of not less than 18 inches. On this the manure should be spread and built into a square heap, being well shaken out and separated at the time. The more solid the heap the less waste will there be; in fact a solid heap of farmyard manure will be found as rich and serviceable at the end of two years as it was in the spring following its formation. At least such was my experience when fortunately able to secure an extra heavy supply of good farmyard manure. In this instance the bulk of the manure was wheeled into a heap, this effectually pressing it down. In addition to a foundation of soil, more of the latter should be spread over the top of a heap of fermenting manure, this absorbing much of the ammonia that would otherwise be lost, and in time becoming part of the heap of valuable manure. When manure is wheeled or carted on to ground much in advance of the digging or ploughing, it ought to be disposed in good sized heaps and moulded over, or much of the manurial properties may soon be dissipated. On no account should either slaked or fresh lime be mixed with solid manure, as this would have the effect of causing rapid decomposition and the consequent loss of various valuable constituents.

A Valuable Manure.

Where night-soil is taken good care of, it is found the most powerful fertiliser that can be applied to various crops. A certain amount of trouble must be expended upon its preparation, but it pays for it. What is wanted is a large heap of either quite fresh-powdered charcoal, finely burnt clay, fine coal-ashes, charred peat, or "burn-bake" before it has been moistened in any way. This should be freely mixed with the fresh night-soil, and stored in an open shed where it will be well exposed to the elements—rain excepted. One or two turnings ought to be given, the manure not being fit for use until it is thoroughly pulverised. It may be said to be an almost perfect manure, and if applied as a top-dressing to either indoor or outdoor crops, has a most stimulating effect upon them. It is quite inoffensive, as the preparation described has a sure deodorising effect without dissipating the ammonia, which would be wasted if lime instead of either of the substances recommended were mixed with the night-soil. Fowls' and pigeons' manure ought also to be utilised, for these are again powerful fertilisers; they may be mixed with ashes or charred refuse or soil of some kind, and after being pulverised, as advised in the case of night-soil, be also similarly applied. W. I. M.

MUSHROOMS IN THE OPEN AIR.

While very many persons who are interested in gardening are well aware that large numbers of Mushrooms are grown in houses constructed for the purpose, cellars, and other suitable places, how few comparatively appear to realise the fact that great numbers are grown in the open air, and that, too, through the autumn, winter, and early spring. In some parts of West Middlesex those passing the market gardens can see under the trees long ridges, 3 feet or so in height, covered with straw, and sometimes with garden mats, and yet are unaware that these are Mushroom beds. But they are, and from them many hundreds of punnets are cut and sent to market, thus yielding a supply of produce at a season of the year when there is little fit to send to market.

The growers of Mushrooms in this way begin to make up the beds early in August, and from these, if the weather is favourable, a crop can be gathered at Michaelmas. Manure is requisite to make up the beds, and what is brought from London in the market carts answers well for the purpose. The long straw is shaken out and put aside for covering the beds after they have been soiled and spawned; the short manure, which is well turned over, goes to make up the foundation of the beds and supply the heat which causes the Mushrooms to grow. The manure being ready, it is piled up in a broad ridge, and when a heat of something like 80° is reached the spawn is put in. A cake of spawn is usually broken into four or six pieces and inserted in the manure, and then a covering of 2 inches of soil is laid over the bed and patted down firmly. I asked one grower of Mushrooms, who has a good black loam in his garden, what he generally selected to cover his beds with, and he said he always used one half of the top spit and a half of the second spit, of course well mixed together. The covering should not be too stiff, or there may be danger of the Mushrooms being unable to get through it; then a covering of the long manure to the depth of 6 inches or 8 inches is laid over, and if the weather is rough and windy or severe frost threatens, mats are placed over the bed and carefully fastened down. The beds are usually 60 yards to 70 yards in length where there is sufficient space, but they are also made much shorter in smaller gardens. One grower that I am acquainted with always makes up his beds under trees, such as tall standard Apples and Pears, because, as he states, he gets better Mushrooms under the trees than in the open. Probably the shelter afforded by the trees assists to bring about this result. A bitter east wind and sharp frost will operate prejudicially against a crop. They appear to paralyse the operation of the spawn just as it is briskly running, and the embryo Mushrooms are destroyed. The making up of beds is finished by Christmas. The process of gathering goes on until June or such time as it ceases to pay to gather them.

It should be added that the long manure employed for covering is carefully dried before it is used for the purpose, and the usual plan is to pile it up in large heaps until required for use. The manure from the spent beds is found very useful for garden crops, and when thoroughly decomposed and fairly dry, it is very useful indeed for mixing with potting soil. R. D.

Name wanted.—Will you be kind enough to name the worm (or whatever it is) for me through The Garden? It was found while trenching ground that has been occupied by fruit trees.—T. Newbould.

*** In reply to the above, the worm you sent is one of the nematoid worms, belonging to the genus Mermis. They are parasitic until full grown in the bodies of insects, and when mature they escape into

the damp earth. They are perfectly harmless creatures, except to insects. It is wonderful how comparatively small insects will contain such large worms. —G. S. S.

MARKET GARDEN NOTES.

THE severe frosts of the first few nights in October made a regular clearance of all tender vegetables, and runner Beans and Vegetable Marrows that were in full bearing came to an abrupt termination, so that there has been plenty of work of late clearing the land and getting other crops put in. Happily, the weather has been remarkably fine, and the land is now clearer of weeds than it has been all the summer. The most pressing work at present is the taking up and storing root crops for winter use.

POTATOES of the main crop kinds are being got up and put into clamps, but the results are very various. On dry soils good crops of sound tubers have been produced, while on heavy, wet soils the crops have been badly diseased and the tubers much eaten by slugs; but in this locality varieties that mature early are most largely grown, and, as a rule, these turned out well, so that the Potato crop is quite up to the average.

CABBAGES for early spring crops have been put out in enormous quantities, the early planted ones having already made considerable progress, and as long as mild weather prevails planting will go on, for this crop never seems over-done in the early months of the year. The weather being dry the work of hoeing and getting the earliest crops cleaned before the winter comes on has made good progress.

WINTER ONIONS are looking well, and the late fine weather has greatly facilitated the work of cleaning, for no crop that is grown suffers more from becoming over-run with weeds; in fact, if Onions are not kept clean early in the season it is well-nigh impossible to do it in the spring without uprooting a large portion of the crop.

BROCCOLI for spring use is making luxuriant growth, and as the leaves nearly cover the ground, not much more cleaning will be necessary. There are, however, very large breadths of late kinds that were put out after Potatoes that are only just beginning to spread out their leaves. These were mostly put out as very large plants, for market growers generally have a crop waiting to go on the land as soon as it is cleared. With these large plants, a good soaking of sewage or farmyard liquid is applied when the planting is done, thus giving them a good start.

CAULIFLOWER AUTUMN GIANT is the chief vegetable now being sent to market, and the clearance of Beans and Marrows made a decided advance in the value of this. Plants grown in the open fields on firm land, with plenty of space between them, are producing very large heads. The length of time during which this variety may be had by means of successional crops is not the least of its many good points.

ASPARAGUS BEDS are now being dressed for the winter, the tops being first cut off and any weeds removed, then a good covering of manure is put on and left rough until spring.

TOMATOES that have done but little in the way of ripening out of doors, even on south walls, this year had to be cleared off to escape the frost, but by hanging them up in warm glass houses they have ripened much more rapidly than they otherwise would. This has been a very discouraging year for growers of this crop, but prices have been pretty good, and market growers are not deterred by one failure from trying again.

GATHERING AND STORING APPLES has lately been one of the most important operations in the fruit department, but the crops are, as a rule, very light. On young trees, however, the fruit has reached a good size, such kinds as Warner's King being exceptionally fine, and growers are beginning to grow more of these fine sorts, as they always sell well. We have fortunately been free from heavy gales of wind, that in some seasons do great damage.

PEARS are plentiful, but the quality is more variable than that of Apples, for while some sorts have swelled out clear and fine, others are cracked, small, and worthless. I may mention Jargonelle as one of the failures amongst the early kinds, and Easter Beurré and Glou Morceau amongst the late ones. Some kinds have done well, particularly Pitmaston Duchess, which with us on pyramid and bush trees is quite equal to ordinary wall fruits, and certainly is far better flavoured. The same may be said of Marie Louise, Beurré Bosc, and Beurré Diel, which when well grown on open trees are sweet and juicy; while from walls the same kinds are frequently wanting in sweetness.

DAMSONS have been fine and moderately plentiful. The Farleigh Prolific is the sort now mostly grown.

PLANTING of fruit trees as a market crop is receiving more attention than it has done for years, and dwarf trees planted at moderate distances apart, so that they may be kept pruned and cultivated like garden trees, are likely to supersede our old and neglected orchard trees, that have long been the only source of our fruit supply. J. G.

Gosport.

GARDEN FLORA.

PLATE 673.

HARDY AZALEAS.*

ALTHOUGH from a botanical point of view there is really no distinct line between Azalea and Rhododendron, and the two genera are merged into one by nearly all botanists, for horticultural purposes it may be convenient to treat Azalea as a separate genus. Loudon united it with Rhododendron upwards of forty years ago, and all writers of any weight have followed in his footsteps. Still, as the plants treated in this article—or, at any rate, most of them—are, almost without exception, mentioned in catalogues and spoken of by gardeners as Azaleas, it has been thought preferable to keep up the older names.

Formerly the characters relied upon to separate Azalea from Rhododendron were the deciduous leaves of the former, the number of stamens (five to eight), and there never being more than five cells to the seed vessel.

Rhododendron was credited with having persistent leathery leaves, a less deeply divided five to ten-lobed corolla, and ten or more stamens. The discovery and introduction of a number of species from Japan, China, India, and Borneo, &c., quite destroyed the old lines of demarcation between the two genera, for the number of stamens in some of the so-called Azaleas is often ten, and in several the leaves are evergreen.

No attempt is made to include here any of the so-called Indian Azaleas, the fact of these succeeding in the open air in some parts of the south-west of England and the Channel Islands not being ground enough to class them in a list of hardy shrubs.

Most of the beautiful garden plants so deservedly popular under the name of Ghent Azaleas are hybrid productions derived from A. calendulacea, A. nudiflora, A. viscosa, and A. pontica. Of late, however, A. sinensis (better known as A. mollis) and the Western American A. occidentalis have been used for crossing purposes, and from the latter a beautiful race of late-flowering forms has sprung. Both double and single varieties, ranging from white through every shade of yellow, orange, and red to crimson, with many uncommon intermediate tints, are to be seen in many gardens, and the beautiful colours assumed by the decaying leaves in autumn are striking and effective enough to make them worth growing even apart from the flowers. All the hardy Azaleas thrive best in peat and like a moist situation, but it is astonishing how well they will do without peat provided they have an abundance of leaf-mould and are well supplied with water during the summer months. They are readily raised from seeds, but if it is desired to increase any particular sort, recourse should be had to layering, except in the case of isolated plants far from other kinds or of those which flower before the others open and so cannot get cross-fertilised.

A. ARBORESCENS.—This is a native of the Alleghany Mountains, from Pennsylvania to North Carolina. Its leaves are margined with short hairs, are slightly leathery when mature, bright green and shining above and glaucescent beneath. The corolla is fully 2 inches long, white or tinged with rose, and the long red stamens and style add to the beauty of the plant and give it a character quite its own. Pursh, who was familiar with the species in its native habitats, writes in 1814, "It rises from 10 feet to 15 feet high, and forms, with its elegant foliage and large, abundant, rose-coloured flowers, the finest ornamental shrub I know. The flowers are not so pubescent as those of the other species. The scales of the flower-buds are large, yellowish brown, and surrounded with a fringed white border." It was introduced in 1818, but was probably lost to cultivation soon afterwards and not re-introduced until a few years ago. The leaves in dying exhale an odour similar to that of the Sweet Vernal Grass (Anthoxanthum odoratum); they are well developed before the flowers appear in June.

A. CALENDULACEA.—In this the corolla varies in a wild state from orange-yellow to flame-red, and the generally hairy glandular tube is shorter than the lobes of the broad limb. The flowers, which are not fragrant, appear before or with the leaves in May. It is a native of woods in the mountains of Pennsylvania, Virginia, Kentucky, &c., and varies in height from 3 feet to 10 feet.

A. DILATATA.—A Japanese species which I am not certain is in cultivation. It has long-stalked purple flowers about 2 inches long, but except in having larger blossoms, and the stamens being always five in number, it hardly differs from A. rhombica.

A. LINEARIFOLIA.—In all probability this is not so hardy as the other species here mentioned, but it has stood for several years without protection in the open air at Kew. It was introduced from Japan by Standish, and first flowered in his nursery in 1869. It is a small shrub, with slender branches beset with rigid, red-brown spreading hairs; the long, narrow leaves, with wavy ciliated margins, are crowded at the ends of the twigs. The flowers are produced in clusters at the tips of the branches, and have five narrow, recurved, red-purple petals.

A. NUDIFLORA.—This is the purple Azalea, or Pinxter Flower of the United States, where it occurs in swamps from Massachusetts and New York to Illinois and southward. Like A. calendulacea, this produces its flowers in April or May, either before or at the same time as the leaves. In a wild state the more or less fragrant flowers vary from flesh colour to pink and purple. The branchlets are rather hairy; the leaves are obovate or oblong, and downy underneath. Of this species there are numberless varieties and hybrids, no fewer than forty-three being enumerated in Loddiges' catalogue in 1836. According to Loudon, this was introduced in 1734, but Catesby tells us, in 1732, that the species had blossomed for some years in Mr. Collinson's garden at Peckham.

A. OCCIDENTALIS.—A comparatively recent introduction to British gardens and one of the most valuable, as the flowers are produced when the bright green glossy leaves are well developed, and after the various forms of A. nudiflora and A. calendulacea are quite past. No doubt by-and-by a much greater range of colour-variation will be obtained by gardeners. At present the colours are mainly, as represented in the coloured plate, white, with a pale yellow or orange band on the upper lobe, or white with a rosy tinge. The species is a

* Drawn for THE GARDEN by H. G. Moon, in Mr. Waterer's nursery at Knap Hill, June 3, 1888. Lithographed and printed by Guillaume Severeyns.



A NEW RACE OF HARDY AZALEAS. (A. OCCIDENTALIS. VARS.)

native of the western foot-hills of the Sierra Nevada throughout the length of California, and in the coast ranges along streams. The fragrance is sweet, but slightly unpleasant to most people.

A. PONTICA.—An immense number of varieties and hybrids have been raised from this species both in British and Continental gardens. The typical plant has fragrant flowers of a fine bright yellow colour. It attains a height of 6 feet or more, and blossoms in May and June. A native of the Levant, the Caucasus, shores of the Black Sea, &c. A full account of this species is given in Tournefort's quaintly written and most interesting "Voyage into the Levant," wherein the author has largely quoted from ancient writers and others respecting the poisoning by honey of Xenophon's soldiers at Trebizond. Some have given out the source of this honey to be the Oleander, others the Rhododendron ponticum and Azalea pontica. Mr. Ross, of Castagnola, a well-known horticulturist, in reply to queries on the subject some years ago in the columns of a contemporary, wrote as follows: "Having resided at Trebizond . . . . I can say that the chief undergrowth and copse of that part of the southern shore of the Euxine, or Black Sea, consists now of Rhododendron ponticum and Azalea pontica; whereas no Oleander grows on any part of that coast. The Rhododendron has little or no scent, whereas the Azalea has a very powerful and sweet odour. The flowers precede the leaves, and in spring whole hillsides present sheets of golden yellow, and the country is perfumed for miles around. The opinion of the natives is that the poisonous honey called in Turkish *delli bal*, or mad honey, is derived from these highly scented flowers of the Azalea. The honey has a very peculiar, and to most people disagreeable, taste in its crude state, and when eaten produces vertigo, sickness, purging, and great prostration; after many hours the effects pass off, and the sufferers gradually recover. The honey, nevertheless, is much used in cookery, confectionery, and for preserving fruits, being much cheaper than sugar; but previous to use it is cooked on the fire, and the heat volatilises the poisonous principle, when it can be eaten in safety. Whether the Rhododendron is also poisonous I do not know; many think it is, and such was evidently the opinion of Xenophon."

A. RHOMBICA.—All the near allies of this very distinct-looking plant are Chinese or Japanese; it has bright, rose-coloured bell-shaped flowers, with a very short tube, 1½ inches to 2 inches across, generally produced in pairs at the tips of the branches. The dull green, hairy, rhombic leaves are in whorls of three, and of the ten stamens the five upper are much the shortest. In autumn the decaying leaves turn a bronzy-purple colour. This is one of the earliest to flower, and the spring frosts frequently destroy or disfigure the blossoms. A native of the mountainous woods of Niphon. The only good figure is in the *Botanical Magazine*, plate 6972.

A. SINENSIS.—This was introduced to England in 1824, and again by Fortune in 1845; it is a native of alpine shrublands in Japan, but is largely cultivated both in that country and in China. The flowers vary much in colour; they range in a wild state from a dull, almost greenish yellow to orange-yellow or bright orange-red, but a large series of different tints have been produced in nurseries by crossing. Loddiges was the first to publish a description and figure (*Botanical Cabinet*, t. 885). Upwards of forty years afterwards Regel gave a figure in his "Gartenflora," under the name of A. mollis, and subsequently the late Dr. Asa Gray described it under the name of A. japonica. A good coloured plate under the name of A. mollis was given in THE GARDEN for June 12, 1886.

A. SQUAMATA.—Perhaps this species may have disappeared from cultivation; if so, now attention is called to its merits, the plant may soon again be seen in English gardens. It is a native of Hong Kong, and was sent to the Horticultural Society by Fortune. A good figure appeared in the *Botanical Register*, vol. xxxiii., t. 3. The flowers, produced before the leaves, are a clear rose colour, distinctly spotted with crimson, and are guarded at the base by a large sheath of bright brown scales, whence the specific name. When young the leaves are like those of A. indica, and have nothing distinctive in their shape or surface, but at maturity they are oval, sharp at each end, perfectly hairless, and as even on the surface as those of Rhododendron punctatum. It is on record that A. squamata withstood without injury a temperature of 11°. A. Weyrichi is a near ally of A. squamata, but differs in its thicker branches, larger leaves and longer tube.

A. VASEYI.—A recently-discovered United States species, introduced for the first time to British gardens last year. It is a shrub from 8 feet to 15 feet high, with glabrous branches, leaves 3 inches to 6 inches long, a roseate corolla glabrous both inside and outside, the upper lobes spotted towards the base inside, the stamens five to seven in number. "This is a most interesting species," says Dr. Asa Gray, "as adding to our flora a representative of that group of East Asiatic species, of the true Azalea sub-genus, with campanulate corollas. It contributes another to the now very numerous cases of remarkable relationship between the Chino-Japanese and the Alleghanian floras." As a decorative plant it is very valuable, and its pink or purple flowers, which are like the blossoms of some Rhododendrons, are very fine.

A. VISCOSA (the Clammy Azalea, or white Swamp Honeysuckle) is a shrub from 4 ft. to 10 ft. high, with clammy, fragrant flowers, white or tinged with rose colour in a wild state. It is a native of swamps in Maine and Kentucky, mostly near the coast. Innumerable varieties of this have originated under cultivation, no less than 107 being given in Loddiges' catalogue for 1836. Several wild forms have at various times received specific names; of these glauca has paler leaves, generally white, glaucous beneath; nitida is a dwarf variety, with oblanceolate leaves, green on both surfaces; hispida and scabra do not require detailed description.

In addition to the species above mentioned, there are several Japanese ones discovered and described by the Russian botanist and traveller, Maximowicz. These have not yet found their way to British gardens, and so are omitted from the foregoing list. Perhaps we should have been justified in including the beautiful little A. amœna, and also A. obtusa (the latter being well figured by Lindley in the *Botanical Register* for 1846). Although they are hardy in some places in the south of England, neither, however, is satisfactory as an outdoor shrub in the neighbourhood of London, except under altogether exceptional circumstances, the flowers being killed by late frosts. N.

FRUIT GARDEN.

THE PINE-APPLE.

THE culture of Pine-apples has lately gone much out of fashion, but they are yet grown in many gardens in country places, and even now, notwithstanding the large importations of foreign fruit, good English Pine-apples are as much valued as ever they were. In the palmy days of the Royal Botanic Society's exhibitions, what magnificent displays of fruit there used to be, headed by the kingly Pine-apple! Queens, Smooth-leaved Cayennes, Montserrats, Jamaicas, and the gigantic Providence used to be represented in the various classes when Mr. Marnock had the ordering of affairs. The first prize won by me was a silver-gilt medal for a Smooth-leaved Cayenne Pine-apple at one of those exhibitions. I won prizes for these fruits afterwards, but this early medal has always been the most prized. We grew Pine-apples for nearly twenty years and have but recently discontinued their culture. We made a point of getting the plants to produce ripe fruit within twelve months from the time of putting in the suckers, but very much depended upon the size of the suckers when they were removed from the parent plants. If they were allowed to remain until they were nearly as large as the plants from which they were taken, it would be strange if they did not produce fruits perfectly ripened within twelve months. Many good Pine growers keep up a night temperature of 70° and a proportionately high, moist atmosphere by day, but I do not believe the best results follow this treatment. The plants grow freely enough, but produce long, slender leaves, the fruit is not so large, and produces large crowns out of proportion to the size of the fruit. To grow Pines well three houses or divisions are required. One for plants that have reached the fruiting stage, the other for those that have attained the mid-season of their growth, and the third a smaller one for suckers. Of course, a few Pines may be obtained by cultivating the plants in any house having a temperature of 55° in winter and 60° to 65° in summer. During the past season I saw in a garden in the midlands some excellent Pines approaching the ripening stage, and they were growing on plants in an ordinary stove, amongst a general collection of Ferns, foliage and flowering plants. When I was a successful exhibitor, we grew our fruiting Pines in a house that just contained three dozen plants, and out of that we generally cut a dozen fruits, more or less, during the winter months, the varieties being Smooth-leaved Cayenne, Black Jamaica, and a few of Charlotte Rothschild. This last-named variety occupied too much space in our small house, but I have obtained from it splendid large fruits—one of them weighed 8¾ lbs.; the Smooth-leaved Cayennes would average about 6 lbs., while the Jamaicas were from 4 lbs. to 5 lbs.

Some plants will miss producing their fruit, especially in winter, and when this happens, the best way to do with them is to cut the plants over close to the surface of the ground and pot them at once very firmly in 9-inch pots. There are always plenty of roots pushing out at that part of the stem of the plants, and when they are plunged in a gentle bottom-heat the pots soon become filled with roots, and in a little time the signs of fruit will show in the centre. Pine suckers ought not to be potted in very large sized pots. The large suckers in 7-inch and 8-inch pots and the smaller ones in 6-inch pots, a very important detail in their culture being that no water should be given to them until a week or ten days after potting. They ought, of course, to be plunged in a brisk bottom-heat. This is the first stage in their growth, and although the Pine is an easily grown plant and does not suffer much from a changeable atmosphere or temperature, yet a steady uniform temperature in the growing season of 65° is best, with sufficient ventilation to keep the plants of a sturdy habit of growth. When these suckers have well filled their pots with roots, they may at once be repotted into their fruiting pots. The small-growing varieties, such as Queens and Black Jamaica, should be planted in 11-inch pots and the larger growing varieties in 13-inch. It is undesirable that the compost should be very rich. The staple material is good turfy loam, cut from three to six months, and the turves should be torn up by hand. Add to it a fifth part of decayed stable manure, some half-inch bones and broken charcoal. Before repotting the plants see that they are moderately moist at the roots, and also that the potting material is of a medium state of moisture. Ram the potting soil in firmly with a wooden rammer, plunge the pots in a brisk bottom-heat—100° will not hurt the plants—when newly potted. Do not give any water for at least ten days after potting

them. I prefer to renew the beds with fresh tan at this time, but this addition raises the temperature very rapidly indeed, from 80° to 120° in three days. That last point is too high, and may do mischief if the pots are plunged firmly in the material up to the rims. When a tan bed has been renewed, it is a wise precaution to plunge the pots to half their depth only, and when the first high temperature has subsided fill up to the rims of the pots with fresh material. The old-fashioned plan of trusting to fermenting material, such as decaying leaves and tan, entirely to maintain the bottom-heat is not so good as using hot-water pipes as an adjunct to it. For instance, a chamber intended to grow Pines, or in fact any hothouse plants requiring bottom-heat, should be 2 feet 6 inches deep, and if this chamber is 7 feet or 8 feet wide, two 3-inch pipes would be required to heat the plunging material; tan is the best. The pipes may be covered over with old iron grating or brick-bats. About 1 foot 9 inches will be a sufficient depth of plunging material. The plants must be steadily grown on to their full fruiting size, sufficient space being allowed them in order that they may develop into sturdy specimens. Large, handsome, well-developed fruits can only be obtained from plants well grown from beginning to end. By the time these have reached the fruiting stage those in the fruit house will have ripened their fruits, and the old plants may be destroyed when enough suckers have been secured to continue the succession. Some plants will throw up as many as half-a-dozen suckers, but they are not required, and should be removed from the plants in an early stage of their development, leaving at the most two to grow to their full extent. Well-developed suckers will sometimes overtop the parent plant before the fruit ripens. Winter is the resting period for Pine plants, and at that time they should not be excited by too much heat nor much moisture in the atmosphere, and for three months no water at the roots. I can well remember having a signal failure through having to winter fruiting Pines in a house, the minimum temperature of which could not be maintained much above 45° in winter. It sometimes fell below this, and although they were as handsome, well-grown plants as could be seen, when they were started about the end of January few large fruits were obtained, and amongst them numbers of monstrosities, imperfect pips, large crowns, &c. I have no doubt but that the fruit was injured in its incipient stage, although out of sight in the centre of the plants.

Another matter deserving more than passing attention is watering these, and, in fact, all such plants plunged in bottom-heat. In the matter of Pines, manure water made very weak may be used as soon as it is perceived that the fruit is showing deep down in the centre. This may be continued at every alternate watering until the fruit swells up for ripening, when it must be discontinued. Once a week may be often enough to apply water to the plants. The pots absorb a great deal of moisture from the plunging material; and as regards manure water, if this is applied after the fruit has nearly grown to its full size it will probably be discoloured at the core, may be quite black, in fact, showing that the source of decay originated in the roots, and was transmitted by them through the stem of the fruit. It may be as well to add that the usual period for the production of fruits from the time of putting in the suckers is, Queens, eighteen months; Smooth-leaved Cayenne and Charlotte Rothschild two years. At the leading exhibitions Pines are still recognised as the highest type of exotic fruits, being usually placed first on the list of fruits, followed by Grapes, Peaches, Nectarines, &c. During the last twenty years, at least, I have been an attentive observer of fruit exhibitions, and the judging of Pines and Grapes in particular. As a rule, judges prefer good Queens to any other variety, and probably they are right; but I have some notes of my own experience in exhibiting which go to prove that this liking for a particular variety of fruits may be carried too far. I exhibited on one occasion a really good Smooth-leaved Cayenne in an open class, but was beat by another exhibitor who showed a Queen not half its weight in much the same condition. I ventured to express surprise at the verdict to one of the judges, and was informed that Queens were always preferred. Some time after, at another metropolitan exhibition, I saw a Providence of an ordinary type, weighing between 8 lbs. and 9 lbs., placed before a Queen of nearly 6 lbs., better in form than the other and well ripened. As an old Pine grower, I hold that a Queen of 6 lbs. would easily beat a Providence weighing 9 lbs. if they were equal as regards ripeness and in other respects.

Judges at the leading exhibitions are usually practical men, who know the relative value of the subjects they are judging; but a great deal depends upon the individual tastes of the judges how the prizes will be awarded. There is not, as there ought to be, any code of rules upon which judges and exhibitors alike could depend. In the matter of Pine judging, some allowance would have to be made as to the time of the year that the exhibition was held. In summer I would place a Queen of 6 lbs. before a Smooth-leaved Cayenne of 8 lbs. or a Providence of 10 lbs. Charlotte Rothschild I consider an excellent variety, but it would be as easy to grow that variety up to 8 lbs. or 9 lbs. as it would be to grow a Queen up to 6 lbs. Of course, a good deal would depend upon the condition of the fruit as to its state of ripeness. Sometimes it is under, and anon over-ripe, perhaps with decay spots here and there not discernible at first sight, but easily noticed after close inspection. Queens are not so good in quality during winter; they are dry and lack flavour, when the Black Jamaica and Smooth-leaved Cayenne would be juicy and rich.

J. Douglas.

Well-flavoured Russian Apples.—Those who have formed their estimates of the dessert quality of Russian Apples upon their knowledge of Astrachan, Oldenburg and Alexander ought to be told that their judgment is no fairer than it would be to judge American Apples by the Ben Davis, the Mann, the Willow Twig, or a large list of inferior sorts that are yet largely grown. I do not hesitate to say that, among the 300 or more Russian varieties of Apples in America, there are fully as many kinds which possess fine dessert quality as can be selected from a miscellaneous list of the same number of American sorts. Already many have had the opportunity to realise this in Russian Apples of the Yellow Transparent class. But a large number of the later Russian, like St. Peter, Golden White, Autumn Streaked, Heidorn and Popaff, are still finer in quality, and the same may be said of the winter sorts, like Longfield, Borsdorf, Bogdanoff, and others. They are also handsome Apples, and the trees are healthy and productive. So far, however, very late keepers are scarce among them.—T. H. Hoskins.

Madresfield Court Grape.—It is some years since I abandoned the idea of attributing the cracking of this high-class Grape to superabundance of moisture at the roots or in the structure where the Vine grows. For three seasons past I have had scarcely a split berry, the colour and flavour being very perfect, and fruit grown along with Hamburghs and Muscat Hamburghs, which ripened about the end of June, is still (October 22) in good condition, and with proper attention in the Grape room is likely to keep for some time to come. While the Muscat Hamburghs were becoming somewhat limp in appearance, the Madresfield Court remained plump and juicy. I have tried several plans to prevent cracking, but all to no end. During the past season, with the roots unavoidably in a low position, which is often under water from an adjacent rivulet, and absence of sunshine, the fruit is of the most satisfactory description.—M. Temple, *Stirlingshire.*

NATIONAL APPLE AND PEAR CONFERENCE.

The following is a list of the Apples and Pears to which certificates of merit were awarded at the conference at Chiswick, Oct. 16 to 20, 1888:—

Apples.

Adams' Pearmain
Alexander
Alfriston
Alma Pippin
Annie Elizabeth
Baumann's Red Reinette
Beauty of Kent
Bismarck
Blenheim Pippin
Bramley's Seedling
Cellini
Cockle Pippin
Court Pendu Plat
Cox's Orange Pippin
Cox's Pomona
Domino
Duchess of Oldenburg
Ecklinville Seedling
Egremont Russet
Fearn's Pippin
Frogmore Prolific
Gascoigne's Seedling
Gascoigne's Scarlet
Golden Noble
Golden Spire
Gospatric
Gravenstein
Grenadier
Herefordshire Beaufin
Hormead's Pearmain
Kerry Pippin
King Harry
King of Tompkins County
King of the Pippins
Lady Henniker
Lady Sudeley
Landsberger Reinette
Lane's Prince Albert
Loddington House
Lord Derby
Lord Grosvenor
Lord Suffield
Mabbott's Pearmain
Mannington Pearmain
Melon Apple
Mère de Ménage
Mother
Mrs. Barron
New Hawthornden
New Northern Greening
Niton House
Northern Dumpling
Northern Greening (improved)
Okera
Peasgood's Nonsuch
Potts' Seedling
Reinette du Canada
Ribston Pippin
Rosemary Russet
Scarlet Nonpareil
Scarlet Pearmain
Schoolmaster
Seaton House
Small's Admirable
Stirling Castle
Stone's
Striped Beaufin
The Queen
The Sandringham
Tibbett's Incomparable
Tibbett's Pearmain
Tower of Glamis
Tyler's Kernel
Warner's King
Wellington
Winter Hawthornden
Worcester Pearmain
Yellow Ingestrie

Pears.

Autumn Bergamot
Baronne de Mello
Bergamotte Esperen
Beurré d'Amanlis
d'Anjou
d'Aremberg
Bachelier
Baltet Père
Bosc
Clairgeau
Diel
Hardy
Rance
Sterckmans
Superfin
Catillac
Clapp's Favourite
Comte de Lamy
Conseiller de la Cour
Doyenné d'Alençon
Boussoch
du Comice
Durondeau
Dr. Jules Guyot
Duchesse d'Angoulême
Easter Beurré
Emile d'Heyst
Fondante d'Automne
Gansel's Bergamot
General Todtleben
Glou Morceau
Gratioli of Jersey
Grosse Calebasse
Hessle
Josephine de Malines
King Edward
Knight's Monarch
Louise Bonne of Jersey
Mme. Thérèse
Marie Benoist
Louise
Louise d'Uccle
Nouvelle Fulvie
Passe Colmar
Pitmaston Duchess
President d'Osmondville
Seckle
Souvenir du Congrès
Thompson's
Triomphe de Vienne
Uvedale's St. Germain
Van Mons Léon Leclerc
Verulam
Vineuse
Williams' Bon Chrétien
Winter Nelis

Eating fruits for health.—For many reasons fruit should be regarded as both wholesome and curative. Its influence upon the human system has not

been sufficiently pointed out, and this is a fault, for we can with the aid of fruits alone alleviate the ills to which our wretched body is subject. It is a fact discovered by science that persons of robust constitution, who eat good fruits in moderation, live to a very advanced age. Yet, for all that, one should just know how to eat them. Avoid swallowing the skins of Pears, Peaches, and Apples, the stones of Cherries and Apricots, likewise the seeds of Oranges and Lemons. These insoluble substances lie heavy upon the stomach, and sometimes cause very serious trouble in the intestines. Reject the skin of the Grape as well as that of the Orange; by itself the fleshy part of any fruit, when mature, is very nourishing; but take it as a sort of substantial dish, and not as dessert. Plums, Cherries and Grapes are not so easily digested as Peaches, which contain a larger proportion of soluble elements; also, one can recommend the latter for weak stomachs. With your fruit eat some dry bread, because it has the effect of cleansing the tongue and enables you the better to taste the flavour of the fruit itself.

PEAR TREES ON LOW WALLS.

THERE are few, if any, more unsatisfactory systems of growing Pear trees than training them horizontally on low walls. Pear trees very rarely bear good crops except it be on walls with a south aspect. In this position they are more satisfactory, but even then they do not pay for the space occupied. I have found from experience and observation that when Pear trees have to be trained on walls 6 feet or less in height that they should be allowed to extend above the wall and allowed to form spurs, and gradually increase in height every year up to 18 inches or 2 feet. It is necessary to have the growth and spurs rather thick above the wall, that they may protect each other. The shoots at first should not be left more than 6 inches long, reducing the length in subsequent years to 3 inches or 4 inches. By pruning on these lines a regular thicket of spurs will be formed, gradually extending back over the width of the wall. I have just come from a farmhouse garden, in which four large Pear trees are allowed to grow in this way, and as I have observed these trees for several years, I have had the opportunity of seeing how productive they have been. It was more by accident than design that the growth was allowed to remain above the wall, but the owner finding that he got more and finer fruits from the branches above the wall than from those trained to it, he encouraged the top growth to form spurs by judicious late summer pruning, with the result that the fruit from above the wall is of more value than that from the lower branches. I have not seen crops anywhere equal to them on trained trees; one tree in particular of Louise Bonne of Jersey and another of Williams' Bon Chrétien have produced grand crops, although the aspect of the wall is west, and the growth above it exposed to the cold east wind over a wide stretch of unprotected country. This case is the more interesting because the owner told me that he never had a satisfactory crop from these trees until the growth was allowed to extend.

In the case of the trees in question the two topmost branches are as large again in circumference as the lower ones. I think, therefore, that we do not want any better evidence that the horizontal system of training is not suitable for walls of the height of those I have mentioned, and I think those who have them already furnished with trees that are not productive may learn a useful lesson. No matter in what way the trees are trained, if they have not borne good and regular crops the growth should be allowed to extend above the wall, and I feel sure better results will be obtained, as the additional growth will create a better balance between the roots and branches. To a certain extent it will get rid of the necessity for severe pruning, which is always against fruit-production.

In the case of those who have low walls to furnish with Pear trees, my advice would be to plant them with oblique cordon-trained trees, as it is now well known that by planting trees of this form they quickly come into bearing, and fill up the space much sooner than any other form of tree is capable of doing, while there is the additional advantage of being able to grow a greater number of varieties upon the same space. J. C. C.

HARDY FRUIT CULTURE.

WHAT with fruit conferences, fruit leagues and growers' associations, fruit-growing companies and other bodies, all engaged in the promotion of hardy fruit culture throughout the kingdom, it should be hard indeed if some little of this enthusiastic outburst of effort and determination to mend our ways does not find its way into the remotest parts, and, yet better generally, into the homesteads and cottage gardens of the country people. At the earlier Crystal Palace conference on fruit culture, Mr. Fish emphasised the need of helping or encouraging cottagers to plant fruit trees also, as, so far, the chief burden of advocacy had been with regard to production for sale. That is, of course, a very important matter, full of the greatest interest and closely attached to the welfare of the land and all associated with it. But we may well ask whether there are not literally myriads of cottage gardeners, allotment-holders, small farmers, and persons cultivating comparatively trifling areas of soil who may wish to grow, or should be encouraged to grow, some moderate quantities of fruit for their own domestic consumption. If we would make the British people more largely a fruit-consuming people, we must begin, as it were, at the very root of the matter by creating the fruit in every possible direction, and then the love for it will speedily follow. It is good advice to the farmer, for instance, to tell him to plant some good varieties of hardy fruits, that he may thus increase the marketable stock of such fruits, and find profit in their culture. That is putting the argument upon the lowest basis, though, perchance, at present the most effective one. But it is well worthy of consideration whether in urging the British farmer to embark as a commercial speculator in fruit culture—a matter with which he is at present so ill-informed—there is not danger that early failure may soon damp his energies, simply because he is undertaking work with which at present he is so badly acquainted. The most practical method of procedure seems to lie in seeking to induce the large farmer and the cottager, the small farmer as well as the allotment holder—nay, even the little villa garden resident in rural districts, also to embark in the culture of fruit, first for purely domestic purposes, introducing for that object the most desirable kinds, and giving the best possible cultivation. A dozen or two of trees for a moderate sized garden or plantation and a hundred for a larger one would prove an excellent beginning in this direction. Somehow we have got to be so terribly commercial or trading in our little ways, that milk and butter, poultry and eggs, fruit and vegetables, plants and flowers—all things by which we should surround ourselves, and which should be perpetually administering to our comfort and happiness—are all being as rapidly as possible turned into current coin. Trade gets to be like a car of Juggernaut. It crushes out all love for domestic comfort and welfare for the one great end—the worship of the almighty dollar; hence the housewife will sell her domestic necessities, her dairy and garden produce—elements of life and happiness far beyond what the butcher or the brewer can give in return—and all because of the general infatuation for trading and for barter.

The first duty of the new aggressive fruit crusade, if it may be so termed, should be to induce all classes who have gardens or land of any kind in cultivation to embark in the growth of fruit for own and home consumption primarily. The result would be to encourage thrift and promote health and happiness. It would take a few years for the tyro fully to master the art of fruit culture, even in a small way, but if that little be learnt well, it lays a sound foundation for more substantial things to follow. Even then, without the need of external pressure or persuasion, the grower in a small way will soon feel a strong liking for fruit culture, because it is one of the peculiar features of this branch of horticulture that it gradually, but surely, creates its own love. Then also would inevitably step in the lower element of profit, for the grower, whether farmer or cottager, would assuredly feel that having learnt to produce a little fruit well he could as well produce a larger quantity. That is a proposition which needs no proving; it is a natural and an inevitable one. We find on every hand the state of our land laws quoted as obstacles to the progress of hardy fruit culture commercially. That there are grave obstacles in that direction there can be no doubt, because the laying down by the farmer of several acres of land in fruit signifies not merely at first a considerable outlay, but a growing annual outlay as the years roll on, and it may be that he is embarking in such expenditure without due security. But whilst all prudent men will stop to ask how they may be made secure from loss ultimately where such an undertaking is concerned, few will regard the planting of a few trees for own personal or domestic purposes in the same light. Still further, all will readily perceive that the experience gained by such *petite* culture will in good time prove of exceeding value whenever the culture may expand to a broader area. We are very much urging a section of the community to embark in fruit culture, which has at present hardly the least elementary knowledge of sorts to grow or methods of culture, and the practical knowledge they require can only be gathered by personal experience.

But here, and especially in relation to the cottager class, seems to be an opening for good work to be done by local horticultural societies. These bodies, let the truth be told, have rarely succeeded in lifting the minds of exhibitors, whether cottager, gardener, or amateur, to higher considerations than those of gaining prizes. Certainly vegetable culture has met in that way with some encouragement, but with very little, indeed, after all. Almost all these local bodies have in connection with them some two or three practical men—gardeners or amateurs—who could give to the cottager class of cultivator in their respective districts some valuable advice. Why are not their powers so applied? Most probably from want of urging rather than from any other cause. It may be, and doubtless is the case, that the land question and its tenure stand in the way of the development of fruit culture amongst cottagers and allotment-holders; but an intelligent demand for the privilege or right to grow fruit in such small areas as cottage gardens and allotments give, and, we may well add, on small farms also, would materially assist land law reformers and might speedily produce its complete redress. It would assist legislators materially in the discussion of this land reform did they fully understand what were the conditions of land tenure under which, only short of absolute ownership, small cultivators of every class were willing to plant fruit trees. Nothing would be easier than to give some lists of sorts of the various fruits most suited for *petite* culture; but we are met at once by the objection that sorts suitable for one part of the country may not always be successfully grown in other parts, and, therefore, the selection of sorts must be guided appreciably by local knowledge. There seems to be peculiarly a field in which local horticultural societies might find ample space for the exercise of such practical knowledge as their managers might possess. In all cases, however, special attention should be given to sorts best fitted for domestic use. That is the primary consideration, and most probably it will be found in the end that such kinds are those most profitable for cultivation for further distribution for profit in the respective districts. A. D.

SHORT NOTES.—FRUIT.

Violette Hative Peach.—A tree of this Peach fills one house at Handcross Park, its average annual crop being 500 fruits.

Peach Dymond.—Mr. Jupp, of Brantridge Park, speaks very highly of this Peach. It is a mid-season variety, a good cropper, and of excellent flavour.

Apple Mr. Gladstone.—This variety is, as a rule, somewhat small and roundish in shape, but of excellent flavour. It comes into use about the end of August or early in September. Generally speaking, it is also a prolific bearer. —C. C.

Apple Mere de Menage.—This is one of the surest cropping varieties of Apples we have—in fact it

never fails to bear freely. This year the fruit is very small as compared with that of other years. Although there is plenty of colour on the skin, it lacks those rich streaks which are so much admired in this variety. Our trees are pyramidal in form, having long branches, the result of allowing a free extension of growth in the earlier years of the trees. By this method of training we get a large quantity of fruit of this much appreciated kitchen Apple.—S.

Damson trees unfruitful.—Would you kindly inform me what is the cause of my Damson trees not bearing fruit? They make good wood every year. I have some in stiff, heavy soil, and others in a light soil, but the trees in both cases are unfruitful. They have been planted ten years.—NORTH WALES.

FIGS.

IF any of the late trees have been allowed to give a few fruits at irregular times, an end should be put to this unprofitable excitement by stripping off every Fig and Figlet larger than a small Pea. Figs, like good Melons, are most delicious in hot weather, but once frost chills our atmosphere and leaves fall from the wall trees, the sooner their production is given up the better, at least for this season. If root-pruning for the sake of a few fruits has been delayed, no time must be lost in working round the balls, shortening at discretion, and refilling the trench with the best of the old soil, to which a small quantity of fresh turf may be added. The greatest difficulty in these late Fig houses, from which only one full crop is gathered annually, is gross wood and persistent growth in the autumn. To counteract this, not a few divide their borders into small cubicles, by building single brick walls lengthwise and crosswise; but the roots of the trees, stimulated into action by these mild checks, very soon find their way through them or under them, and the branches seem to fatten on the good calcareous food provided for them. Years ago I adopted this plan, but finding the insinuating roots had penetrated a thick stone wall, and were making a dainty meal upon coal ashes, I changed my plan and gave them walls of turf instead. Through these, I know, the roots will push in the course of the season, but forewarned I am forearmed, as I pull down these walls every year, cut back all the strong roots, soak the balls and build them up again. When this work is finished in October, plants that will not perish in a temperature sometimes touching 32° are stored away in a Fig house for the winter. Early in April the young Figlets show signs of life, and this awakening is the signal for filling up all unoccupied parts of the border area with fresh Oak leaves, of which we have an abundance. The warmth from these penetrates the turf walls, the closely cropped roots respond by sending forth new ones, and these, by the time the fruit requires a continuous supply of food, have taken full possession of the liquid-fed turf and are making some important progress in the decaying vegetable matter. Trees which we force early are treated in precisely the same way, and evidently they enjoy this annual building up and forking down again, as they soon become perpetual bearers, never cast their fruit, and improve in fertility as they increase in age. The secret of success in the performance of this simple method of managing trees whose branch space is limited consists in getting to work as soon as the leaves show signs of changing for ripening, as they at once set about making fresh rootlets and are ready to advance when bottom-heat is applied to them. Anyone having old pot trees, which give no end of trouble and cast their best fruit into the bargain, should try the plan by setting them on dry brick pedestals a couple of feet or so in height, by smashing the pots with a hammer, that is after the balls have been well soaked with water, and building a solid column of new turf and old lime rubble round them. By building the outside edge of the turf wall a few inches higher than the old balls light mulching can be added, when all the water the following summer will pass down through the centre. Fermenting material meantime will convert each of these stacks into blocks of roots, but being none too large, instead of pulling them down they may be neatly picked out with a hand-fork, closely root-pruned with knife or shears, say in September, and repacked or cased in a second wall of turf and rubble not exceeding 9 inches in thickness. Young medium-sized trees adapted to compact forcing pits, of course, can be reduced and repotted every year, but these in course of time get large, although never too old; therefore instead of throwing such valuable friends away, I would suggest the acquirement of fresh stock for early forcing and giving these more room in large houses. Preparations for early forcing, of course, will now be going on, than which nothing is more important than war to the end with all insects and thorough cleanliness. Bug is the bane, and this can only be reduced to weakness by washing with strong soapwater, by dressing with insecticides containing spirits or tar, by stopping every hole and crevice, and coating the woodwork with paint mixed with turpentine. These sharp measures will check the enemy, but armed with small brush and methylated spirits, the attendant who wishes to succeed must search from day to day for solitary insects as they emerge from their perilous hiding-places in the spring. Scores of young gardeners perform the first part of their work well, but leave off just where they should increase their watchful attention to the few which may have escaped the great assault the previous autumn. When all this work is finished the house must be kept dry, cool, and airy until the time arrives for shutting up and starting. If treated to bottom heat Figs will stand more warmth than is good for early Vines, but sharp forcing before the turn of the year is bad practice. W. C.

FRUITS UNDER GLASS.

STRAWBERRIES.

TWO months of fine weather has been such a godsend, that we actually find ourselves in November before we give a thought to the housing or forcing of Strawberries. At the present moment my own plants are standing in the open air, and there they will remain until we have a most decided change and the pots are in danger of being broken by frost. Frost will not hurt well-ripened crowns, but it sometimes makes terrible havoc amongst the pots, and for this reason the plunging quarters and materials should now be got ready for use, as suggested in my last paper. Many years back it was the common practice to stack the plants in large cones, the pots lying on their sides with their crowns projecting outwards. This plan, it is hardly necessary for me to say, put an end to all winter watering; therefore, as the Strawberry must have an abundance of this element or fail, no one will regret its going out of fashion. Where plants are very numerous, plunging in good coal ashes upon a thoroughly drained site is the only, and perhaps the best, method of disposing of them; but small batches may be plunged in leaves or ashes in cold pits, always provided the lights are kept off when the weather is neither wet nor unusually severe.

Where very early forcing is contemplated, the first batch of plants may now be prepared by washing the pots, examining the crocks, dipping in sulphur water, or, better still, a weak solution of sulphide of potassium—one-fourth of an ounce to the gallon of water, and constant attention to watering. Where the Strawberry house proper exists, it should be cleansed and got ready for work, and where it does not exist, no one should attempt forcing before the end of December, as a few ounces or pounds of fruit from scratch structures—often better adapted to Ferns than Strawberries—do not pay for fuel. Fermenting leaves placed in the pit or house play a very important part in starting Strawberries. A free circulation of air is imperative, and the temperature which suits them best should not exceed that of an early forcing Peach house. Many gardeners, indeed, fill the shelves in their early Peach houses and bring the two crops on together, often to the detriment of both, especially the Peaches. If well dipped beforehand and carefully syringed, red spider may be kept at bay until after the fruit is set, a period or stage at which the transfer to moist, hot quarters is usually made. Like all other fruits, varieties are far too numerous, and, unfortunately, growers are obliged to say, "Still they come;" but whether recent introductions are good enough for private use remains to be proved. One forced Strawberry in March is perhaps as good as another, but so long as we have the excellent all-round variety La Grosse Sucrée and the prolific Vicomtesse Héricart de Thury, alike good for forcing or for giving the first picking in the open air, no one need go far wrong until the new ones are thoroughly tested.

PEACHES.

The past season has not been at all favourable to very early Peaches, the weather during the first part of the summer, when they were making their growth and forming flower-buds, having been so wet, cold, and sunless—three points sadly adverse to the free admission of fresh air. Recently a great improvement has taken place, but the weather at the present time is unseasonably mild—so mild, indeed, that those who have pruned and tied in must keep their houses abundantly ventilated to prevent the buds from swelling prematurely. Very early swelling may be accepted by the uninitiated as a very satisfactory beginning, but they must not forget that buds once started must be kept steadily progressing, otherwise the slightly excited parts of the flowers will perish, and the crop, so far as those particular buds are concerned, will be a failure. Here, as in all other departments, the practice of shutting up at the beginning of winter has become almost obsolete, as we now have varieties which can be started a month or six weeks after Royal George, and then the fruit, such as it is, will ripen in advance of that excellent variety. Alexander, Amsden June, Waterloo, Early Beatrice, Early Louise, and Hale's Early are now largely used for early forcing, but, the last excepted, the less said about their quality the better. The weather having been so extremely dry, the borders, both inside and out, must be well plied with water, as no after attention can make good the injury which invariably follows the parsimonious use of this element. Peach roots, it must be borne in mind, are never at rest, no matter how low the air temperature of the house may be—at least, this is my experience, as I have turned out trees which had not been repotted a month, and the soil being moist enough, young roots have been found pushing in all directions. Root-pruned or recently planted trees on inside and outside borders have been found in a similar condition; hence the importance of keeping them thoroughly moist, as these sensitive feeders are the prime agents in slowly, but surely filling up and developing perfect flowers. When the time arrives for shutting up the house—if keeping a chink of air on the top and bottom ventilators can be called shutting up—fire-heat for the first fortnight, unless the weather is severe, may be dispensed with, especially where fermenting leaves are placed in a ridge along the inside border for giving soft, gentle warmth and keeping the atmosphere moist. Houses started in this way do not require much syringing at first, but a nice dewing over on fine mornings and again about 1 o'clock will do good service, always provided the buds have time to become fairly dry before nightfall. When the time arrives for supplementing the warmth from the leaves with fire-heat, early morning, when plenty of air can be admitted, is the best time to open the valves; then, as daylight decreases, it may be shut off or reduced to ensure rest through the night. A minimum of 40° to 45° on cold nights and 45° to 50° when mild is quite high enough for a start, and a rise of 5° to 10° by day will keep the buds progressing until they are well developed and the wood buds begin to accelerate the flow of sap in every part of the trees. If the roots—not often the case—have the run of external borders the latter should be well covered with dry leaves or litter, with zinc sheets or shutters over all for throwing off cold rain and snow. Outside borders, however, are not necessary; therefore those about to plant for early forcing should dispense with an expensive and troublesome encumbrance which often does more harm than good.

Midseason houses may now be pruned, cleansed, and tied in ready for starting when the proper time arrives. Meantime the house must be profusely ventilated, and the roots, as in the early house, must be kept in a thoroughly moist condition. A

word as to cleansing trees just now, at the beginning of the forcing season, may not be out of place. Cleanliness, we all know, is as important in the forcing house as it is in the dwelling, but the old-fashioned practice of incasing the young wood and buds in a thick glutinous compound of poisonous substances, including soft soap, sulphur, and tobacco, with a few more odds and ends thrown in, whether the trees be foul or not, is fast disappearing, and common-sense cultivators confine their operations to repeated washings with warm soapy water. When every part of the house has been thoroughly cleansed, limewashed, and painted, and the trees have been carefully washed, say, twice over, the old wood and stems may be painted with Gishurst compound or any other substance most in favour, but brown scale being the only troublesome insect the soapy water should suffice. If it does not clear the trees, painting will not produce the desired effect, as I have seen a fresh, healthy brood of scale emerge from beneath the most carefully applied coat of poisonous paint.

Late houses now clear of fruit may require a little gentle fire-heat to ripen up the wood and buds, that is, provided the foliage is still hanging and does not show signs of parting freely from the trees. This, however, is hardly likely to be the case, as late trees should always be prevented from making gross wood by annual or biennial root-lifting and the liberal pruning of the heads so soon as they are clear of fruit. Here we have a few very old trees planted out and grown standard fashion in an unheated glass-covered shed. They always give a great deal of work at thinning time, and although the last fruit of the Nectarine Peach generally hangs until the end of October, we invariably find the wood fairly well ripened, a condition which sometimes inclines one to think bud-dropping in early and midseason houses may be brought about by over-ripening.

Figs.

To have good Figs ripe early in April the first set of trees, be they in pots or planted out in inside borders, should now be ready for starting about the end of November. For a great number of years I kept my earliest trees in 20-inch pots, but finding them unwieldy and too large for transferring to the open air, I decided upon breaking the pots, and giving each tree a cubic yard of compost encased in retaining walls of light calcareous turf. The trees still exist, give less trouble, and produce a profusion of the finest fruit; dropping, so common from pot trees, never troubles me and, as yet, I have not perceived the slightest falling off in the period of ripening. Indeed, there is no limit to the age and fertility of a well-managed Fig tree, as many who know the open-air centenarians in the southern counties can verify. When these trees have lost all their leaves, a condition brought about by thorough ripening and annual root-pruning, a process which differs from root-lifting, they get but very little water, but the time being fixed for starting, a series of waterings with tepid water restores the soil to a thoroughly moist condition before warmth is applied. We then start with bottom heat from fermenting leaves, syringe well, and maintain an ordinary early vinery temperature until the fruit has passed the flowering stage; more heat is then applied, the trees are well fed with warm diluted liquid, and the syringe is plied twice a day until we perceive a change for ripening. Should anyone contemplate the forcing of this now popular fruit, no better time can be selected for securing a stock of trees. Young trees can be grown into a fruit-bearing condition in a very short time, and so long as they are kept in a root-bound condition they will not get too large for intermediate span-roofed pits, which, by the way, should be as efficiently treated as a Muscat house. A great number of varieties of Figs are now grown in this country, and many of them are very fine and prolific, but for giving a continuous supply of first quality fruit there are none better than the old Brown Turkey, Negro Largo, White Marseilles, Early Violet, rather small, but very early and prolific, Osborn's Early, Doctor Hogg, and Bourjassotte Grise. Figs being so subject to brown scale and mealy bug, too much care cannot be devoted to the annual cleansing of the house and trees. The first succumbs to repeated washing with strong soap water, a solution of Gishurst, 4 ozs. to 6 ozs. to the gallon of water, or syringing with hot water at a temperature of 120°. Mealy bug is more tenacious, not that the above dressing will not kill all it touches, but, alive to the abhorrence in which it is held, it penetrates into all likely and unlikely places, from a knot in a sashline to a deep crack in the border, or a pithless piece of dead wood for security through the winter months. Very careful cleansing, scalding, lime-washing, and painting with turps destroy the bulk, but half-a-dozen insects will recolonise a whole house in the course of a single season; hence the absolute necessity for following up the first great onslaught by daily attention with methylated spirits when these escaped pests emerge from their hiding quarters in the spring.



Asplenium formosum. Engraved for The Garden.

Succession houses.—If former notes have been acted upon, root-pruning will have been brought to a close, all partially grown fruits will have been rubbed off and the house will now be dry, airy and cool. Summer pruning here, as in the Peach house, having become an established system, the knife, were it not for trimming and paring down unsightly knots and gnarls, might now be kept in the sheath but readers who have had to wage war with bug know but too well how necessary it is to cut away every bit of old wood likely to afford shelter before they proceed to cleansing. As these trees will not be started before January this work is by no means pressing, but an empty house being better than a bad tenant, the plan of campaign should now be made, and carried out to the very letter when a strong force can be turned in on wet days. When the work is finished and the trees are ready for tying up to the wires, as an extra precaution I would suggest painting every particle of wood, young and old, with the tar mixture now so efficiently applied to Vines when in a dormant state. It is easily prepared and the fumes being fatal to insects which it does not actally touch, the dressing should be well worked into the old wood with a painter's brush. Some desperate growers mix it by rule of thumb, but a mild yet effective dressing can be made by mixing half-a-pint of tar with half-a-peck of finely-sifted loam and adding boiling water to reduce the paste to the consistency of thick paint.

Trees in late houses and unheated wall cases cannot be kept too dry and cool by liberal ventilation. If not already pruned, this operation should now be deferred until the turn of the year, especially where the removal of large branches is contemplated. When the roots and shoots are kept quite dry trees in cold houses will stand 25° of frost with impunity, but our winters being so extremely changeable, I would suggest a general loosening and lowering of the branches from trellises running a foot or so beneath the glass roof and keeping the borders well covered with dry Fern or long litter.

W. C.

Ferns.

W. H. GOWER.

ASPLENIUM FORMOSUM AND ITS ALLIES.

The genus Asplenium is a very large one, and it contains an immense quantity of exceedingly handsome species, which when properly grown and placed in their natural positions cannot be surpassed. The few kinds named here, on account of the regularity of their features, delicate grace, and beauty of contour generally, are essentially ladies' Ferns. They are a little wayward, but when treated properly they are free, but not coarse growers. Elegant as they are grown in moderate sized pots, however, I prefer them when planted in small pockets in the stove rockwork. I say small pockets advisedly, because I believe a large quantity of soil about their roots is very injurious to their well-being, and because I have grown finer plants and with more perfect fronds in small pots, in which the roots have had a very little soil, than under any other treatment. The pots or pockets must be well drained, for although these plants require plenty of water, it must rapidly pass away, or the pinnæ become disfigured and fall away or turn black, and it can be easily imagined that if a few pinnæ were absent from our illustration, its beauty would be irreparably marred. Water, again, should seldom be sprinkled overhead, as it produces the same injurious effects. For soil, use peat and sand and a small portion of light yellow loam; to this should be added some nodules of charcoal and some broken bricks, which will serve to keep the soil open and allow the water to pass away quickly. In potting press the soil down very firmly. The kinds named here are warm country plants, and, therefore, require stove temperature.

A. formosum, as will be seen by a glance at our illustration, is a very elegant species, and although it has been in cultivation in this country for upwards of sixty years, it has never been a common plant. It is a somewhat difficult plant to obtain stock from

spores. Though I have frequently tried, I do not think I was successful more than two or three times, and this may be a reason for the plant never becoming plentiful, yet it produces an abundance of sori. It is rosulate in habit, and, as will be seen by the figure, the fronds are linear and pinnate, the pinnæ being opposite and deeply serrated; they are a foot or more high and upwards of an inch wide, except towards the base, where they are slightly narrower, and the colour is bright light green. It comes from Tropical America.

A. PULCHELLUM.—This is another neat and handsome form belonging to the same section. The fronds are pinnate, seldom above a foot high; the upper side of the pinnæ is deep green and much crumpled or plaited, the sori being very copious and rich brown beneath. It is less finely divided than the previously named kind, but is very distinct. It is a West Indian species.

A. ERECTUM, found sometimes under the name of A. dentex, is a somewhat broader form of A. formosum. It has the black, wiry, polished rachis of that species; the pinnæ, however, are broader, less divided, and the colour is a heavier and brighter green; the sori are stout and deep reddish brown, and confined to the basal margin of the pinnæ. It is a native of the Indian Islands and South Africa.

A. DIMIDIATUM is a beautiful pinnate-fronded species of dwarf growth, as it seldom exceeds a foot in height. The fronds are of a somewhat uniform width; the pinnæ, rounded at the point, oblong, and slightly imbricating, are slightly dentate on the edge, and the colour is light green. It is a handsome and distinct plant from Tropical America.

A. RESECTUM.—This is another very handsome species not much known, and of somewhat more recent introduction to cultivation. Its fronds are from 1 foot to 2 feet high, and from 2 inches to 4 inches broad; the stem and rachis, usually deep chestnut-brown and polished, are oblong-lanceolate in shape and of a rich green colour. It comes from Java and various other Indian and Pacific Islands.

A. HETEROCARPUM is another handsome stove Fern; a native of various of the Indian Islands, as well as the Himalayas; but the only form of the plant I have seen in cultivation is from Java. The stem and rachis are polished and deep chestnut-brown; the fronds vary from 6 inches to 2 feet in height, and from 1 inch to 2 inches in breadth; the pinnæ are numerous, dentate on the upper edge, quite plain on the lower, and deep green in colour.

ORCHIDS.

W. H. GOWER.

SOBRALIAS.

VERY little has been seen of late years of the various members of this genus, which produce some of the finest flowers in the whole Orchid family, but the individual blooms are very short-lived, and it was a difficult thing to obtain a specimen just right to place upon the table of a public exhibition at a specified date, hence they were condemned. Some years ago these plants were exhibited in public to a much greater extent than is the fashion at the present time. The complaint of the flowers being short-lived held good, and the plants fell into bad repute, and soon became as good as lost to English gardens. Latterly, however, some new and beautiful species have been introduced and well cared for, and numerous species are quietly becoming established in most of our best collections in the country, notably in the gardens of Sir Trevor Lawrence at Dorking, Baron Schröder, of Egham, Mr. Measures, of Streatham, and many other places, whilst the trade are anxiously searching for them wherever they are to be found, so that our Orchid houses will soon be gay with numerous forms of this gorgeous genus, which, independently of their gay flowers, present a thoroughly tropical aspect. The growth is slender and reed-like, the stems being furnished with sheathing, plaited leaves, which render the plants extremely ornamental either in flower or out of flower. It cannot be denied but that the flowers of Sobralias are fugacious, but this season Mr. Measures, of The Woodlands, Streatham, has exemplified what a succession of blooms can be maintained for over two months by a plant of S. macrantha nana, and by no means a large example. During the whole of this time the plant was rarely without blooms, and the total number produced was fifty-two.

This was a finer display than could have been procured from the great majority of Orchids. Many of these plants may require strong heat, but I am told that others are found in a moderate temperature, but always fully exposed to the sun, and that the temperature and conditions under which we now so successfully cultivate the various Mexican Lælias would be congenial to many of the Sobralias.

Sobralias are terrestrial plants, and many of them are very robust and tall growers, thus preventing many growers from admitting them to their houses; but there are numerous dwarfer kinds which would well repay anyone for their care. They are strong-rooting plants and require somewhat large pots, which must be well drained. Sobralias need a large quantity of water during the growing season, and to keep them healthy and presentable during the winter water must not be entirely withheld. The best compost in which to grow them is peat, loam, and leaf-mould. All the species have reed-like growth, which differs much in height and strength in the different kinds.

S. MACRANTHA is the best known species. The typical form could have been found in the Kew collection in years gone by in very large tubs, and with stems over 6 feet in height, and the specimens were seldom without many of their very large, rich purple and fragrant blossoms for several months in the year. These specimens were examples of well-established plants, and this should be taken into consideration before the newly imported specimens are condemned. Of this species there is a variety called pallida in which the flowers are equally large and fragrant, the sepals and petals being soft rose, whilst the lip is almost white; the variety called nana, however, is the most highly prized, as it scarcely exceeds 3 feet in height, whilst its flowers often measure between 6 inches and 8 inches in length, of deep purple and crimson colour, and very fragrant. There are several other forms of this plant which vary in minor details, all being found wild in Guatemala.

S. LEUCOXANTHA is a superb, newly-introduced kind. Its flowers are somewhat fleshy in texture and snow-white, saving a stain of orange-yellow in the throat. A short time since I noted this species flowering in the nurseries of Messrs. Seeger and Tropp, in Lordship Lane, Dulwich; and more recently I observed some examples of the same plant, not in flower, in Mr. Sander's establishment at St. Albans. It is a native of Costa Rica.

S. XANTHOLEUCA. — This is another of the newly-introduced species. I recently noted it in the garden of Mons. le Comte de Germiny, at Gonville, in Normandy, where it is highly esteemed. Another fine example is to be found in the collection of Baron Schröder, of The Dell, Egham; and a form of it was recently flowering with Mr. Whillans in the gardens of his Grace the Duke of Marlborough; and, if I mistake not, I saw the plant in Sir Trevor Lawrence's grand collection at Burford Lodge. A coloured illustration of this beautiful and rare plant appeared in Vol. XXII. of THE GARDEN (pl. 366). The flowers are deflexed, of a pale yellow; lip large, much frilled on the edge, and of a deeper yellow than the sepals and petals.

S. RUCKERI.—This is an old species, but one of the most beautiful, and at the same time it is rare. The flowers are large and fleshy in texture, borne several together on a short raceme, and, for a Sobralia, long-lived. The sepals and petals are deep rose, and the large, spreading lip is crimson with a white disc. It is found wild in New Grenada.

S. CATTLEYA.—Of this species I can say but little, as I have not yet seen it in bloom. Mr. Horsman, who has found the plant in its native wilds, tells me that it is very powerfully scented; that it grows fully exposed to the sun and in a low temperature. I had hoped to have seen it flower this summer in the nurseries of Messrs. Seeger and Tropp at Dulwich, but although a grand plant is growing there, it has not yet flowered. It is said to produce large, rich, purplish brown flowers, the lip bearing three yellow lines. They are long-lived for a Sobralia and very fragrant. Native of Columbia.

S. FRAGRANS is a dwarf plant, the stems seldom exceeding 1 foot or 18 inches in height; the flowers are small in comparison with those of some of the previously named kinds, the sepals and petals being pale sulphur-yellow, the lip deep yellow on the disc, beautifully fringed round the edge, the disc bearded with numerous raised fringed lines. It comes from Ocana, in New Grenada.

S. DECORA.—This is another dwarf-growing species and very free flowering; although the flowers are somewhat small, they are very elegant; the sepals and petals are white, the lip rose colour. It is found in Guatemala.

S. LILIASTRUM is Lindley's name for a kind from British Guiana, which I have found to require somewhat stronger heat than the other kinds. Its flowers are large, and produced on a short raceme; the sepals and petals are rose-coloured, the lip rich deep rose with a white disc. In the variety alba the lip is pure white with a yellow disc.

S. CHRYSANTHA.—This species is said to produce flowers of a rich yellow, but although said to be in cultivation for thirty years I have never seen it, but now a revival in the cultivation of the genus has taken place and their native habitats become so much better known and communication so rapid, we may naturally expect to be made acquainted with many new and handsome kinds of Sobralias.

Dendrobium stratiotes.—This fine species is now flowering in Sir Trevor Lawrence's collection at Burford Lodge; it has been little seen as yet, it being one of M. Linden's somewhat recent introductions. It would appear to belong to the same section as D. taurinum, but flowers much more freely. One of its great peculiarities is the erect and spirally twisted petals, resembling the horns of the ibex; this is only the second time I have seen it in flower. The former example was in the nurseries of Mr. Williams at Holloway, where I saw a very fine variety, the twisted petals being of a pure ivory white. This is a species which deserves more attention from Orchid growers than it has hitherto received. I believe it requires hot treatment with full exposure to the sun.—W. H. G.

Dendrobium triadenium.—This, although not a very gorgeous or showy plant, is nevertheless a handsome species, and well deserving more attention; indeed, I had not seen it for a long time until recently, when I was much pleased to recognise its delicate trusses of blooms on a plant in the collection of Sir Trevor Lawrence at Burford Lodge. The plant was one of the introductions of the once famous, but now extinct, firm of Rollissons, of Tooting. The plant is more or less evergreen, and its flowers are produced upon leafy stems. These are erect, slender at the base, thickening upwards, and the leaves are somewhat fleshy, decreasing in size upwards, and deep green; the racemes are terminal, and bear about a dozen medium-sized fleshy flowers, which are white, tinged with bright rose colour, the crest of the lip being deep yellow. It enjoys fairly strong heat, and should receive attention as a valuable autumn bloomer. It is said to be more correctly named D. mutabile. Native of Java.—G.

Cattleya aurea.—A nice example and fine variety of this beautiful Cattleya, of which a coloured figure appeared in THE GARDEN, February 4, 1882

(p. 80), is now flowering in the rich collection of Orchids at Wilton House, Southampton. It is a rich and gorgeous flower for the autumn, and one that appears to be flowering freely now that the plants are becoming established, and there can be little doubt but it is a form of C. Dowiana, although so far removed from the locality whence the latter plant is found. All growers of this plant concur in their opinion of the plant requiring an abundance of sun and light and not much soil about the roots.

The Dove Orchid (Peristeria elata).—More than ordinary interest attaches to this Panama flower. It appealed to the vivid imagination of the Spaniards, who traced in the form of the column and side lobes of the lip a likeness to a dove; hence the name El Spiritu Sancto. In Messrs Veitch's nursery at Chelsea there is a large plant with a strong stem carrying several flowers, which are waxy white, and on the side lobes of the lip freely spotted with rich crimson. It is not a showy Orchid, but many cultivate it for its associations. A striking character of Peristeria elata is the immense, broadly ovate, smooth, and pale green pseudo-bulb.

Cypripediums at Burford Lodge.—The Slipper Orchids are just now very fine in Sir Trevor Lawrence's garden; indeed, the whole Orchid collection bears evidence of care and attention. There are not many kinds flowering now, but here, as elsewhere, it is impossible to find them unrepresented. Amongst others, I observed a very fine variety of C. tonsum, which is a very distinct form, but to my mind it wants colour, and here is a grand opportunity for the hybridiser. Here also were some splendid examples of Arthurianum, large and very bright. Some excellent forms of C. Spicerianum were in great beauty, this species here being evidently earlier in blooming than usual; some wonderfully fine varieties of Ashburtoniæ, which would appear to be in bloom all the season round. Harrisianum was in great variety and of wonderful colour; superb plants of purpuratum, and also the French hybrid Barteli were also noteworthy. These, together with some plants of C. marmorophyllum, were amongst the finest of the October display. They appeared to be in an intermediate temperature.—W. H. G.

Dendrobium Jamesianum.—This I can recommend as one of the best of Dendrobes. The plants have been in flower for over six weeks, and are still in good condition. The flowers are large and bold in appearance, as well as of a good shape; the petals pure white, the upper ones thrown well back so as to show the throat; the innermost portion of the throat is a dark brown, becoming lighter as it extends outwards, but it is well defined, and being margined with white gives the flower a very showy appearance. My plants were imported about eighteen months ago, and I have not found any difficulty in getting them established. In potting them I used broken potsherds and charcoal in equal portions for drainage, but for making the plants firm in their positions I used Sphagnum with the other, and so far the plants have done well. I do not think it is a good plan to load the roots of imported plants with too much peat at first, yet I believe that at the next potting the addition of some fibry lumps of it will be an advantage. I find a gentle and regular heat with moisture and a moderate rooting medium at first are the best agents to use for a start. My plants have had no fire-heat since last May until a fortnight ago, and the plants are quite healthy.—T. R. F.

SHORT NOTES.—ORCHIDS.

Oncidium cheirophorum.—This distinct Orchid is blooming freely now, and does well in a cool house. The small golden yellow flowers are borne in slender panicles.

Cypripedium œnanthum superbum.—This is one of the most richly coloured of the Lady's Slippers; the whole flower has a peculiarly polished appearance. It should be in every collection.

Cattleya Bowringiana.—This beautiful Cattleya is blooming freely in the Chelsea Nursery of the Messrs. Veitch. A most interesting account of it was given in THE GARDEN of Oct. 27, p. 384.

Lælia Perrini, in great variety, is now flowering at the St. Albans Nursery, and a lovely old species it is; its one fault is its short time of flowering, but even this must be overlooked when we take into consideration the season when its flowers are produced and their rich colouring.—W. H. G.

Oncidium tigrinum.—This is synonymous with Oncidium Barkeri and Odontoglossum tigrinum, and is one of the most beautiful of the genus that flowers in October. Several specimens are in full bloom in Messrs. J. Veitch and Son's nursery at Chelsea. It bears branching panicles of violet-scented flowers, of which the finest feature is the large brilliant yellow lip; the sepals and petals are yellowish green overlaid with bands of rich brown. It is not difficult to grow, and is one of the most useful of the amateur's Orchids.

RECENT ORCHIDS.

ORCHIDS increase and multiply. We have only to glance at the Orchid columns in THE GARDEN to see this, and although some declare they are fast on the decline in favour, there are very few evidences of this as yet, if we may take the number of new sorts continually appearing as a criterion. By careful observation it is easy to detect a rise and fall in certain genera. To enumerate all the Orchids of recent acquirement would be impossible in an article of reasonable length, but it will probably be interesting to briefly refer to a few of the more striking species and varieties that have appeared or come specially under notice this year.

Angræcums, like the Cypripediums and Catasetums, have had an impetus given them by the introduction of new kinds. Angræcum Sanderianum will become one of the favourites of this interesting genus, and we have already seen sufficient of it to fully justify this remark. It was certificated by the Royal Horticultural Society on January 10 last. It is in the way of the beautiful A. Ellisi, the flowers extremely neat, pure white, powerfully fragrant, and borne in a raceme about 18 inches in length; the glistening white spur is about 2 inches long. This ought to become as much grown as some of the kinds we see so often. A. arcuatum is another addition, but its raceme of creamy white, honey-scented flowers is too stiff and crowded. It has not the freedom and grace of A. Sanderianum. Taking the kinds alphabetically, we come to the Anguloas, and to this genus we have two kinds added, and these of considerable beauty. There is a distinctness and charm surrounding the Anguloas that make them peculiarly acceptable. A. intermedia is one of the new arrivals, and is a hybrid Orchid, the result of a cross between A. Clowesi and A. Ruckeri. The flowers are about the same size as those of A. eburnea, and the seedlings were about eleven years before they bloomed. The flower is of delicate beauty, the inside of the Tulip-like bloom being covered wholly with salmon-pink spots, the exterior being of a pale buff hue, relieved by the golden apex of the tongue-like lip. C. Ruckeri alba is quite white, and therefore a chaste and beautiful flower with the character of that of the type, but larger, very massive and waxy, and with a lip that is barred with delicate maroon on the inner face. With these two new varieties, the Anguloas ought to increase in favour. It is scarcely necessary to mention Catasetum Bungerothi, as it has been frequently exhibited this season. A love for this curious, but in many ways beautiful genus is awakening, and the various species deserve more than the scant justice meted out to them in recent years. The first plant seen in bloom in England was sold in Stevens' sale rooms for fifty guineas, and at the same time it was commencing to flower in the collection of Mr. Tautz at Shepherd's Bush. Since then we have noticed it in many collections, and already it is giving rise to varietal forms, some of great distinctness and beauty. A coloured plate of it was given in THE GARDEN of April 28, 1888. We learn that a plant of this, bearing twenty-three flowers, has been exhibited by M. Linden at Brussels, the usual number of flowers, as far as we have seen, being from seven to ten. When we speak of the Cypripediums, it is of a class that has shown wonderful development during the past three or four years. In the space of a short article it is impossible to mention even all the new arrivals of 1888, some of which are of great promise, and none more than the beautiful C. Tautzianum, a hybrid between C. barbatum and C. niveum, and showing plainly the characters of the two parents in its richly-coloured flowers. We trace the affinity to C. niveum in the lip, and in the foliage to C. barbatum. It is quite a question, but it is for the Orchid fanciers to decide, whether the multiplication of the Lady's Slippers is not bringing about a reaction. There is always room for really distinct and handsome forms, but too many inferior kinds have been forced to the front under high-sounding names. C. bellatulum we cannot praise too much. It belongs to a class that we wish there were more varieties of. Few Cypripediums, and not many Orchids at all, are more lovely than a good form of C. Godefroyæ; and in C. bellatulum we have a flower of similar character, but larger, more massive, and scarcely so white. It has already given rise to several varieties, one or two having varietal names when they were not wanted.

As in the case of the Cypripediums, the number of varieties of Dendrobiums has been increased. We have had the boldly-coloured D. Cooksoni, chrysodixus, and crassinode superbum. The flowers of Cooksoni are very much like those of the old D. nobile, and in the case of chrysodixus the parentage of D. Ainsworthi and D. Findleyi is evident; it has lovely flowers of delicate, but bold colouring. On p. 150 of THE GARDEN (Vol. XXXIII.) will be found exceedingly interesting notes on these two additions. Disa racemosa is a South African Orchid that will grow well in a cool house; it has a spike of flowers that reminds one of that of a small-flowered Gladiolus, and the colour is bright purple. This was brought home from the Cape by Mr. Watson, of the Royal Gardens, Kew. Epidendrums are not Orchids of the highest beauty, but we have to record this season the first hybrid yet raised (Epidendrum James O'Brien), and here we may mention that the Orchid raiser is now commencing to reap the harvest of his labours. Each year the number of new hybrids increases as the plants become old enough to flower, and in the case of this Epidendrum we have a cross between E. evectum and E. rhizophorum, the flowers being of a colour intermediate between the two. E. atropurpureum Randi is another kind that has much to recommend it, and is the subject of a note in THE GARDEN, October 27 (p. 384).

Lælias do not show much increase, but we have a variety to be proud of in L. Amesiana, a Veitchian hybrid, having for its parents Cattleya (Lælia) crispa and C. maxima. It has the character of C. crispa, the flowers being pale amethyst, except the lip, which is rich purple, marked at the base with yellow. Lycaste Skinneri has given rise to several beautiful forms, one named Imperator showing brilliant colouring on the petals. This Orchid varies both in the size, and shape, and colour of the flowers considerably, and few flowers are so rich and showy as those of L. Skinneri when the variety is well marked. We have this year several new Odontoglossums. There is the Zygopetalum-like O. Karwinski, O. Rossi, J. L. Ames, which is of exquisite colouring, the sepals narrower than the petals, and almost wholly purple-brown, the upper half of the latter being sulphur-yellow; the lip is white; and O. Harryanum, that has justified the praises given it on its first appearance. It is an Orchid that we have not yet seen in the fullest perfection. We have to eradicate its one distinguishing fault—the closed-up petals—which detract from the beauty of its splendidly massive character. There are many excellent forms of it in cultivation. Oncidium ornithorhynchum album was certificated this season by the Royal Horticultural Society, but it is not new, though very scarce; the flowers are pure white, though otherwise similar to those of the type. Phalænopsid fanciers have gained two treasures—P. F. L. Ames and John Seden. The first of the two is a cross between P. amabilis and P. grandiflora, and from such parents we may expect a beautiful variety, which we have here. The other worthily commemorates Mr. John Seden, who

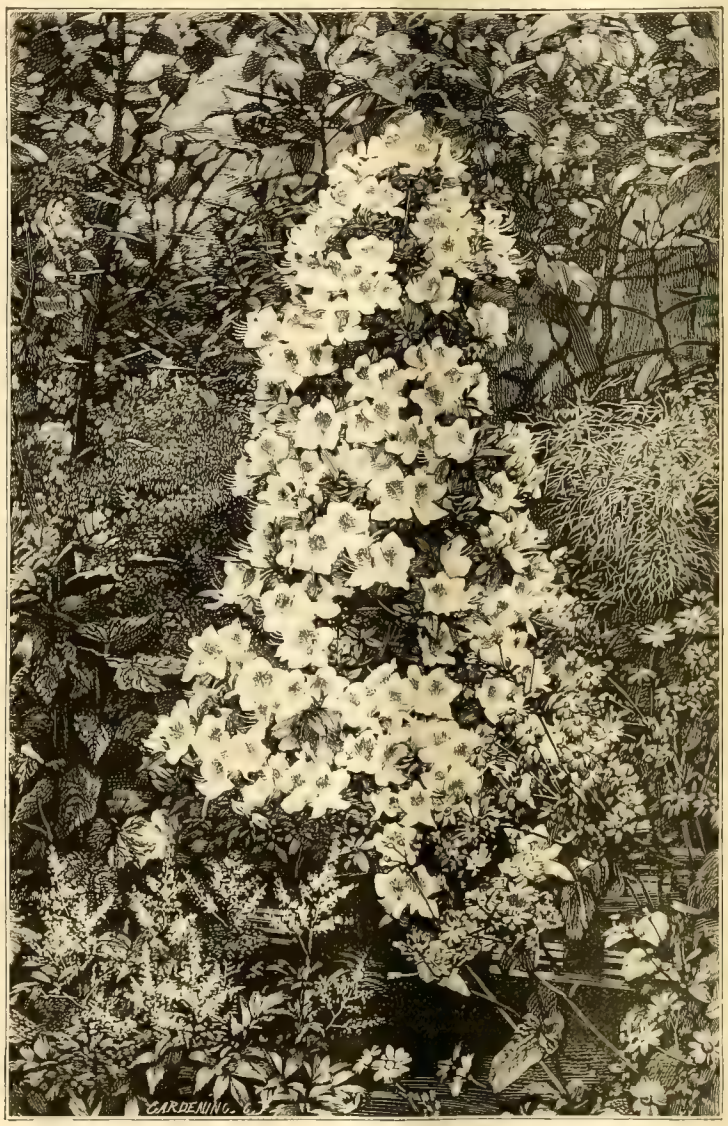
has raised many beautiful Orchids, and this is not the least amongst them. It is the result of a cross between P. grandiflora and P. Luddemanniana. Saccolabium cœleste was certificated by the Royal Horticultural Society, but it is not a novelty, although few have it. It is a delightful Orchid, with somewhat the habit of S. curvifolium, the sepals and petals each having a tip of lovely sky blue. Spathoglottis Kimballiana, which has an Odontoglossum-like flower, almost wholly pure yellow, and the kinds certificated by the Royal Horticultural Society, and fully described in our report, close a list of Orchids that will assuredly become famous. The remarkable Cattleya Lamberhurst Hybrid and C. Harrisi show the results of hybridising, and we may expect further surprises if we may judge from what has already been given us by artificial fertilisation.

STOVE AND GREENHOUSE.

TRAINING AND FORCING AZALEAS.

WHAT training Azaleas require should take place immediately they have completed their growth, in order that the young shoots may be readily bent to the required position and assume a natural appearance, which they will not do if the tying be deferred till the wood becomes ripe and stiff. Of all forms to which Azaleas may be made to conform readily, the free pyramidal is the most pleasing, requiring but little tying or attention after they are once put into shape, as the growth they make then is generally uniform and regular, and looks far better than when they are so exceedingly stiff and symmetrical as frequently seen at exhibitions, although there is a great improvement in this respect to what prevailed some few years back when stiff crinoline shapes were all the fashion. In training use as few sticks as possible, and only those made of the best Baltic deal, to ensure durability, as nothing injures a plant so much as to be frequently piercing the ball, which cannot be done without damaging the roots. It frequently occurs that many of the decaying ends of the sticks are left in the soil, where they are sure to breed fungi, which are so inimical to the welfare of the plants that they soon impair their health, and ultimately cause their destruction. The stumps should, therefore, be pulled out by means of a pair of pliers, inserting the fresh sticks into the same holes, which, if not required, should be filled in with fine sandy peat. There are few plants better adapted for forcing than Azaleas, or that are so effective and useful when they come into bloom, and to fit them for this purpose they require a course of preparation, so as to get the buds well up and the plants early to rest. This may be done by gradually inuring them to the work in starting them a little sooner each year, and losing no time in getting them back into heat after they have done flowering, in order to get them to complete their growth, when after a few seasons they will come on almost naturally. For very early forcing there are some kinds much better adapted than others, and notably so the old Fielder's White, amœna; Deutsche Perle, semi-double white; and Pauline Marder, a semi-double soft pink-coloured kind.

The flowers of both the last-named varieties are most valuable for bouquets, as, owing to the great substance of their petals, they are very enduring. The forcing at the commencement should be slow and regular, so as to give the buds time to come on gradually, when the flowers will be all the finer and more serviceable. In order to render the flowers more durable, the plants should be elevated as near the glass as possible, and have all the light possible in the early part of the year. It is surprising what a difference this makes in the substance and quality of the blooms, not only of Azaleas, but of all other plants subject to artificial treatment—a fact that cannot be too strongly impressed on young beginners, or those who have not had much experience in early forcing. The only insects that affect Azaleas to any serious extent are thrips, which if not destroyed soon spoil the appearance of the plants. Fumigation with tobacco smoke will kill all that are hatched, but not so the eggs, which may be destroyed by syringing with tobacco water to which has been added some of the insecticides now in general use. In order to prevent the mixture from draining down the stems and entering the soil the pots must be laid on their sides and every part of the foliage well syringed. After a few hours the plants may be well syringed with clear water, thus thoroughly cleansing the foliage and clearing off any of the insects that may be left. The annexed illustration of a plant in flower of the fine old Azalea Criterion well shows what is meant by free pyramidal training.



A free pyramidal-trained Azalea.

Plumbago capensis and P. capensis alba.—These two plants were lately quite ablaze with flower in Mr. Williams' nursery. The white variety was introduced to this country some few years ago by Mr. Williams, and although it has been stigmatised by some as a poor, washed-out Plumbago capensis, no one who can now see it in the Victoria Nursery would dare to make use of such an expression. Its flowers are pure white, produced in the greatest profusion, and those who value flowers and floral decorations can understand well what estimation to put upon it. I here wish to recommend it to all readers of THE GARDEN who desire to have a pillar of white blossom in their greenhouse at this season of the year. It is equally as hardy as the typical plant.—W. H. G.

Zonal Pelargoniums in winter.—Now that the early October frosts have conclusively shown that Chrysanthemums are not absolutely hardy, we regard with more favour those undoubtedly tender plants which make such glorious displays of flower under glass during the winter months. Of all these none excel in effectiveness the zonal Pelargonium. Chinese Primroses are beautiful; Cyclamens are charming; early forced plants are delightful; but a bank of winter-blooming zonal Pelargoniums in good flowering condition is truly grand. I have seen the wonderful show of these which Messrs. Cannell and Son make in January. It is the most striking floral display to be found in the kingdom, so far as my experience goes, for the time of the year. Even Chrysanthemums, believed to be the

winter flowers *par excellence*, have then lost their freshness and beauty, but a bank of Pelargoniums is as beautiful as ever. To step from an outside coating of snow covering the earth into one of the Swanley Pelargonium houses when the plants are full of bloom is indeed a transformation scene of the most remarkable kind. The colours of the flowers always seem to be so much more striking and brilliant when produced in the winter than they are in the summer months. It cannot be termed forcing to which zonal Pelargoniums are subjected in winter. They are simply blooming in the same temperature they so much enjoy during the summer months, and practically they are but blooming under natural conditions. It is so easy to have a few dozen plants in variety, including both double and single forms, prepared for special winter blooming. They should be raised from spring-struck cuttings and potted on into 6-inch pots. After being well exposed to the sun and air during the summer, and occasionally pinched to make the plants bushy, keeping down all flower-stems until the plants are placed under glass at the end of September, they will bloom profusely all the winter.—A. D.

Begonia fuchsioides.—As a pillar plant for a warm greenhouse there are few, if any, more suitable subjects than this, for though usually spoken of as a winter-flowering Begonia, its season of blooming is by no means confined to the winter, as may at the present time be seen in the greenhouse (No. 4) at Kew, where it presents a mass of healthy dark green foliage. It is also profusely laden with its beautiful wax-like coral-red blossoms. In the rage for tuberous-rooted Begonias within the last few years, some of these older varieties are apt to be overlooked, though there are a few (and this is one) that we could ill spare. The many strong-growing varieties of B. semperflorens, which, by the way, bear a good deal of resemblance to B. Lynchiana, are also in a most attractive stage, while the ordinary B. semperflorens and its pink-flowered form may be induced to bloom at almost any season of the year. Other varieties of this class that we have now in bloom are ascotensis, whose beautiful pink blossoms are borne in large clusters, and B. metallica, whose foliage during the early part of the year is so ornamental. Besides these the hybrids raised between the peculiar winter-flowering B. socotrana and some of the tuberous-rooted varieties (of which an example is to be found in John Heal), will, no doubt, when better known become very popular.—H. P.

The Urn Flower (Urceolina pendula).—The fact of this bulb flowering during the autumn months is a great point in its favour, and when to this is added the beautiful, but uncommon, character of its blossoms, one would expect it to become a universal favourite, instead of which it is very rarely met with in gardens. The Urn Flower produces a tuft of Eucharis-like foliage, while the flower-stem reaches to a height of about a foot. The flower, hanging by means of a slender stem, is in shape exactly like an inverted urn, while its colour is a beautiful shade of canary-yellow, tipped with bright green. It succeeds best in the temperature of an intermediate house under similar treatment to that required for the Eucharis. Like this plant, it is seen to very great advantage when several bulbs are grown together in one pot. A coloured illustration of this appeared in THE GARDEN, May 12, 1888.—T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Anthurium Andreanum giganteum.—This is one of the largest forms of A. Andreanum we have seen. The spathes are of great width, and intense waxy scarlet in colour. It is very fine in Messrs. Veitch's Chelsea nursery.

Amasonia punicea.—A group of this just now is one of the brightest features in a warm house, and the other day several specimens were in full bloom in the Chelsea Nursery, of Messrs. Veitch. The scarlet bracts give the colour to the flowers, the latter being pale primrose-yellow.

Ardisia mamillata.—There have been notes before in THE GARDEN upon this plant, but it is worth mention now, as it is in full berry. The woolly leaves are covered with short hairs that give them a characteristic appearance, and just under them, on short stalks, are produced small clusters of scarlet Hawthorn-like berries. There are several plants of it in the Chelsea Nursery of the Messrs. Veitch, who find that it propagates very freely by cuttings. It requires a warm temperature.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

ON Monday evening last a meeting of the general committee of this society was held at Anderton's Hotel, Fleet Street, under the presidency of Mr. E. Sanderson. Immediately after the minutes of the former meeting had been confirmed, the hon. secretary moved that the Eastbourne Chrysanthemum Society be admitted in affiliation. The election of new members followed, and the total was stated to be now 581. Mr. W. Holmes reported that all the arrangements for the ensuing grand provincial show at Sheffield were progressing favourably, and that intense interest in the undertaking was being shown in and about that town, the only cause for regret being that Mr. Woodcock would be leaving the neighbourhood for his new post on Tuesday. He, however, intends to return temporarily for a day or two before the show, in order to assist in carrying out the necessary details.

With regard to the show at the Aquarium on the 7th and 8th inst., it was resolved that the secretary be empowered to ask Sir Guyer Hunter, M.P., to perform the opening ceremony. Mr. Holmes also announced that it had been arranged for the British Fruit Growers' Association to hold a meeting of its members in St. Stephen's Hall on the second day of the Aquarium show. He stated further that the lithographed vote of thanks to the catalogue committee had been despatched to each member, and the chairman, after reading the same over to the meeting, said it afforded him great pleasure to present the silver medals to Mr. Lewis Castle, Mr. George Gordon, and Mr. C. Harman Payne, which he thereupon did. Those gentlemen having expressed their thanks and stated their willingness to render any service they could to the society, Mr. Holmes raised a point as to the price required by the medallist for striking off the three gold medals offered for competition at the next show, and it was resolved that they should not exceed in value £5 5s. each.

Some discussion then ensued upon the form and design of the proposed challenge trophy for the society's competition. A letter was read from America on the subject of the catalogue, and Mr. Holmes suggested that the time had now arrived when something might usefully be done to popularise the National Chrysanthemum Society outside England, and more particularly France, Belgium, and the United States, where the culture of the Chrysanthemum was fast making headway. For this purpose he moved that Mr. Harman Payne, with whom he had already conferred on the subject, should be appointed the foreign corresponding secretary to the society. The motion was carried unanimously.

Friends intending to be present at Sheffield were informed that a party of the National Chrysanthemum Society would leave London by the 5.40 train from St. Pancras on the evening preceding the show.

As a large number of entries in the fruit and vegetables had already been received, it was resolved that the judges appointed for those classes be entitled to award certificates of merit in those classes instead of the floral committee.

The date fixed for holding the annual dinner of the society next came on for discussion, and it was decided that it should take place at Anderton's Hotel on Thursday, the 13th of December.

Mr. Holmes stated that the valuable silver cup to be offered at Sheffield will be exhibited at the Aquarium.

After some desultory remarks as to the advisability of having a general meeting of the members of the society on the evening of the first day of the show for the benefit of country members and the staging of Pompon exhibits, the meeting closed with the usual votes of thanks to the officers for their attendance.

The Gardeners' Orphan Fund.—The committee of this fund resumed their meetings at the Caledonian Hotel on the 26th ult, Mr. George Deal presiding, there being a full attendance. The minutes of the last meeting on July 27 having been read, the hon. secretary (Mr. A. F. Barron) announced there was at the banker's a sum of £303 19s. 8d. Subscriptions and donations were announced to the amount of £38 19s. 8d., including £7 12s. from Mr. W. Wildsmith, Heckfield Gardens; £10, the proceeds of an entertainment given by the young men of the Chiswick Gardens in aid of the fund; £5 from the Hon. and Rev. J. T. Boscawen; and £11 18s. 8d. from local secretaries. Mr. R. Dean handed in the sum of £1 0s. 6d., the proceeds of a box in the show on the occasion of the meeting of the Oxford Carnation and Picotee Union at Oxford in August last. Mr. O. Thomas, of Chatsworth Gardens, wrote to say that he, in conjunction with others, was arranging a musical entertainment in aid of the fund, to take place at Chesterfield on November 14, and inviting the attendance of the hon. secretary or some member of the committee. The hon. secretary reported that the 3000 copies of the annual report and list of subscribers ordered to be printed were nearly paid for by the advertisements contained in the issue. Mr. Bishop, The Grove, Teddington, was appointed local secretary for that district. A report in reference to the appointment of guardians to the eleven children in receipt of the benefits of the fund was brought up by the chairman and hon. secretary, from which it appeared that the guardians were in all cases relations of the children, and in most instances the mother acted in that capacity; also that the first quarterly payment had been made to the recipients, amounting to £35 15s. Various accounts were ordered to be paid, and the proceedings closed with a hearty vote of thanks to the chairman.

Chrysanthemum Julie Lagravere.—I am desirous of exhibiting a plant of Julie Lagravère for competition in a class for six large flowering varieties. I should like to ask your Chrysanthemum correspondent if I should be open to disqualification, having doubts as to which class that variety belongs.—EXHIBITOR.

*** This variety of Chrysanthemum is classed as a reflexed sort; therefore can be shown in a class for six large flowering varieties without fear of disqualification. The blooms of Julie Lagravère are much too large to compete in the Pompon section; therefore it comes into the reflexed section. "Exhibitor" should remember that owing to the blooms being naturally small this variety will not carry so much weight as an equally good specimen of King of Crimsons or Cullingfordi, for instance, which produce much larger blooms of a similar colour.—E. MOLYNEUX.

LAST week saw the end of one of the oldest established firms in Paris through the retirement from business of M. Rougier-Chauvière. About the year 1840, and while in the hands of the late M. Chauvière, this nursery was celebrated for double Dahlias. M. Chauvière was one of the first nurserymen who at that time crossed yearly over to England in order to hunt up new varieties, especially of soft-wooded plants, and used to bring back Verbenas, Cinerarias, and above all Pelargoniums and Dahlias.—J. SALLIER.

Names of plants.—*G. Mantin.*—All varieties of Pleione (now classed under Cœlogyne) præcox.——*W. Tamplin.*—1, Leycesteria formosa; 2, Helianthus orgyalis.——*J. C.*—1, Selaginella Martensi; 2, Phlebodium aureum; 3, Adiantum decorum; 4, Adiantum concinnum.——*Alpha.*—Myrica Gale, or Sweet Gale.——*A. Hope.*—Gloriosa superba.——*Hugh White.*—The Cymbidium is C. elegans (poor variety); the Cattleya C. bicolor.——*A. C.*—Oncidium crispum.—*Henry Downing.*—Lælia Perrini.—*W. H. Cullingford.*——Cotoneaster affinis.——*J. E. Larder.*—Constantinople Nut (Corylus Colurna).—*A. B.*—1, Acer fraxinifolium; 2, Elæagnus pungens variegatus; 3, Berberis vulgaris purpurea; 4, Juniperus chinensis; 5, Spiræa ulmifolia; 6, S. callosa.

Names of fruits.—*G. Eden.*—1, Louise Bonne of Jersey; 2, Beurré Bosc; 3, Seckle.——*W. Sharp.*—1, not known; 2, Souvenir du Congrès.——*H. C.*—1, Uvedale's St. Germain; 2, General Todtleben; 3, Olivier de Serres; 4, Glou Morceau.——*A. C.*—1, Hacon's Incomparable.——*J. G. M. G.*—Pears, 1, Beurré Diel; 2, Hessle; 3, Williams' Bon Chrétien; Apples, 4, Ravelston Pippin; 5, Manks Codlin.——*Jas. Exell.*—Pear, Thompson's.——*W. M.*—Grape, Foster's Seedling; Apple not recognised.——*Anon.*—Pears, 2, Gansel's Bergamot; 3, Marie Louise d'Uccle.——Others next week.

WOODS & FORESTS.

TREE SEEDS.

Mr. James Farquharson's article in The Garden, Oct. 13 (p. 356), on Larch and other tree seeds is very interesting, and I am glad to be able to confirm his statement not only as to the abundant crop of cones in this country, but likewise in Ireland, where I happened to be at the time the Larch was in full flower, and I then remarked in The Garden that I had never seen a finer appearance in that country. Now that the crop is known to be abundant and of good quality throughout the British Isles, it is certainly very encouraging. The fine dry weather which we have experienced for some time is no doubt very beneficial for maturing the seed in the cones, but on no account should they be collected until they are thoroughly ripened by winter frost. There are several varieties of the Larch grown in this country, the two principal of which are the red and the white. The former is the hardier tree, and is generally preferred for planting on cold, wind-swept districts of the country, although at the same time I have used the latter or Tyrolese Larch with perfect success at an elevation of from 1000 feet up to about 1400 feet above sea level. This variety is apt to start into growth in spring ten days or a fortnight earlier than the red variety, on which account it is much more liable to be cut down or damaged by late spring frosts, although at the same time it matures its growth earlier in autumn than the red variety, and may be recognised by the yellow appearance of its foliage, when that of the other is quite green. I have occasionally found another variety—probably a hybrid between the two—which may be recognised by the pink colour of its female catkins in spring. As, however, none of the varieties can be distinguished by the wood during winter, the seed collector should be careful to gather the largest and finest cones from the best and healthiest trees. Some varieties, again, of the Larch exhibit a pendent or weeping habit, and I have propagated some very fine specimens from seed, but after the progeny was planted out and established in the forest, I found that none of the trees produced the pendent spray so characteristic of the parent trees. This is strong evidence that the structure and character of many of the trees are accidental and not permanent. I, therefore, came to the conclusion that when plump seed of full size can be had from healthy well-developed trees of average size, it should be collected and prepared at the proper time, but on no account should cones be gathered from dwarf, contorted, unhealthy trees of any variety.

Although the vitality of foreign Larch seed gathered from trees in the native forests is greater than that of such as is produced from the same species in this country, yet by proper selection and care, vast quantities of fine young trees have from time to time been raised from home-saved seed, and as the plants raised from these do not start into growth in spring so early as those raised from foreign-saved seed, they are considered by many planters to be in every way superior for planting on cold upland situations. I have used both kinds, and where the soil and other conditions were favourable for the growth of the trees, the results obtained after some thirty years' growth were quite satisfactory. The fact is, when large plump seeds can be had from fine healthy trees in this country they should be used, but when such cannot be had I prefer using plants raised from continental seed collected in the natural Larch forests. When the seeds are very fine and plentiful the cultivator should lay in a good stock, and if they are not all to be sown in one year they may be stored in a dry place for future use.

It has been asserted by some writers that tree seeds will not germinate if kept in stock for any length of time after having been collected, but this is not my experience, as I have raised coniferous trees from seed that had been stored away in a dry loft for a period of twelve years. Coniferous tree seeds are slightly coated with a resinous substance which keeps the embryo or germ of the seed safe, and I have occasionally known the seeds of different species, including the Scotch Fir, lie dormant for the first year after being committed to the soil. This is frequently the case with the Scotch Fir seed when sown broadcast on heather ground. The cones of many of the Picea tribe of Coniferæ as well as some species of Pines are ripe and should be collected, otherwise there is a risk of the cones opening and the seeds being lost. Some species and varieties of Cypress ripen their seeds at this season, and if not already done no time should be lost in having them examined, and such as are thoroughly matured should be gathered and stored in a dry, airy place till wanted. Many deciduous trees, such as the Oak, Beech, Walnut, Chestnut, Maple, &c., ripen their seeds at this season, and should be looked after and collected on a fine dry day. There is a fine crop of berries on the common Hawthorn, and as they are very valuable they should be collected when properly matured, mixed with sand to prevent fermentation, and placed in a pit. The whole mass should then be occasionally turned to induce decomposition, and after undergoing this treatment for a period of from twelve to fifteen months they should be removed and sown on well-prepared nursery ground. Some people collect the haws in summer when they are beginning to change colour and sow them immediately, and as they vegetate next summer there is thus a great saving of time and labour, but I have no confidence in plants thus raised and do not agree with the practice.—J. B. Webster.

—— Everything that has any bearing on the Larch and its seed is of the deepest interest to all tree lovers. Any information regarding what might be most conducive to its health, and, therefore, to its successful culture, must always be welcomed by those who know the value of the tree as a useful and an ornamental subject.

Speaking of the Larch seed, Mr. Hamilton in The Garden, Oct. 27 (p. 404), suggests that it would be better to procure seed from abroad, as he thinks that our climate does not ripen the seed properly. Doubtless the changeableness of our climate does sometimes militate against the production of the best home seed; still the effect of this is only felt in certain seasons. The Larch seed crop in the north of Scotland is this season the finest I have seen for many years, and I never saw foreign seed to equal it. Moreover, more or less of this high-class quality of Larch seed is brought to maturity almost every year.

I have no faith in Larch trees raised from foreign seed, although I am fully cognisant of its germinating qualities. Even though the trees may do fairly well for a time after they have been removed from the nursery to the forest ground in which they are intended to grow for perhaps sixty or a hundred years, the chances are that before many years are past we will be much disappointed with the result. Plants raised from foreign seed may succeed in the milder climate of Ireland and in some parts of England, but for our Scottish climate they are not adapted, and are nowhere in the (final) race for life beside the offspring of the native Larch.

A gentleman who had been travelling in the native habitat of the Larch told me that the magnificent individual specimens and splendid plantations of this tree in our own country are far superior to those on the Continent. Here and there are fair specimens to be seen in the ravines and in the most favourable situations, but, on the whole, the growth is poor in comparison and the idea of its magnificence exaggerated. This is an extraordinary testimony from one who has witnessed the growth of the tree in both countries, and who also is well able to judge of the qualities of the tree both abroad and at home.—J. F.

The Pine forests of Western France.—In a report on the agriculture of the Gironde, the British Consul at Bordeaux refers to the forests which cover about a third of the department, especially the Landes district, where the soil is wholly unfitted for ordinary cultivation. Hence forests of Pines (the *pin maritime*) have in recent times been planted, and the wood and resin obtained from them have now become an important and, in some instances, the sole source of revenue to the inhabitants of those districts. In the parts distant from towns and other inhabited places resin is chiefly produced, while in places nearer to Bordeaux or other shipping ports, where means of transportation exist, the production of pit props, railway sleepers, telegraph poles, and wood for fuel forms the chief business. The collection of resin affords a living to a large number of the very poorest persons, and the recent decline in the exportation of this article from Bordeaux has been a great misfortune to the inhabitants of some parts of the Landes district. The decline has been caused by the increasing competition of the United States, which has become the chief exporter of resin, to the almost entire exclusion of Bordeaux. A new kind of oil, called Pine oil, is now made from the refuse of resin, after the latter has been employed in making turpentine. This is used as an illuminant in some private houses in Bordeaux, and burns very brightly; it is cheaper than refined petroleum and is not explosive. The trees do not appear to suffer from the extraction of resin, if it is done carefully, and the wood is even then better fitted for certain purposes, such as paper-making and the manufacture of pyroligneous acids. The export of pit props, made from the Landes Pines, is an important branch of trade between Bordeaux and English ports adjacent to coal districts. One hundred and seventy-five thousand tons of pit props are now shipped annually to England from Bordeaux, while ten years ago the shipments did not reach half that quantity. Railway sleepers and telegraph poles are likewise made in large quantities in these Pine forests; they are used chiefly in France. Besides, a large quantity of young Pines finds its way to England every year to be converted into paper. The Landes is a sandy district in which nothing but Pines will grow, and the forests are all of recent origin.

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"The Garden Annual and Directory" for 1889 *will contain a Complete List of Gentlemen's Seats, their Names and Gardeners; List of the Nursery Trade, with a new List of the American Trade.—Editor of the "Garden Annual," Mr. James Flood, 37, Southampton Street, Strand, London.*

No. 866. SATURDAY, Nov. 10, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

THE CHISWICK CONFERENCE.

THE great conference wave having subsided, carrying with it the majority of the busy men who took part in the meetings to their homes, it may be well to inquire calmly and dispassionately what progress we have made, what our future prospects, and how far we may expect to be aided by the present council of the Royal Horticultural Society.

Viewed from a practical horticulturist's standpoint, the show of Apples and Pears must be considered a great success, not so much perhaps in quantity, for this has been one of the worst seasons on record, as in even quality and improved nomenclature. The fruit grower's object, viz., that of showing to all classes, from the legislator downwards, what can be done in this country to a great extent was realised, and yet there was a something present and a something wanting which reminded us that the brightest Apples may turn to ashes on the lips. The poor old garden, what bit there is left of it, tried to look its best, although the houses in which Barron has done such good service would have been none the worse for a coat of paint. Marie Louise greeted us as we passed along the walks, and Lady Downes looked down from her giddy height as we entered the conservatory, so aptly compared to the hull of a ship keel upwards. Here every table was full of Apples, every dish correctly named—a wonderful step since the first conference was held in 1883. The large collections, moreover, were not so numerous as one might have expected, a circumstance possibly due to the bad season, but more likely, at least let us hope so, to the fact that weeding out, regrafting, and paring down generally have brought first-class sorts to the front and placed seconds in the background. In this respect the great nurserymen even, who must have immense stocks on hand, have confined themselves to a few of the best, and do not advise their clients to go extensively into untried novelties. In another respect they have not been quite so successful in acting up to the ends required by the carefully worded schedule. From that we gather that the public were to be taught what can be done in this country in the open air. What soil, what stock, what aspect, and so on have contributed to the production of marvellously fine specimens. The majority of the cards, it is true, contained all this necessary information, but some specimens we saw there, so far from having been grown out of doors, must have cost a guinea apiece under glass, and yet labels did not convey this intimation. Such magnificent examples must have gladdened the heart of every fruit grower; but then that something came up to the surface, and one can only account for it by saying, marvels of skill, but likely to mislead the public, especially that portion which visited Chiswick with the view to ascertaining how far fruit growing may be made profitable. Many gentlemen and ladies who saw those Apples may have said to their gardeners and tenants, If you can grow fruit like that, we will find the land and trees and give you every encouragement; but, alas, the reply they would receive from practical men would shake their confidence in collections which they would vote misleading. Were not this the case, why were Pines and Grapes and Peaches excluded from the inverted ship, and why were the accepted papers confined to hardy fruit culture?

So much for the past, now for the future. Wheat-growing days having gone by, a great breadth of most excellent land at the present time is yielding very little profit to landlords and tenants. Fruit growing upon modern principles as laid down by Mr. Paul, Mr. Bunyard, and others, many think will yield a good living profit, that is to say, the returns will enable industrious men to live and educate their families. But here, as in the Corn trade, we have open ports, and millions of tons of fine fruit from better climes than our own are pouring in to keep down prices; consequently the fabulous sums per acre we sometimes hear of must not be accepted as the fair average which is to make rapid fortunes. Apples on the Paradise, Pears on the Quince, Plums, Filberts, bush and soft fruits on suitable land and sites, no doubt will pay; but how are we to go about planting? Yearly tenants cannot be expected to invest the capital if they have it. Short-lease tenants will fight equally shy. What then is our future prospect? Well, the only common sense way out of the difficulty is bound up in the alteration and improvement of our land laws to an extent which will enable owners to give occupiers terms which will restore confidence and which will entitle them to renewal at fixed rentals and compensation for past improvements. The landlord should put the land in good fruit-growing condition and find trees at the outset, and a fixed price should be paid to the tenant, say double the original cost for each tree planted by him afterwards. If a man plants a thousand trees which cost half a crown each, they should be worth double that sum when they come into bearing, but he should not be able to recover more than five shillings each at the end of ten or twenty years, as their produce under good management will be found a fair return for the capital invested. These matters of detail, as a matter of course, must wait to be dealt with when railway rates and a better system of fruit distribution are brought before a competent and responsible committee. State aid in a free country does not go down very well, but if Corn growing is going, or has gone, to the dogs, and hardy fruit culture is to form a powerful rib, if not the backbone, in a new structure, landlords must have at least the good will if not direct assistance from the Government. When this has been settled, another very important question crops up. How is the ordinary farmer who moves so slowly, possibly on a farm splendidly situated for choice fruit culture, to acquire the practical skill so essential to success when pitted in competition with the men of Kent and other great fruit-growing centres, who have devoted a lifetime to this special branch? Many of them are too old to learn had they the will, whilst strength and wealth without skill, as all who dwell amongst Lichen-clad orchards can testify, represent so much power thrown away or diverted into a wrong channel. The rising generation may be taught, but is this teaching to be acquired on private fruit farms or at royal colleges like the Royal Agricultural at Cirencester, which turns out more theorists than practical men? and this question brings us to the part which the Royal Horticultural Society may or may not play in the great work which is now taking possession of the minds of all thinking men who know the country cannot be thoroughly prosperous so long as the landed interest is languishing.

The Royal Horticultural Society has been pitchforked, as it were, by private conferences, by private colleges, by private fruit-growing associations, and, a more powerful agent, public opinion, into making a semblance of doing something; but will the few thoroughly earnest practical gentlemen on the council, now doing all the hard work, prevail, or will the weak-kneed majority swamp the bark they have so badly steered? Will they let the last remnant of Chiswick go, and hide their diminished heads in a miserable drill hall in a back street in Westminster? The few gentlemen, good and true, who wish to introduce the genuine horticultural element have induced hundreds to join, despite the insults cast upon gardeners; hundreds more are ready and willing to follow suit; but after the cold *douche* so unfortunately plied upon those already within the fold on the opening day at Chiswick, they must be something more than loyal if they do so. These half-hearted affairs do not, however, do away with the well-proved fact that we are capable of growing magnificent fruit; but whether or not the Royal Horticultural Society is capable of drawing opposing societies and associations over to Chiswick, and steering the ship with all hands on board, is a question which must be solved in the future.

W. C.

ROSE GARDEN.

T. W. GIRDLESTONE.

NEW ROSES.

THE Rose-planting season comes round again, bringing as usual the inevitable question, What new Roses are worthy of general cultivation? The question is one to which no one can be expected to give a full and complete answer, but it will perhaps be useful to note what has been seen of some of the newer varieties during 1888. The observation of new Roses is always attended with considerable difficulty; it is not invariably an easy matter to form an exact estimate in a single season of the character and value of a variety, even when it can be seen or grown in quantity, but in dealing with the half-dozen or dozen plants that generally constitute the stock of a new Rose, the difficulty is greatly increased even under the most favourable conditions. There cannot be expected under any circumstances a very great number of blooms from young plants, and if the grower should chance to be away for a day or two, at an exhibition perhaps, the best and most eagerly-watched-for flowers will probably expand in his absence, and so miss being seen. When, however, in addition to all the usual difficulties and risk of mischances, there is experienced a season of almost continuous cold and wet, the opportunities for the favourable observation of new Roses are indeed reduced to a minimum.

Among the recent varieties that have best braved the elements have been some good dark Roses, and subsequently during the finer autumn a few of the Teas; but it will be more convenient to refer to them alphabetically, beginning with the few that have been seen in bloom out of doors of those that were announced in the autumn of 1887, and generally distributed in this country in the spring of 1888.

TEAS.

BARDOU JOB (Nabonnand).—This Rose, sent out as a Tea, although a seedling from Gloire des Rosomanes, follows its parent in being a rampant grower, a thorough autumnal, and producing rich crimson, semi-double flowers of delicious fragrance. A useful crimson climber if it prove distinct enough from the older variety.

DUCHESSE D'AUERSTADT (Bernaix).—A seedling from Rêve d'Or. It seems likely to prove a distinct addition to the climbing Teas of the Gloire de Dijon

race, having deep yellow flowers with a slightly orange shade.

HENRIETTE DE BEAUVAU, the last Rose sent out by the veteran raiser Lacharme, is also a climbing Tea, with much the character in habit and foliage of Mme. Eugène Verdier, but far freer both in growth and flowering than that beautiful though shy variety. The handsome, dark-coloured wood and foliage show off the finely-formed yellow flowers, which are of much the same shade as those of Perle des Jardins, to great advantage; in fact, it is probable that Lacharme's final contribution to our Rose gardens will take rank as one of the most valuable additions to yellow climbers.

L'IDEAL (Nabonnand) is one of the most bewitching bud Roses that has yet been sent out. The plant is of vigorous climbing habit, and produces with the utmost freedom the most charmingly coloured buds of indescribably blended tints of bright rose and yellow. The colouring at a distance frequently recalls that of Fortune's Yellow, though with generally a more prevailing shade of rose, and if the variety prove equally hardy, it will be likely to attain to great popularity as a striking climbing Noisette somewhat of the same class as William Allen Richardson.

LADY CASTLEREAGH (Dickson).—As far as has been at present seen, this is the best Tea-scented Rose of the year. The plant is a vigorous grower, the foliage handsome, the flowers large, finely formed, and of a pleasing shade of rosy yellow, with rose colour predominating at the margins of the petals, which being of great substance ensure the satisfactory expansion of the bloom, while it is very free-flowering and a thorough autumnal.

MADAME HOSTE (Guillot) —A very charming Tea, to which already a first-class certificate has been awarded by the Royal Horticultural Society. The flowers are produced with great freedom both early and late, and in colour are pale yellow, with large outer petals and high pointed centre. The variety is an excellent grower, and, the flowers being carried perfectly erect upon the plant, it is particularly effective in the garden; whilst, like Lady Castlereagh, it will be most welcome to exhibitors of Roses of this beautiful class.

PRINCESSE DE SAGAN (Dubreuil).—This is not merely a red Tea; it is a brilliant and telling crimson, and it has all the qualities of vigour, freedom, and ever-blooming claimed for it by its raiser. But it is doubtful if the flowers, though they are well formed, will prove large enough to enable the variety to rank as quite first-rate.

SOUVENIR DE MME JOSEPH METRAL (Bernaix) is a red Rose of Gloire de Dijon family, and

TRIOMPHE DES NOISETTES (Pernet) is of much the same class. Both are very vigorous and free autumnals, something in the way of the Waltham climbers, and may prove useful in swelling the present meagre list of red climbing Roses.

ROSES OTHER THAN TEAS.

CAROLINE D'ARDEN (Dickson).—This Rose, raised from a cross between the two best red Hybrid Perpetuals in cultivation, A. K. Williams and Marie Baumann, proves worthy of its parentage, and has already taken a high place in the estimation of rosarians. The blooms of it exhibited at Manchester last July elicited the greatest admiration, but it is not a Rose to be appreciated only by exhibitors, although they cannot fail to find it invaluable, for in addition to the important qualities of size and fine form, the flowers are deliciously fragrant, with large, very smooth petals of great substance and of a most attractive shade of pure soft rose colour. The plant grows vigorously and flowers well in autumn.

DUCHESS OF ALBANY (Wm. Paul).—A sport from La France, of which it has all the good qualities, with flowers of a deeper shade of colour. First-class certificate R. H. S.

DUCHESS OF LEEDS (Mack.).—A seedling from La France, possessing its parent's characteristic habit of growth and type of flower, less in size and substance, but considerably deeper in colour, and likely to make a very pretty garden Rose.

GEORGES PERNET (Pernet fils).—A very pretty addition to the dwarf ever-blooming Polyantha Roses, producing trusses of bright rosy flowers with a yellow base, rather large for the type, and well worth growing.

GERMAINE CAILLOT (Pernet fils).—Probably the best French hybrid of the year. Of sturdy, erect growth, somewhat of Captain Christy character and thoroughly perpetual; the plant produces large, beautifully formed flowers with high-pointed centre, the fine petals gracefully recurved at the margins, and of a delicate shade of rosy flesh, tinted with salmon at the base. A most promising and pleasing Rose.

GLOIRE DE MARGOTTIN (Margottin père) is expected to prove the best of all crimsons for forcing for the cut flower market, but at the same time the maiden blooms, especially in a cool season, will be likely to be available for exhibition, and it is worthy of note that Mr. Benjamin Cant, of Colchester, who rarely misjudges the value of a Rose for the purpose, has recently expressed his opinion to that effect. The plant is very vigorous, free, and perpetual, the fragrant flowers being of good size and fairly full, and of the most brilliant crimson colour.

GLOIRE DES POLYANTHA (Guillot).—A seedling from Mignonette, and so far the best of its miniature class. In all its main characteristics the plant follows its parent, forcing well and being an invaluable autumnal, but the flowers are larger and more perfect, and of a considerably deeper shade of rosy pink. First-class certificate Royal Horticultural Society.

GOLDEN FAIRY (Bennett) is another pretty variety of the same type, with well-formed orange flowers, much in the way of those of Perle d'Or.

KRONPRINZESSIN VICTORIA (Vollert).—An attractive pale yellow Bourbon, said to be a sport from Souvenir de la Malmaison. The plant flowers freely, with characteristic pointed buds, the colour becoming almost white in the fully expanded blossoms.

LADY ALICE (George Paul).—A sport from Lady Mary Fitzwilliam, from which it differs only in colour, being of a delicate flesh tint, paler and more refined than the type.

LAURETTE MESSIMY (Guillot).—A charming ever-blooming China Rose with flowers of the most brilliant rose colour, with a decided yellow base. A most effective variety for massing and quite distinct.

LITTLE DOT (Bennett),—The most diminutive of all the little Polyantha Roses, producing tiny salmon-pink flowers shading almost to white at the margins.

MME. ANDRE DURON (Bonnaire).—This Rose has much the character of the old Bourbon Sir Joseph Paxton in foliage, habit, and type of inflorescence; the flowers are said to sometimes attain to the size of those of Paul Néron, but it is to be feared that its common colour will be much against it.

MME. GEORGES BRUANT (Bruant) is a double white hybrid of Rosa rugosa. It is very free and the buds are very pretty, having, of course, the advantage over the type of endurance in the cut state, but the flowers open quite flat, and then with their centre of knotted petals they are far less beautiful than those of the single type.

QUEEN OF AUTUMN (George Paul).—A vigorous and thoroughly perpetual variety, with round crimson flowers of delightful fragrance, and likely to make a useful garden Rose.

RED PET (Parker).—An excellent companion to White Pet, the plant being very vigorous, and covered with bright crimson admirably formed flowers throughout the entire season; an admirable addition to the China Roses for massing.

Brown's Rose (Rosa Brunonis).—According to M. Crépin, the director of the State Botanic Garden at Brussels, Rosa Brunonis, referred to in THE GARDEN of July 28 (p. 72), cannot be maintained as a good species, being simply a variety of R. moschata. The reduction of the number of species as far as possible is eminently desirable, and in the case of a valuable garden plant like the present may conduce to its wider cultivation. Gardeners who would be shy of Rosa Brunonis (Lind.), might be willing enough to make a trial of Brown's Musk Rose.

CHINESE ROSES AS AUTUMN BLOOMERS.

CALLING upon Mr. Roberts, of Gunnersbury Park Gardens, a few days ago, I was much struck with a bed of the Chinese or Bengalese Cramoisie Supèrieure, with its velvety-crimson flowers and elegant foliage. It was interesting to note how free flowering this variety is, and although fog and rain had done their worst to spoil the beauty of the flowers, they were yet gay despite the unusually gloomy surroundings. In this variety we get a Rose that is well adapted for floral decorations, and especially in autumn, for then not only are the flowers bright, but the foliage, which is very persistent, turns to a pleasing hue of red; and Mr. Roberts states that it comes in very useful for table decorations. Other good varieties are Archduke Charles, pale shaded rose, changing to crimson; Ducher, white, a very free-blooming variety; Eugène Beauharnais, amaranth, large, full, and very pleasing in colour; Little Pet, a dwarf-growing variety, producing a profusion of white flowers; Mme. Breon, bright rose blossoms, large and full; and that gem of the section, Mrs. Bosanquet, delicate pale flesh, the flower large and double. To these may be added the common white and pink varieties.

It has been stated by one writer that where the growth of houses swallows up the country, and the air becomes too impure for many garden plants by reason of being charged with noxious vapours unsuited to a healthy vegetation, the China Rose is the first among the Roses to show the injurious effects; therefore, it is said that in any locality where the common China Rose will do well, other Roses may be planted with safety. It has, therefore, had bestowed upon it the name of the Pilot Rose.

The variety named above is by no means the only one that flourishes at Gunnersbury Park, although the soil is at times much saturated with moisture, and London fogs become very troublesome when the wind is in the east. I have found the China Roses do well in varied soils; that best suited is a fairly light and certainly a rich one. Mr. Roberts' beds are slightly raised above the ground level, thus affording something in the way of natural drainage. The plants appear to like a good mulching with short manure during the summer.

But little pruning is required. The China Roses bloom so freely that the growth of the plant is to some extent regulated, but the long shoots need to be kept shortened back. I think a charming effect might be secured if beds of standard Roses had as an undergrowth a plantation of China and Tea-scented Roses to carry on the flowering period until late in the year. R. D.

Rose Gloire Lyonnaise.—It is satisfactory to see that "J. C. C." is able to endorse the recommendation of Gloire Lyonnaise as an autumnal, given on p. 362. It would be additionally interesting to learn whether this pretty Rose has always displayed this character with "J. C. C.," or whether with him also the power of perpetual blooming appeared only to be developed some time after the first introduction of the variety. The Rose fully merits all that "J. C. C." says in its favour, as the erect habit, the handsome foliage, which seems little liable to mildew, and the smooth wood most pleasant to handle (a great consideration where the blooms are to be arranged by fair fingers), all combine to render the pure refined-looking flowers most admirable for cutting. In cool weather, too, the half expanded blooms keep remarkably fresh in water, as was shown by the success with which it was many times exhibited this year. How well it is deserving of culture in pots has been also plainly demonstrated by the fine examples included by Messrs. Paul and Son, of Cheshunt, in their groups of pot Roses staged from time to time at the spring meetings of the Royal Horticultural Society and elsewhere, and, considering the ease with which cuttings of it may be made to strike root, it would seem to be just the

variety to take a prominent position in America for the supply of those long-stalked Roses so popular in the American cut-flower market.—T. W. G.

Rosa rugosa for hedges.—As I see in THE GARDEN, Oct. 27 (p. 383), the question of the Japanese Rose (Rosa rugosa) for hedges is again being discussed, perhaps it might be well to give a caution received from my friend M. Max Leichtlin when I first recommended in THE GARDEN, Nov. 13, 1886 (p. 409), Japanese Rose hedges; his advice was that slabs of stone should be placed near the stems, so as to prevent suckers filling up the border. In our case this did not apply, as the border was intended for the hedge alone, but the wisdom of the caution is shown by young plants coming up all around. Our first hedge was only about 30 yards long, enclosing some garden beds. The Roses there have been allowed to grow as they like, but in a more important hedge for dividing a field we put a fence of iron cattle hurdles with cut Furze worked through the bars, and one thick wire stretched along the top for greater height; the Roses were then tied to the bar so as to make them grow upward. This fence promises to be impassable and lasting, and is very pretty; the more so as the seedling plants had a considerable number of white Roses among them. Now the golden autumn tints of the leaves are very striking.—GEORGE F. WILSON.

FLOWER GARDEN.

IRISH DAFFODILS.

THAT Mr. Hartland should ask (p. 359) for information about "tortuose white Trumpet Daffodils" or any other Daffodils is surprising, for he has hitherto been a liberal purveyor of information. Without the aid of some able spiritualist it would be rash to attempt to satisfy his curiosity as to what living specimens of white Daffodils Haworth saw. One or two other remarks of Mr. Hartland's seem to admit of a more satisfactory answer. He asserts that a white Daffodil named Sarnian Belle is erroneously advertised as new, and without authority from the Daffodil committee. I am able to state that this flower was sent to my garden from Guernsey two seasons ago for trial, and is, in my opinion, a large, handsome, and new variety, and sufficiently distinct from anything of the kind hitherto found in Ireland or exhibited by Mr. Hartland. And it is only due to Mr. Barr, who catalogues this flower, to say that he is extremely careful to satisfy himself of the distinctness of any novelty before he offers it as such, and that I have never received from him an old plant under a new name, or the same plant under different names. As Mr. Hartland has himself raised this question, I may say that I and other collectors of Daffodils have suffered from the carelessness of others. Life is too short for even the most patient gardener to be pleased when bulbs acquired as "minimus, true," decline to flower, but increase steadily in bulk for several seasons, and ultimately bloom into the commonest form of white Ajax. It is perhaps a waste of space and time to erect three handsome and permanent labels inscribed respectively "spurius coronatus," "Golden Dragon," and "Irish King" over one and the same Daffodil. When Haworth's bicolor and Dutch bicolor produced flowers which were indistinguishable, and the same accident happened to Bishop Mann and Butterfly, also to Golden Plover and Tanist, and when two or perhaps three varieties of nanus under distinct and elaborate appellations presented me in due season with flowers exactly alike, I was willing to ascribe these curious results to certain occult chemical properties of my soil, until complaining friends showed me similar phenomena in their gardens.

But Mr. Hartland resents the giving of names "without authority from the Daffodil committee." As a member of that ineffectual and long-suffering body, I am fain to demonstrate that Mr. Hartland scarcely supports its poor endeavours to abbreviate names and abolish synonyms. Thus, in looking through his lists, I observe that he ignores the simple and fairly authoritative name moschatus for the little wild Pyrenean white Ajax, and calls it one year tortuosus minor and the next white variiformis. On another kind he bestows indifferently the three titles, Maw's nobilis, nobilis of Redouté, and bicolor minor. All this is unauthorised by the Daffodil committee. After a rather toilsome investigation I have satisfied myself that one plant, and only one, is decorated with the following string of superscriptions: trumpet nanus, nanus minor, nanus of English gardens, nanus of Irish gardens, nanus hibernicus angustifolius, nanus latifolius. One may not unkindly suppose that Mr. Hartland has himself come to the same simplifying conclusion, seeing that this year he has reduced this portentous list of nanus Daffodils to *one*. The wise, as they grow older, are increasingly aware that there may be more things in heaven and earth, and certainly in Ireland, than are dreamt of in their philosophy. Therefore, I am not prepared to assert that the ensuing catalogue represents only one form of Narcissus princeps, though I am certain that it does not represent seven: princeps, the Spanish or Italian variety; an intermediate or midseason variety; maximus or Don Quixote, princeps Grand Trumpeter, princeps bicolor, Irish princeps, princeps Irish Giant.

Moreover, Mr. Hartland makes random and unsupported statements about this already sufficiently bothersome family of plants which someone—probably the poor committee—will have the trouble of contradicting in print. Thus it is news to myself that n. minor has been "re-introduced to commerce from Spain in quantity." What proof can Mr. Hartland give that the very beautiful little white minor, of which I am fortunate enough to have a small stock, is a "chance seedling" from that wholly dissimilar and inferior and weedy variety Minnie Warren? I now feel no doubt that Leda is identical with the white Ajax distributed by Mr. Barr long ago as tortuosus. Mr. Hartland's figure and description of English tortuosus are quite imaginary. I myself saw and heard him recognise as Leda some flowers which Messrs. Collins and Gabriel showed at Kensington as tortuosus, and which were of strictly English origin. Again, he describes the staple of Irish cernuus as being a "giant" form and distinct from the English. I began to collect white Daffodils from Ireland as soon as Mr. Hartland, and have been industrious, but have never succeeded in finding an Irish cernuus distinct from our English kind. I do not speak of the large cernuus Bishop Mann, which Mr. Hartland catalogues separately from his giant Irish cernuus, and which is found in England as well as in Ireland. Why does he term N. cambricus the Welsh Lent Lily? It is not known to occur wild in Wales. Colleen Bawn is by no means delicate, but particularly robust as compared with most other white Daffodils. The bulbs of N. princeps are quite as round elsewhere as in Ireland; they are noticeably so in my garden, and Mr. Barr has just sent me a Dutch sample like cricket balls.

The foregoing is by no means an exhaustive commentary upon Mr. Hartland's synonyms and casually decorative appellations. The subject is capable of further exposition if he so pleases. And a word may be added here about the Cork double Daffodils. In 1885 the following varieties were announced as distinct: Cloth of Gold, Harbinger, John Parkinson, plenissimus, grandiplenus, Telamonius plenus (*various* Irish forms), Vincent Sion. To these their several histories were appended and their peculiar beauties described. In 1886 two more were brought upon the already crowded stage, viz, Irish spurius plena (true) and Italian pseudo fl.-pl. (præcox plenus). A Daffodil expert, whose opinion must carry very great weight, assured me (in very decided language, which I do not reproduce), after growing these nine kinds, that they were not nine; and as Mr. Hartland in 1888 retains in his list only *two out of the nine*, viz, John Parkinson and Telamonius plenus (no longer described as "various"), I may be justified in supposing that he has himself come to the same mind. It is almost cruel to add that the said expert declares these surviving two to be but one, a point upon which I will myself venture no opinion. I do not, of course, charge Mr. Hartland with wilfully misleading us, but suggest that he will find it advantageous to himself to exercise more care, if only for the sake of not irritating the Saxon and the alien.

G. H. ENGLEHEART.

CARNATIONS AND PICOTEES.

WHEN talking with a brother florist the other day about Carnations, he said his layers appeared to root badly this season, and in reply to my remarks that mine had rooted on the whole well, and that I had potted off a good many of them, he said, "Ah! but you layer early." I think it is a good plan to layer early, but all depends upon the condition of the Grass. As soon as it begins to feel a bit hard and ready, then I commence layering. The earlier the layers can be laid down the better chance there is of the young plants being well rooted by the end of September and beginning of October. I commenced potting off by the middle of September, and from plants layered early in August. Now, I have seen some growers, when potting their young stocks place their plants, often only slightly rooted, in pots 5 inches and 6 inches in diameter. I think this a mistake, even where two plants are placed in a pot. I prefer to use pots 4 inches in diameter, unless the plants are well rooted, and then I prefer to place them singly in pots of the same size. Depend upon it, the sooner the plants can establish themselves in the soil the better, and the certainty of carrying them through the winter is assured. In all cases of Carnation culture in pots, and at whatever stage, it is much better to have the pots filled with roots than with sour soil and very few roots. All my rooted layers in pots are occupying a cold frame, the lights are fully open, and the plants are subject to all weathers—sun, rain, frost, and wind. There is no coddling, nor is there any necessity for coddling.

I always think the pleasure of Carnation culture is greatly enhanced by having the plants in pots. I intend to pot very early in the ensuing year. Let the character of the summer be what it may, our springs are very retarding, and there always seems a long pause before the plants get well into growth. I think, therefore, that early potting encourages early root-growth, and then, when the growing season bursts upon us, rapid headway is made just when it is most desirable it should be so. Talking some time ago with Mr. Joseph Lakin, he said he began to pot into the blooming pots in February, and went on with the work until it was completed. I think that a good deal of discretion is required in the matter of potting. To give strong and weakly growers pots of the same size seems to be improper. Strong growers require more, and weakly growers less root space. And though the weakly growers are being gradually thrust out of cultivation by the introduction of newer sorts of a fine, free, vigorous habit, there are still a few it is desirable to keep for

their known excellence of character. The grower who knows his varieties pretty well is scarcely likely to over-pot; it is the novice who will probably make a mistake of this kind. I did it myself last year in one or two cases, but the mistake will not be repeated. Good drainage is indispensable, whether the plants be strong or weak; it is particularly necessary in the case of the latter.

If a fine head of bloom is to be had, the growth of the plants should be made and matured by the following season, and a matured growth can only follow when the soil is perfectly full of roots. A 12-inch pot might be used for two or three plants of exceptionally vigorous growth, but 10-inch pots can yet, in my opinion, be made to suffice for all of a vigorous character. Two or three plants of a weakly growing variety may be put into an 8 inch pot. I have known four plants put into a 10-inch pot. In the case of the smaller sized pot, drought is more likely to be injurious should watering be neglected.

I know there is a class of Carnation growers who think the culture of the plants in pots a work of supererogation. In my own case, I seem to have the plants under more perfect control when in pots stood along the sides of a path than when in the open ground, and the work of shading when necessary is more easily accomplished. The grower seems to enjoy his plants better through having them in such a position, and they are much more convenient for layering. I always have an open-air border of seedlings, but all choice named varieties are grown in pots in the usual manner.

R. D.

Bessera elegans.—I grew this for two seasons in the open air, but the last one it was not at all satisfactory, owing, I concluded, to the bulbs not being properly ripened, as it retained its foliage until the early autumn frosts cut it down. I ought perhaps to state that I write from the west of England, and that I grew the Bessera in the same bed as Milla bifolia, in a rather light and rich soil in a sheltered situation, but I found that neither of them would be likely to succeed cultivated in that way. They appear to require a warmer and drier soil than is likely to be found in any part of England. But for pot culture, with the protection of a cold pit or frame, I do not know of two more interesting plants. The Bessera flowered very well with me the first year, and if newly imported bulbs or those grown in pots and ripened under glass could be secured every year, I have no doubt but a regular supply of flowers could be obtained from warm positions in the open air. Milla bifolia ripened seed with me one year and produced flowering bulbs at the end of the third season. I sowed the seed as soon as it was ripe, and some of it grew in a few weeks, while some remained until the spring before it made its appearance. After the first season I kept the bulbs dry all the winter, and they remained in the pan where they were sown until they flowered.—J. C. C.

Double Primroses.—"D K.," referring to the difficulty experienced in preserving the choicer double Primroses in the south of England, the double crimson especially, refers to the climate as a damp one in winter, care therefore being needed to prevent the plants from damping off in frames. I will not give our southern climate a bad name for double Primroses in the winter months; indeed, I have always found it to be very favourable and tolerant for these plants, especially that, being so hardy, they suffer nothing from the hardest weather we experience here. It is the too frequent hot, dry summers which kill our choice double Primroses. I mean, of course, too frequent for such things, as when so very hot and dry even the stoutest of single Primroses and Polyanthuses suffer severely, whilst double Primroses are killed outright. The nature of winter seasons will not trouble me in preserving Primroses; but if something could be designed to counteract the evil effects of hot sunshine during the months of July and August, the culture of double-flowered Primroses, even in the south of England, might be easy enough. It is not altogether enough to have plants growing in shade; we want for them a moist atmosphere, and that is difficult to ensure outdoors, even by the aid of artificial means, during a long spell of heat. Choice double-flowered Primroses in pots, plunged in a bed of ashes under a north wall, have a better chance than if planted out amongst shrubs, the roots of which soon eat up all the goodness in the soil. Perhaps the very best plan is to have the plants covered during the day with frames which shut down close, thus enabling some moisture to be retained about the place. The past summer was a perfect season for double Primroses.—A. D.

HELIANTHUS DIFFUSUS (SIMS) AND ITS VARIETIES.

THIS is said by recent authors to be like Helianthus rigidus (Desf.), but in this note I will endeavour to prove that H. rigidus (Desf.) is not a species, but a variety of H. diffusus (Sims), which in commerce may be said to consist of three forms, and I desire to remove existing confusion and place them under what I consider their right names, and in doing so I will give authorities and reasons for the same. The typical Helianthus diffusus (Sims), sold under the erroneous name of Helianthus rigidus, attains a height of from 3 feet to 4 feet, and has scabrous shagreen leaves, bright yellow ligules, and purplish black disc, and will be found well figured as Helianthus diffusus in *Bot. Mag.*, t. 2020, vol. xlv., published 1818, and described as Helianthus crassifolius (Nutt. Trans. Am. Phil. Soc.); H. missuricus (Spreng. Syst., iii., 618); H. rigidus (Gray's "Manual of Botany," p. 256, published 1879), and (in part) in Gray's "Synoptical Flora," p. 274, published 1886. Then there is a variety with semi-double flowers, which is also sold as Helianthus rigidus and as Harpalium rigidum, but which not only requires, but deserves, the name of Helianthus diffusus multipetalus, and is described as Harpalium rigidum in Cass. Dict. Sci. Nat., p. 300, published 1821, and D.C. Prodr., vol. v., p 583, published 1834; as H. rigidus (Desf. Cat. Plantarum, p. 184, published 1829); and figured as Helianthus atrorubens in *Bot. Reg.*, t. 508, vol. vi., published 1820. This variety, as in the type, attains a height of from 3 feet to 4 feet, and must have either been introduced with or produced soon after from seed of the type, and afterwards selected. Owing to its dark, yet variable disc, and from the fact that the true Helianthus atrorubens (Linn.) was then grown as, and thought synonymous with, Pascalia glauca, under which name I have also obtained the typical H. diffusus as recently as the autumn of 1885, and also that the Helianthus atrorubens of Dillenius had passed out of cultivation, or become known as Helianthus missouriensis (Schweinitz), was probably the reason this beautiful form was figured as Helianthus atrorubens, and was, no doubt, thought to be very nearly allied to Dillenius's figure. This figure I now assert to be no other than that of the one representing the third form of Helianthus diffusus, alluded to in this note, and to be also the one brought into commerce again, and offered for the first time in 1886 as Helianthus japonicus, and more recently certificated as Helianthus rigidus japonicus, and is now (autumn, 1888) offered under what is said to be a provisional name as Helianthus rigidus præcox; and, further, held by some as H. r. latifolius. The name japonicus ought never to have been given, seeing it comes from America, and not from Japan. The name Helianthus r. præcox now given, in spite of its certificated name, is from the fact of its commencing to flower a fortnight earlier than either the type or the semi-double variety. Those holding it as H. r. latifolius prefer the name latifolius, from the leaves being broader in proportion than in those of the type or variety, multipetalus. To give names without due consideration or research, or to multiply names when it can be avoided, is a mistake, and it would be well if all three names were allowed to drop from this variety, and use recorded names. As H. rigidus latifolius differs much from the true Helianthus atrorubens (Linn., *Bot. Mag.*, t. 2668), though the name was given to it by Dillenius in his "Eltthamensis," at page 112, published 1732, and in Martyn's Hist. Plantarum Rariorum, t. 20, published 1728 (but poorly figured), it would only lead to confusion if adopted; and seeing that it is a much more scabrous form than either Helianthus diffusus or H. diffusus multipetalus, and proves to be the one described as Helianthus missouriensis (Schweinitz), Nutt. Trans. Am. Phil. Soc, and well figured in Dillenius's "Eltthamensis," t. 94, f. 110, we cannot do better than name it Helianthus diffusus var. missouriensis, and as such it will be rightly classed. Possessing a darker disc and paler ligules than the type or variety, multipetalus, and only attaining a height of from 2 feet to 3 feet, it is sufficiently distinct and well worthy of extensive cultivation.

S. APPLETON.

St. John's Nurseries, Worcester.

Christmas Roses.—Are there two varieties of Helleborus maximus or altifolius? The one we English people know of as the great Christmas Rose of Devonshire is a plant of very large proportions, with dark purple leaf-stalks and flower-stems with immense blooms, some of which are at present in full perfection south of London. The other may be recognisable as Heine's plant, and comes from lower Austria, the blooms of which are much smaller, not so early, and the flower and leaf-stalks not so deep in colour. This latter may be confused by traders as Mr. Poë's Riverston variety and help in a generation or so to make confusion. We shall have a great many distinct varieties of Helleborus niger in a few years. I have a batch of one-year-old seedlings, nice sturdy plants, six or eight of which will bloom this season. The seeds have been saved from major, St. Brigid, caucasicus (what is this?), Riverston and vernalis, all of which seed and should intercross freely.—CHRISTMAS ROSE.

Self Auriculas.—I want the names of twelve self show Auriculas, colours blue, crimson, yellow, and any other colours. Would any reader of THE GARDEN oblige me with the names?—STROUD NISBET.

*** There is much confusion in the mind of growers as to what constitutes a self Auricula, and many persons conclude that the alpines are selfs. The best twelve alpines are Agnes, white centre, violet shaded edge; Bright Star, bright crimson; Fred Copeland, dark crimson; John Ball, rich crimson, yellow centre; King of the Belgians, shaded crimson, gold centre; Mariner, shaded maroon, yellow centre; Mrs. Phipps, maroon shaded, white centre; Napoleon III., dark maroon, yellow centre; Princess of Wales, shaded edge, large; Rosamond Fellowes, crimson shaded; Troubadour, crimson; Victorious, deep red. If selfs in the show class are meant, a good dozen would be Heroine (Horner), violet-maroon; Mrs. Potts, deep violet-purple; Charles J. Perry, violet; Brunette, maroon; Sapphire, deep blue-violet; Black Bess, very dark; Lord of Lorne, crimson; Duke of Albany, almost black; Sunshine, yellow; Pizarro, dark maroon; Garibaldi, maroon; Blackbird, dark maroon.—J. D.

Rose-edged Picotee Nellie.—If anyone desires to grow what may truthfully be termed a perfect Picotee, they should obtain this variety. I am not at all sure that it is in the capacity of everyone to grow it, but when Mr. Martin Rowan, who lives in Manor Street, Clapham, and therefore quite among the London smoke, dust, and fog, can grow it to such perfection, there seems to be no reason why anyone else who gives it proper treatment should fail with it. Nellie is one of the light edged rose Picotees, and was raised by the late Mr. Rudd from a light red-edged variety named Mrs. Bower. It was sent out in 1882, and Mr. Dodwell in describing Nellie in his book on the Carnation remarks, "when sent to me by Mr. Rudd the plants were overgrown, and the bloom which resulted was, as a consequence generally following such a condition, wanting in refinement." But, as Mr. Dodwell further observes, Mr. Rowan's success with it plainly demonstrates that the fault was accidental. In 1885 Mr. Rowan exhibited it so finely at the meeting of the Oxford Carnation and Picotee Union that it was selected as the premier Picotee in the show. Mr. Rowan states that it grows with him like a weed, which is ample proof that it has

an abundance of constitutional vigour. To my mind it is a perfect Picotee, and well deserves a place in every choice collection.—R D.

FLOWER GARDEN NOTES.

TRANSPLANTING AND TOP-DRESSING SHRUBS.—The beds having now been planted with bulbs, shrubs, &c., flower gardening in the strict sense of that term is over for the season. In these notes, however, it is intended to include all phases of ornamental gardening that are closely allied or associated with flower gardening; hence shrub planting, &c., comes under this designation, and is, in fact, one of the most important of all the departments, for the reason that it is permanent, and therefore it is the more necessary to exercise care in the selection and distribution of shrubs. It is essential to guard against even partial failure in respect of their well-doing by sparing no pains in the preparation of the ground for their reception, or of soil for the top-dressing of established plants. Allusion was made in these notes some two or three weeks ago to "a garden of small shrubs," and it is to the formation of so distinct a feature that we should do well to give our attention, rather than to the constant extension of coniferous tree-planting without regard to either position or landscape effect. I would not have it understood that I disparage the planting of such trees or the forming of large arboretums in general, but simply ask that this plan may not be extended to the neglect of others, or, to be more explicit, that it may not hinder greater attention being given to the planting of shrubs for (if I may use the term) gardenesque effect. For some three or four years past we have given special attention to this way of planting compact-growing shrubs about the flower garden, and already we have our reward, namely, a comparatively well-furnished flower garden at this the dullest season of the year. A few names of the most suitable shrubs for the purpose will be found at p. 360, and experience will suggest the names of others as or perhaps more suitable for various parts of the country. Transplanting of all kinds may now be done, for though it is usual to defer planting certain species till spring or early summer, notably Hollies, I have always found them do just as well when moved at this season as any other shrubs, and, in fact, I would plant them now by preference, and save both anxiety as to whether they would survive or not, as well as the labour of watering, that is unavoidable when transplanting takes place in spring. The first requisite to successful tree growth is a healthy plant to start with, and next well drained and deeply cultivated ground. Given these, together with care as to the removal of the plants so as not to unnecessarily injure the roots and mulching as soon as planting is done, success is a certainty. In respect of top-dressing or of adding fresh soil to established trees, the process is of the greatest service in keeping them in vigorous growth. It is, of course, a question of labour as to how far or to what extent such work can be carried out, but in any case time should be spared to assist the trees most highly prized. Without such top-dressing very few of the finest Japanese shrubs retain their vigour and beautiful colour long, and it is the same in respect of such fine Conifers as Pinus insignis, P. excelsa, Picea nobilis, Abies concolor, A. Pinsapo, and A. cephalonica. The recent heavy rains have been most helpful, as the turf has rolled well, besides the easy forking up of the soil about the roots of the trees before applying the new soil. As to the nature of the top-dressing, that is, whether peat, loam, or vegetable soil, I have noted that it matters little which is used. The trees are alike benefited, and therefore we use whatever kind is most available, yet as far as possible make use of peat and vegetable mould for coniferous trees and loam for such as do well in either description.

ROSES.—It is curious to note that the severe frost of Oct. 3, that so terribly cut up out-of-door flowers generally, had no injurious effect on the Roses at this place, but why they should have escaped is difficult to determine, unless it be that the position is high and dry, and the previous few weeks of sunny weather had had an hardening effect on the plants. That is my theory as to their escape and of the subsequent continuous flowering up to the present time. The varieties Gloire de Dijon, Souvenir de la Malmaison, Jules Margottin, La France, Duke of Edinburgh, Captain Christy, and Catherine Mermet have lately been as profusely flowered as they are in the Rose season, and many other varieties have been and are still blooming unusually well, which makes us dislike disturbing the plants for the purpose of renovating the soil, a process necessary in our light land every second or at furthest third year if we are to have Roses worthy of that name. Our manner of performing such renovation is to lift half our stock in November of each year and heel the plants in temporarily as lifted until the beds and borders have been trenched and manured, then replant, shortening the roots of such as need it, and taking special care to remove Brier suckers. Cut out eyes of same that would otherwise prove troublesome by the production of suckers. The soil being very light, and roots of Roses, unless they meet with a certain amount of resistance, in the form of stiff or hard-trodden soil, do not make fibrous roots, the best kind of feeders. To ensure such resistance the soil about the plants is well trodden down as planting proceeds. This finished, a thick surface covering of well-decayed manure is applied and left on all the winter, this being again covered with Cocoa-nut fibre, on those beds within sight of windows and walks from which it is necessary that the neatest possible appearance be maintained. Rose planting may of course be done at any time up to the middle of March with a fair amount of success, but by planting in November not only are the chances of failure reduced, but a full season of flower is assured, which obviously cannot be expected to follow if planting be deferred until late in spring.

GENERAL WORK.—This at present mainly consists of clearing up leaves, sweeping lawns, and keeping walks clean and firm by frequent rolling, work that if neglected detracts greatly from the enjoyment of a garden. If the pressure of such work becomes too great and there is a disposition to "let things go," a state I myself have many times experienced, it is well to remember that such labour is not all lost, as the value of the leaves for sundry purposes more than repays for the labour expended. W. WILDSMITH.

SEASONABLE NOTES ON FLORISTS' FLOWERS.

IT is quite necessary that the entire collections of choice garden flowers should be thoroughly examined and made safe for the winter. We are entering into the dreary days of early winter, and all our plants ought to be in a condition to pass safely through them, however severe the frosts may be. Auriculas ought to be quite in their resting period now, but the weather has been mild for the season during the last few days, although most of October was cold enough with frequent sharp frosts at night. We looked over the plants carefully, stirred the surface soil a little, and removed all dead and decaying leaves. Give the plants only enough water to keep them from shrivelling, and admit plenty of air to the frames; no one wants autumn bloom, and the only way to keep the plants from growing and starting into bloom is to keep them cool. Drip is very dangerous, and if a choice plant remains unnoticed under a drip until the soil becomes waterlogged, the chances are that it will be injured if a sharp frost sets in. I do not mind the plants being quite frozen. When the soil is frozen through and through the plants are not injured, but the woolly aphis cannot stand it. I discovered in investigating the ancient history of the Auricula that this troublesome intruder was known to the florists long ago, and I am quite certain that it cannot be dislodged from a collection of Auriculas where it has obtained a footing until the plants are kept in frames exposed to sharp frosts during their resting period. Coddling hardy plants in heated structures subjects them to the attacks of parasites, which could not live if the plants were repeatedly frozen. Even the smallest Auricula plants are not injured by dry frosts. We have now the tiniest seedlings quite exposed to the coldest weather, and sheltered only from rains. Plants growing in the rock garden lose their leaves more rapidly than the pot plants. At this season the outer ones decay rapidly, and if not removed may cause the decay of some of the growths; some dry soil placed round the plants after removing the leaves is desirable, and over it some dry soot if slugs are amongst the plants, but these, as well as the leather-coated grub, should be looked after when feeding at night.

CARNATIONS AND PICOTEES claim our attention now. I have not planted any out of doors so late as November, but have planted them out quite in the last week in October, and some treated in that way last year made better growth than those potted up two weeks earlier and grown in pots all the year round. One of the leading growers quite in the north of England told me that he planted out his collection of Picotees and Carnations in November, but took the precaution of protecting the badly-rooted and weakly plants with bell-glasses slightly raised above the ground. The glasses might be kept rather close at first until the plants had made some roots. If the plants are put out early and are not well rooted, they shrivel up and do not soon recover from the check. We have plants of nearly all the varieties growing in small pots and neatly arranged in frames, but the pots are not plunged. I have on previous occasions done this, and, after a fair trial both ways, have come to the conclusion that they are best not plunged. We keep the lights rather close until the plants are well established, when air is admitted freely, and in fine weather the lights are altogether removed. They do not require a great deal of water at the roots, but I never let them become dust-dry, as the Auriculas are. An excess of moisture may cause what is termed spot on the leaves, and on the other hand an excess of dryness might produce the swelling at the base of the stems which has been termed gout; but I can truthfully say that both diseases are unknown in our collections. The plants ought not to be too much crowded up together, but I fear many growers may be in our own plight, and obliged to place them close together, because of the want of room. The weather recently has been fine, and it allowed us to work the hoe amongst the plants of seedlings which have been out since July, not only to kill the weeds, but also to loosen the soil which had become hardened by the excessive rainfall soon after the plants were set out. Owing to this the ground became very hard, and the plants have made the poorest growth I ever saw.

THE DAHLIA roots have been taken up carefully and laid out to dry in the vinery. The tubers are very small and also imperfectly ripened. This I also attribute to the excessive wet. The plants stood for twenty-four hours in water, and the ground after was as hard as it was possible for it to be. We forked it up lightly and mulched, but the plants never really did well. They were also cut off early and thoroughly, so that we could dig them up in the full belief that they would not make any more growth. Those who have not yet dug up their roots may now do so, taking care to do it in fine weather. Cut the stems over about 6 inches from the ground, and as the tubers are dug up turn them stem downwards to drain out the water from the hollow stems. They ought to be well dried before being stored away. The labels should be affixed to the stems with fine wire. The value of plants being grown in pots will be exemplified in a season such as the past has been. They may keep well through the winter while some of the ground roots might perish. They also should be cut over now, but must not be removed from the pots. Let them be placed in any cool, dry house. During the winter look over the ground roots, and if any scarce variety is not likely to pass safely through the winter, it may be better to pot up such tubers and start them into growth.

PANSIES are amongst the lowliest, but withal loveliest of spring-flowering garden favourites. Few plants brave the cold better than they do. As I write, we could pick scores of beautiful blooms from plants in the open borders, and they will continue to produce their flowers until severe frosts come. Pansies have grown very well this summer and

autumn; the cuttings have also struck freely, so that we may expect a good succession of bloom from these when the older plants are over. We struck a lot of them in the open borders, while some planted in boxes have also rooted well, although the boxes up till now have not been placed under glass. These young plants will be left where they are until the spring, when they will be planted out to succeed those that are now established in the borders. We like to grow a few of them in pots, as the flowers produced in unheated glass frames in February and March are of exquisite purity, the colours rich and well defined; add to this the delicate perfume, and we have a plant with characteristics possessed by no other, and which no garden should lack. All the Pansy requires is good rich, open, garden loam, and if grown under glass, to have plenty of fresh air and to be kept free from greenfly. Out of doors Pansies do not suffer from this pest.

THE GARDEN PINK is a flower even less known than the Pansy, less cared for, and absent from hundreds of gardens where its sweet flowers, if known, would be greatly appreciated. The Pansy may be propagated at any time, but to enjoy Pinks to perfection, they have a season of propagation, and the best time is from the middle to the end of June. I have invariably found that the pipings do best if taken from the parent plant on a wet day, and the small ones produce roots more freely and make better plants than the larger, thicker ones. The plants of all the laced varieties ought now to be out in the open ground and well established. The month of October is as late as they ought to be planted, and, like the Pansy, they prefer a generous, deep soil. The object of planting out early is to get them established before the winter, so that they may brave the alternate frosts and thaws of our rather fickle climate. With all our care the slender-stemmed plants are loosened and even thrown out of the ground. We look over the beds sometimes, and press in the plants with the fingers, stirring the surface when it is dry. It is a good plan to have a pair of each variety in the collection grown in small pots to replace any that may not safely pass through the winter.

The Polyanthus and Primrose family, in so far as the very choice kinds claim our attention, are now grown in pots. I allude principally to the named sorts of the laced section, for unflowered seedlings grow out of doors with surprising vigour. Those grown in pots are with the Auriculas, and are treated like them. For a display out of doors, named Polyanthuses are of no use whatever. Seedlings are by far the best. We have at present some 500 or 600 raised from the best named sorts, such as George the Fourth, Lancer, &c. They are quite as strong in leaf and flower-stems as the common Primroses growing with them. They were planted out in July, and, of course, are so firmly established, that they need nothing but to have the weeds pulled out from amongst them.

The old-fashioned garden Tulips are again being inquired for, and as planting time is now upon us again a few words may be useful. This brilliant old garden flower delights in a rich, deep, rather sandy soil. Plant them 4 inches or 5 inches deep, and in planting place round each bulb some dry, sharp sand. We were able to get the ground ready for our bulbs when it was perfectly dry. They have not yet been planted, and as there have been two days of almost incessant rain upon it, we may expect to have to wait some little time for a favourable opportunity to plant. This may not come so soon as we like, and it may be necessary to get some dry loam to place over the surface of the bed before planting. Every grower may not be able to do this; in that case I advise planting on the first favourable opportunity after the third week in October. If we had planted ours even the last week in that month, they would have gone into the ground when it was in capital condition; now one cannot say how long we may have to wait. The absurdity of fixing any stated day for planting is obvious to any experienced floriculturist. Mr. Barlow, the leading northern grower, does not plant out until late in November, his life-long experience having been obtained in a wet district in Lancashire. J. DOUGLAS.

PRIMROSES.

THE other day I saw the Beaconsfield strain of Primroses advertised, and now (I presume by a rival seedsman) Hughenden Primroses are announced. I suppose we may assume that the former refers to the common yellow Primroses of the hedgerows, the latter to the improved strain of coloured varieties with which spring gardeners are familiar. But I never heard that Hughenden was famous in any way for its strain of Primroses. But those who grow the coloured varieties find that they are flowering finely this autumn; the wet season has been favourable to the growth of the plants, and now they are furnishing fine flowers as a part of their autumn service. By and by, in the spring, they will flower again, and, added to the varied colours, their free-flowering qualities are some of their greatest charms.

Now is a good time to plant out seedlings from seeds sown in the spring. The earlier the seed is sown the better, for then the plants, with necessary attention grow quickly into size, and if planted out as early as possible—during September if it can be done—they quickly attain to size and become strong flowering plants by spring. The old rule was to sow all biennials and perennials about midsummer, but it is now found that a season is actually gained by sowing four or five months earlier. Then there is another consideration: years ago gardeners were content to sow such seeds in the open ground, now they sow in cold frames or in a gentle bottom heat, in order to gain time, and with positive advantage. Then the seedlings were allowed to remain untouched in the border until they were planted out to bloom, but now they are pricked off as soon as they are large enough into pans or boxes. Good soil and room are given them, and they are enabled to grow into size and become both strong and well rooted before being planted out.

The best plan is to sow the seeds as soon as ripe, and they germinate quickly and the plants are large enough to prick off into store pots by the autumn. I rarely, however, disturb mine until early spring, and prick off during April and May, when they are commencing to grow vigorously.

As complaints are often made as to failures with Primrose seed when sown in the open, it can be stated that sowing under glass secures a much better result, and I never fail to secure a crop by working in the following manner, viz, by using 6-inch pots, draining them one-third of their depth, laying over the drainage some coarse soil and then filling up with a light sandy compost; this is flattened down and I then sprinkle some silver sand upon the surface. Sow the seeds thinly, cover very slightly with a little more sand and then stand the pots in pans of water. Treated in this way there is no need for surface watering. In winter, when frost threatens, the seed-pots are removed from the pans and covered over with newspapers until the frost gives way to milder weather.

R. D.

PROPAGATING.

LAPAGERIAS.—These cannot be propagated very rapidly, and even though two or three methods are available for the purpose, the one principally employed is to layer the shoots, as seedlings cannot be depended upon to perpetuate the variety, and cuttings are difficult to root; indeed there are but few instances of their having been successfully struck. In layering a shoot the object is not to strike that particular branch, but to place it under such conditions that the dormant buds start into growth and form roots at their base. In order to carry this out successfully, where Lapagerias are propagated in quantity a bed of sandy peat is prepared, and the shoots are layered therein at full length. The underside of the shoot is tongued, after the manner of a Carnation, just below each leaf, and a peg is then inserted to keep it in its place. The leaf may be half covered with soil without injuring it, and when finished all that is then necessary is to keep the soil in an equal state as regards moisture. It is an advantage to place a little silver sand just around the portion of the layer that has been cut, as it assists the formation of roots. When a good-sized plant is layered as above described, it will cover a considerable space, and with a fair share of success will yield a quantity of plants when rooted. They will take a couple of years to become sufficiently established to be separated from the parent plant, and this operation must be carefully performed, as the Lapageria is impatient of having its roots disturbed. When lifted and potted the young plants must be kept closer than usual till the roots are again in active operation. In the case of layers, when the young shoots make their appearance above ground from the buried portion of the stem a good plan is to support them by a stick, otherwise the shoots are very likely to twine round each other, and prove difficult to disentangle afterwards.

Seeds also furnish a ready means of propagating the Lapageria, but, of course, they cannot be depended upon to perpetuate the distinctive characteristics of individuals as layers can. For seed, the earlier blossoms should if possible be fertilised, and of course only the very best be operated upon. The pods take a long time to ripen, but when this happens the better way is to take out the seeds, rub them up with a little dry sand, and sow them without delay. The pots prepared for the reception of the seed must be thoroughly well drained, and filled to within half-an-inch of the top with sandy peat pressed down moderately firm, upon which the seed must be sown and just covered with some of the same compost. If a pane of glass is laid over the top it will prevent as rapid an evaporation as if exposed to the atmosphere of the house, and thus but little water will be necessary. The temperature of an intermediate house is the most suitable for the seeds, and if the pots can be plunged in a gentle bottom heat so much the better. Directly the young plants make their appearance above ground the glass must be removed, and then it is especially necessary to keep a sharp look-out for slugs, as they are remarkably fond of the young succulent shoots, and a single one will often destroy a considerable number in one night. The same care is indeed necessary in all stages of the Lapageria, as even the very stout shoots from an established plant will be eaten into and spoilt by quite a small slug. Small seedlings are also liable to be attacked by aphides, which quickly cripple the growing shoot. As soon as the young plants are large enough they should be potted off, using the same kind of compost as before. They will make more rapid progress if kept during their earlier stages in the same temperature as that in which the seed germinated, for though the Lapageria when large is nearly hardy, still very young plants are benefited by a warmer treatment. The seedlings must not be allowed to become at all pot-bound, but should be shifted on into larger pots when necessary.

TREE CARNATIONS.—These beautiful plants seem to become more popular every year, and in order to obtain fine specimens to bloom during the late autumn and winter months, the cuttings should be struck early in the year on a gentle hotbed, and grown on freely afterwards. As the plants now in flower will later on be available to supply a crop of cuttings, they must be attended to even after the flowers are past, as good clean sturdy shoots, as a matter of course, form much better cuttings than the poor attenuated ones borne by neglected plants.

CLERODENDRON SPECIOSUM.—This remarkably handsome species of Clerodendron is not so readily propagated as many of its relatives, for I have not succeeded in increasing it by means of root cuttings; indeed, the only way is to take cuttings of the growing shoots during the summer months, but it is necessary to take them when in a half-ripened condition, otherwise they cannot be depended upon to strike. T.

COWDRAY PARK.

A LITTLE to the east of Midhurst, and not far from the station, is Cowdray Park, the old home of the Montagues, and now the residence of Lord Egmont.

The place abounds in features of interest, is rich in sylvan and woodland beauty, and is also historical, for Queen Elizabeth passed five days at Cowdray, in 1591, when on a visit to Lord Montague. But the Cowdray of those days and the house that at present bears the name are different. The former is a venerable pile of ruins with Ivy-shrouded walls, the latter a modern building erected in 1843, when the place was bought by Lord Egmont.

Visitors coming from the small and quiet town of Midhurst enter the place by an iron gate on the outskirts of the town, and crossing a meadow soon reach the old ruins, which are close to the river Rother.

Here, beneath the sombre clad walls, one can stand and picture Cowdray as it was about 1530 when first erected, and as it was in 1793 when fire reduced it to the ruins which now stand, and which are in a remarkable state of preservation, some of the hall and other windows being almost entire. As if the calamity of the fire were not sufficiently tragic in itself, the last Viscount Montague lost his life in Switzerland, in attempting to pass some falls, just before the news of the total destruction of his mansion reached him. The place then passed into his sister's hands, and she having married a gentleman by the name of Poyntz, he built a cottage called Cowdray Lodge, which together with the estate was sold in 1843 to Lord Egmont.

Perhaps the most lamentable incident in the history of Cowdray was the death of the last Viscount Montague, for it is possible he might have rebuilt the old place, and Cowdray of the early ages would be standing now. Of how many modern erections would the ruins stand 200 years after being gutted by fire?

Leaving the ruins behind, the visitor is soon in the splendid park of some 800 acres. This is full of interest, pleasantly diversified, and contains some magnificent trees.

Let all who love trees visit Cowdray, for never was seen a better timbered park, the Cowdray Oaks ranking as some of the finest in England, and deservedly so, when one sees the aged specimens girthing 14 yards to 16 yards, which, though they have not come through centuries of storms unscathed, yet still look fresh, healthy, and vigorous in their old age.

A park of this extent has ample room for large groups, isolated specimens, and fine breadths of turf reposing between. It is so here. On all sides are evidences of a master-hand having done the work effectually, and there have been no attempted improvements to disfigure it. There are groves of Beech, each tree a monarch in itself, and the branches meeting and interlacing form a canopy of foliage overhead, the clean straight stems being converted into supporting pillars. On a little knoll and very conspicuous is a grand group of Yews, made up of about eighty aged monarchs. The Spanish Chestnuts of Cowdray are a grand feature, whether it be the large specimens or the avenue nearly a mile long at one end of the park. A little winding valley has enormous Limes on either side, forming another perfectly natural avenue devoid of any formalism. Some large Planes were very noticeable.

Leaving the park and entering the flower garden and pleasure grounds, it is soon evident that on the warm, sandy soil of Cowdray flowering shrubs are perfectly at home. At the time of our visit the Azalea and Rhododendron blooms were almost over, but the display of Kalmias was superb. The bushes were as healthy as Laurels, and happy combinations had been produced. In one case a large bed of several kinds of Kalmias was edged and fringed with the Irish Heath, which was also in full flower. Another mixed bed of Kalmias, Azaleas, and Pernettyas was effective; and at the end of the bed a large mass of the Partridge Berry (Gaultheria), covered with long racemes of its lovely white flowers, was conspicuous. Everywhere there is evidence of the increasing love of hardy flowers, and the gradual adoption of more natural, and consequently more beautiful, styles of flower gardening.

Mr. Geeson is doing much in this direction by introducing into some of the large beds a class of vegetation that changes with the seasons and flowers at different periods.



Cowdray Park, Midhurst, Sussex. Engraved for THE GARDEN from a photograph by Messrs. J. Russell & Sons, Chichester.

For example, one large bed is planted with Tree Pæonies and Hydrangea paniculata, with a broad edging of Daphne Cneorum. In early spring, before the occupants of the centre have put forth leaves, the Dog's-tooth Violets surface the bed. These are followed by the early summer Snowflake, and by the time this has done blooming the shrubs are in leaf and the ground hidden. Instead of the Gladioli entirely occupying a bed, they have been planted among some little bushes of the broad-leaved Japan Hydrangea. Apart from the flower, the contrasted forms of leafage, the sword-like blades of Gladioli emerging from the broad, flat Hydrangea leaves were pretty. Clematises were naturally displayed by allowing them to ramble at will over a lot of old roots collected for the purpose, and the idea was indeed a happy one. The common Musk, a perfectly hardy plant here, spreads out into broad sheets, effectually concealing the ground beneath some Rhododendrons. A large bed of Yucca filamentosa had flowered freely, and towering above this Campanula pyramidalis had been used to give variety and vary the scene.

A successful piece of wild gardening merits notice. A little stream only about a yard wide flows down between two banks where the common Rhododendron grows into a tree. Just where the stream emerges from between the Rhododendrons is the Giant Knotweed (Polygonum) 6 feet high, and as the water flows into the open, Spiræa palmata and the Royal Fern make a perfect picture in themselves, the Spiræa flowering freely and the Fern making fronds like those of a Dicksonia. The stream spreads out into a small piece of ornamental water margined with Reeds and the large Water Dock, while upon the surface were two nice groups of Nuphar lutea in full flower; but, best of all, the sweetly-scented Water Hawthorn (Aponogeton), though only introduced last autumn, was growing freely and flowering well. The overflowing water from the little pond being carried a short distance underground again emerges between two Rhododendron banks, but the Rhododendrons, excepting on the crests, have been cleared away and the banks planted with hardy Ferns, especially the Royal Fern and some of the Lastreas, which thrive with marvellous luxuriance. There are no lines of iron fencing to mar the scene, for garden and park are separated by a sunk wall.

The kitchen garden department was in good order, and in the flower borders that skirt the main walk Mr. Geeson is departing from the usual style of indiscriminate mixture, and adopting that of free and natural grouping of hardy and other flowers.

It would not be fair to say too much or expect anything very great under glass, for when taking charge last autumn Mr. Geeson found mealy bug a perfect pest, infesting everything. The conservatory creepers had to be cut down, whilst in a few weeks 48 gallons of paraffin were used in waging a war of extermination, through which he has come victorious; and in spite of having to lift every Vine, paint them, and the house too, there were very good crops of Grapes.

The view of the house is from the lawn, which on two sides spreads out into a fine expanse, ultimately merging into the park. Upon the lawn stand several very fine Cedars, and against one part of the house is a Camellia which covers a great area of wall, and sometimes has several hundred blooms expanded at once. H.

Ferns upon iron.—In one of the glass houses at Balcombe Place Ferns effectually conceal the sides of an iron water tank, and afford an interesting example of how by successive stages even the most unlikely surfaces become clothed with vegetation. Confervæ first formed upon the iron, owing to its excessive dampness, and afterwards Moss commenced to grow. So far Nature had done well to render an unsightly object inoffensive, but Mr. Warren, by planting some little Maiden-hair Ferns in the Moss, has assisted Nature, and it is surprising how well the Ferns have grown.

ORCHIDS.

W. H. GOWER.

LÆLIA PERRINI AND ITS VARIETIES.

This useful old species has been conspicuous in many collections for the past month, and successional plants still continue to render gay the Orchid collections which are now so numerous throughout the length and breadth of the land. I suppose the species has been an inmate of our plant houses for about fifty years, for when it was described in the *Botanical Register* in 1838, it was not a new plant, and I am fully persuaded that at the present time it enjoys a greater amount of popularity than ever it has previously done. The rich colour of its flowers, independently of the exceptional time at which they expand, fully warrants its cultivation, more especially as latterly it has begun to develop distinct varieties, which are highly appreciated. It is an evergreen species, a native of a considerable altitude in the Organ Mountains, where the temperature is somewhat cool, and I should imagine it is a plentiful plant in its wild habitat, seeing that almost everyone who makes a journey to Rio de Janeiro, and brings home any Orchids, manages to include this species, and yet it is strange that so few varieties have appeared from amongst these importations. A very dark variety, bearing the name of purpurea, has been in our gardens for many years, and more recently a form named nivea has appeared, and has become more or less distributed, and is very popular, but this season, as I noted in The Garden a week or two ago, a distinct pure white-flowered variety has bloomed in The Woodlands collection at Streatham. This plant, I am told, at St. Albans, from whence it was obtained, is the only one of its kind seen in its native wilds, and some little fear, I believe, was felt as to whether it would produce a pale rosy purple lip like nivea, with white sepals and petals, but the plant has proved quite distinct. It is a large and handsome mass, and its flowers are as large as those of any I have seen on the typical plant, and wholly pure white, saving a faint tinge of lemon-yellow in the throat. It is now the gem of this fine collection, and deservedly so, for it possesses a charm peculiarly its own at this season of the year. In this same collection there are also numerous examples of the typical plant with large spreading flowers some 5 inches or 6 inches or more across. The sepals and petals vary from pale to deep rosy purple, whilst the basal part of the lip is similarly coloured, and the margin of the front lobe is more or less broadly bordered with crimson-purple, the colour extending quite over the column. The intensity of this colouring is its great charm, and is entirely distinct from that of any other species of Lælia hitherto introduced. This, from its flowering now and up to the month of December, renders it all the more valuable and attractive. The variety nivea has sepals and petals of the purest white, and the edge of the lip is lined with pinkish lilac, the throat being pale lemon-yellow, and now we have the new variety alba in which the whole flower is pure white. If these are to be the only forms obtainable from this species, they would be sufficient to ensure the reputation of L. Perrini; but from the examples in the St. Albans Nursery, one cannot but anticipate a further deviation from the normal form. This plant is well deserving the attention of lovers of Orchids, and should be grown by everyone. I am quite aware that it has been put on one side for a few years, under the plea that its flowers are short-lived, but I have found this season that if properly looked after the blooms last nearly a month; and what other flower but those of an Orchid will continue that length of time in full beauty? To enable the plants, however, to carry their blooms so long there must not be excessive moisture in the atmosphere, neither must the temperature be low when the blooms are open, but the house should be kept at from 60° to 65° by artificial heat, and the plant should have just sufficient moisture to keep the flowers from shrivelling. When this is not carefully studied, I have seen the dried flower retain the brilliant colour of the lip for many days, and I am of opinion that many growers hasten the death of their flowers by too dry an atmosphere. The typical form of this Lælia is to be obtained very reasonably, and I would strongly urge all beginners in Orchid culture to invest in this species. The other varieties will, of course, be more rare for some time, but these may again occur amongst imported plants.

Lycaste fulvescens.—Flowers of this fine species come from Mr. Whillans, of the Blenheim Gardens, and are well deserving a notice on account of their rarity. Although not so beautiful or so large as those of L. Skinneri, they possess a charm peculiarly their own. The flowers are large, of a rich tawny yellow in the sepals and petals, whilst the large lip is of an orange colour, and fringed round the edge with long hairs. It is a native of Columbia, thrives well in the cool house, and becomes of importance as a November blooming Orchid.

Cattleya fausta delicata.—This is one of the early Veitchian hybrids raised by Mr. Seden, having for its parents C. Loddigesi and Lælia exoniensis. It is a plant that has become somewhat rare and is exceedingly pretty, although it does not possess much of the beauties of the last-named parent, which is itself a lovely Veitchian hybrid raised by Mr. Dominy. It is of dwarf habit, bearing on the scape three or more flowers, which are some 3 inches or 4 inches across; the sepals and petals are rosy lilac tinged with a softer hue; the lip is rolled over the column at the base, and the edge prettily frilled; the front portion is blotched with pale rose, and behind it is stained with pale yellow. Flowers of this form have come to us from Mr. Cowley, gardener to Mr. Tautz, of Studley House, Shepherd's Bush, where the various members of this genus are exceedingly well done.

Lovers of Slipper Orchids will be glad to find that these plants still continue to charm the majority of Orchid growers, and some very high prices were lately realised. C. Marshallianum, a small plant with about five leaves, realised 150 guineas, and was bought by Mr. Pitcher for America; C. Tautzianum, a similar plant, sold for 95 guineas, and various other prices in proportion were realised. Although not prepared to go to such prices, I should follow the example of the lovers of Slipper Orchids and maintain a good collection of these plants; they are to be found in bloom on every day of the year, and they combine handsome foliage with beautiful flowers. Moreover, as they are easily grown, they are everyone's plants; some hybrids, however, that have been crossed with C. niveum and C. concolor are slow growers, but one of this set, and perhaps the most beautiful, introduced this season by the Messrs. Low, of Clapton, and named C. bellatulum, is very free in habit of growth, and produces its beautiful flowers in abundance.—W. H. G.

Oncidium Rogersi.—This free-flowering Oncid should now be in bloom. The racemes are long, branched, and bear an abundance of flowers. The lip is large, flat, and of a rich clear yellow and deeply three-lobed; sepals and petals small. When grown in a basket this Orchid gives a very pleasing effect, and

is the admiration of all who see it. It should be grown in the Cattleya house with plenty of light and moisture, which are essential points in its cultivation. —H. Cooper.

OUR NATIVE ORCHIDS.

The finding of several fine clumps of the Lady's Tresses (Spiranthes autumnalis) at St. Margaret's last week recalled to my mind what a glorious Orchid season the past has been. For fully seven months, from early April, when Orchis mascula was in full flower, till the end of October, when the Lady's Tresses closed the season, we have had a perfect succession of native Orchid flowers, and this season in particular, perhaps owing to the warmth of last, all kinds have been unusually strong in growth and remarkably free-flowering.

Kent may well be termed the Orchid county of Britain, for the copses and fields are particularly rich in these floral treasures, and there, more than anywhere I have yet lived, do they attain to perfect development and charm the visitor with their wealth of richly-marked flowers.

The Spiranthes above referred to is a sweet little plant that delights to grow in an old ley field, particularly where the subsoil is chalk. It is of modest growth, rarely exceeding 3 inches or 4 inches in height, and has a spike of deliciously scented pure white and curious spirally arranged flowers.

It is of easy culture, by imitating as nearly as possible the conditions under which it grows naturally, while I have found it particularly well suited for growing in pots; but to be shown off to perfection half a dozen specimens should be placed in a 6-inch pot.

The large-flowered Cephalanthera, or Helleborine (C. grandiflora), is in truth a plant of noble port, some of the specimens I have found this season having attained fully 2 feet in height, and bearing a spike of nearly forty flowers. Beneath Beeches it grows most luxuriantly, and where the soil is a good stiff, not too plastic, loam. When fully developed the flowers are wonderfully attractive, they being upturned (the reverse is the case with the nearly allied Epipactis) and of an unspotted white, save a couple of dashes on the throat.

In the rosy-flowered form of Orchis Morio we have an unusually showy and very desirable plant, an improvement, no doubt, on the typical mulberry hue which pervades the majority of specimens. It is wonderfully lasting as a pot plant, fine, goodly-sized specimens, packed closely in a medium-sized flower-pot, having enlivened my room for nearly a month. White-flowered ones are rare, but I have seen one or two.

In the Bee, Fly, and Spider Orchids (Ophrys apifera, aranifera, and arachnites) we have curiously formed, but most interesting plants, the mimicry of the various insects whose names they bear being very apparent. Chalky hillocks amongst short Grass would seem to be their native haunts.

The Lizard Orchid (Orchis hircina) was sent to me this season from Pinner in unusually fine form, one spike being of very luxuriant growth and the flowers well developed. It is easily grown—so said the donor—and this I now believe, if one can but procure well-rooted specimens with which to start.

Orchis maculata flowered grandly this season, and a noble object is a well-developed plant when seen with suitable surroundings. How curiously formed are the flowers of the Man Orchid (Aceras anthropophora), a plant that is fairly common on our Kentish downs and fields. The hue, a greenish or yellowish brown, is not perhaps enticing, but when taken as a whole the plant is most interesting, and well worthy of a corner in any garden where it will grow.

Listera ovata (the Tway-blade) nearly approaches the Aceras, but it has only two big oval-shaped leaves instead of the half-dozen or more of the Man Orchid.

The broad-leaved Helleborine (Epipactis latifolia) must not, although of no gaudy colouring, be despised, for its stout-set stem and wealth of large, variously-coloured flowers render it attractive and of special interest to the lover of our native plants.

Dingy in colour though the flowers of the Bird's-nest Orchid (Neottia Nidus-avis) are, yet there is something attractive about a colony of the plants when seen beneath the dense shade of the Beeches, and where few other plants dare try to eke out even a miserable existence. Growing amongst the decayed and decaying leaves and twigs, the stem of this locally distributed Orchid sometimes reaches to nearly 18 inches in length, and it is an imposing sight to view a group of such specimens when in full flower. Orchis conopsea, with its deliciously fragrant and usually mauve-coloured or purplish flowers, contrasts nicely with the deep pinky hue of the pyramidal Orchid (O. pyramidalis), and both are of the easiest culture and succeed well in dampish and rich-soiled pockets of the rockwork.

Years ago our native Lady's Slipper (Cypripedium Calceolus) used to be considered a miffy plant to deal with, but now, thanks to well-rooted specimens and a better knowledge of its requirements, success usually crowns the effort to cultivate this lovely native Orchid. Strong brown loam and a quantity of chalky or limy rubbish or stones would seem to meet its wants in a peculiar manner.

Does anyone know if Spiranthes Romanzoviana is still to the fore in Ireland? has Orchis intacta been seen for the last half a dozen years in the same country? and how does the Lady's Slipper fare in its one really wild English station? It is interesting to record the finding for the first time of that rare little Highland Orchid, as Darwin called it, Goodyera repens, in England.

They are all well worthy of culture, far more so than many an occupant of our choicely planted rockworks and borders. A. D. Webster.

SHORT NOTES.—ORCHIDS.

Cypripedium Elliottianum.—By a mistake this plant was named Selenipedium in our last issue.—Ed.

Odontoglossum maculatum Duvivieria-num.—This is the name of a new and distinct variety which I recently saw flowering for the first time, and which, in spite of its long name, is well deserving attention. In habit and growth it is quite typical, the sepals and petals being greenish white, the latter spotted with tawny brown; lip white, spotted the same as the petals; crest and disc orange colour. I believe it is of Belgian origin.—W. H. G.

Books.

THE ORCHID ALBUM.

The October number of the "Orchid Album" is duly to hand, and contains figures of the following plants:—

Trichopilia tortilis.—An excellent plate of a beautiful old Orchid. This genus has somewhat undeservedly gone out of fashion. It is not of large extent, but contains some very handsome dwarf growing free-flowering species.

Cypripedium Fitchianum.—A hybrid obtained from C. Hookeræ and C. barbatum. Its foliage is very handsome, but the flowers do not contain much bright colour.

Rodriguezia secunda.—This is a bright coloured, small-growing species, well known to the older Orchid growers, but it is not so familiar to many of the younger ones, as the plant for some years has been under a cloud, because its individual flowers are small. Its pendent spikes, however, laden with their deep rose-coloured flowers render it a conspicuous object in the plant house.

Catasetum Bungerothi.—This is a figure of perhaps the most remarkable Orchid of modern times, and, as seen recently at St. Albans, with fifteen flowers on one spike, it is truly charming. Its fine ivory-white flowers are freely produced. I recently saw ten flowers upon a scape in Sir Trevor Lawrence's collection, but I am told it has been exhibited recently in Belgium with twenty-four flowers on a spike. If this is correct it adds an additional charm to the species, and should materially assist in restoring this family to public favour. W. H. G.

Chrysanthemums.

E. Molyneux.

CUTTING AND ARRANGING THE BLOOMS.

Arranging the blooms in the stands is an important point which the beginner should study. Good flowers are often spoilt by being badly arranged in the stands. The great fault of beginners is placing them down too low on the stand, thus spoiling their appearance. At almost any show throughout the country this is exemplified. To a beginner this may appear of little importance, but when he has had some experience, he will find that a considerable advantage is gained by arranging his blooms in the stands in a manner calculated to show them to the best advantage. The correct method of arranging in stands is to place the blooms at such a height from the board that the size of each is displayed to the best advantage. The stem should be cut 1 inch longer than the tube, thus allowing for elevation. When the blooms are allowed to be higher than the stem will allow, and cups without springs are used (but I do not recommend their use), narrow strips of brown paper wrapped round the stem of the tube will raise the blooms to any given height. If they are placed too high in the stands they look ungainly. There is a certain point at which they look the best, and this I will endeavour to make as clear as possible. The blooms should be arranged in the stands according to the colours of each, so as to harmonise agreeably. This is a very important point, requiring much consideration, as nothing is more offensive to the eye than two flowers the colour of which kills each other, so to speak, by being staged in the wrong place. Giving the height at which the back, middle, and front row flowers should be arranged from the board, measuring from the bottom florets, will be a capital guide for beginners. The blooms in the back row should be elevated 1¾ inches from the stand, those in the middle row 1½ inches, and those in the front row fixed 1¼ inches above the board or stand. By fixing them at this height every bloom is shown to the best advantage. Reflexed and Anemone flowers should be arranged in the same manner as the incurved.

The Japanese varieties with long drooping florets require setting up a little higher on the board, just sufficient to allow the points of the florets to stand clear. Much depends upon the cupping of these, which should be done in a careful and judicious manner. As the forms vary so much in character, each variety requires a special study. Take Boule d'Or or Meg Merrilies, for instance; neither of these should have their florets cupped in a horizontal position, as their natural tendency is to droop downwards. One of the large tubes which I recommended in a former note should be used to support them in such a way that they retain their drooping character, not quite in such a perpendicular form as when the first named variety is growing on the plant, because in this way much of the size of the bloom is lost by not spreading it out. The bloom should be placed in the tube in such a way that the florets droop easily, and the relative length of those of each variety must guide the exhibitor in fixing the height from the stand. It would be almost impossible to accurately define the height in inches of each flower. Owing to the different ways in which the florets are formed in the various types of the Japanese

section, the interlacing of the florets of some sorts and the incurving and recurving of others, they are not so easily arranged in the stands as the incurved section. The best way to proceed is the following:—

Take a bloom of any of the long-petalled varieties, turn it upside down, slip the tube over the stem, and place the stem of the flower in the mouth, thus setting both hands at liberty. If the florets are interlaced at the back of the flower, as they often are in some varieties, with both hands disentangle them and spread them out evenly and straight from the centre all around; then, with one hand, hold them in position, and with the other hand slip the tube into its place close under the base of the florets. Lightly hold the stem of the flower and the tube in the hand, turning it into position, so that the correct height to fix the tube in position can be ascertained. By slipping up or down at will the florets can thus be brought into the required form; then with a piece of cork cut in the shape of a wedge, the flower-stem can be fixed by pushing the cork tightly into the cup with the thumb of the right hand, the stem and the tube being firmly held in the left hand. The pieces of cork are best soaked in water before use, thus rendering them softer and more easy to push into position. As the cork and stem are in the water contained in the cup, the cork swells and remains tight in its place, but is easily withdrawn by the forceps should necessity require its being taken out. Some growers use plugs of wood to secure the stems in the tube, but I think they are too hard and likely to cause injury to the stems of some weak-growing varieties, while they cannot be so easily placed in or taken out of the tube; also that more time is taken up by preparing them than in the case of those made of cork. Anemone Japanese varieties, owing to their long guard florets, require the same management in fixing them in the tubes as do the Japanese sorts. Anemone sorts of the ordinary type should have their guard florets cupped, so that they are not brought above a horizontal position, or some of their size will be lost.

Pompons and Pompon Anemones are generally shown in bunches of three flowers, one on each stem, with their foliage. If these are neatly arranged, which requires some time to do it nicely, the effect is heightened considerably and well repays for any extra trouble entailed. In arranging these in the stands the flower-stems for the back row should be cut 7 inches long, for the middle row 5¾ inches, and for the front row 4½ inches. The blooms are placed in a triangular position, two at the top and one below, just sufficiently low to allow of the bottom flower being plainly seen without in any way interfering with those above. As the varieties vary in size considerably, it is difficult to say how much the front bloom requires to be lower than those above; therefore the size of the blooms must guide the grower in this respect, but 1 inch will allow for the arrangement in most instances. The peduncles of some varieties are so weak that supports are necessary to show the blooms to the best advantage; in fact, all are much improved by fixing them firmly. Nothing is better for this purpose than galvanised wire about the thickness of small knitting needles, cut the same length as the flower-stem. About 3 inches from the point at the top give the wire an easy bend of say 1 inch from the straight; this gentle curve holds the blooms free from each other. Of course the two longest wires are bent in an opposite direction; then bind fine wire round the stem and the stout wire, and the blooms will be kept in the proper position and can be set into the cups at will. The front or shorter flower should have a leaning towards the front when staged on the boards. Retaining all the leaves on each stem much improves the appearance of this class of Chrysanthemums. Only the cups containing the water are used in staging these types. Uniformity in the size of the blooms is very essential, and an harmonious arrangement of the colours should be adopted; never place two pink, two white, or two yellow varieties together. At the time of staging the blooms is the best time to name them. This should be done accurately; misnaming causes much confusion in the season following if not at the time. An exhibitor not naming his specimen correctly often causes nurserymen much trouble and annoyance. Many people go to shows and see blooms well shown; they take the names and order the varieties; therefore, if



Incurved Chrysanthemum. (See p. 437)

wrongly named at the show, when the plants bloom in the following season they are quite different to those expected, because the nurseryman has sent the varieties true to name. Hence there is annoyance to the purchaser as well as to the nurseryman, and it behoves all growers of Chrysanthemums to be particular in naming their specimens, although wrong naming does not disqualify a competitor, provided there are no duplicate blooms in the stand.

Some societies stipulate in their schedules that naming of cut blooms must be done on labels supplied by the society, thus uniformity in the naming is ensured in all classes throughout the show. The best of all labels are adhesive ones, about 3 inches long and 1½ inches wide. Some growers have small cards with the names printed on them. This is an excellent plan to enable the public to ascertain the names, but they are liable to be lost when laid loosely on the stands; also too much time is taken up on the morning of the show in placing them in their relative positions. I prefer the adhesive ones to all others, as they are fixed in front of the blooms when arranged at home; then if any bloom has to be removed for convenience in packing, its proper position can easily be found again by the fixed label.

Societies have offered prizes for blooms staged without any dressing or without the aid of artificial supports, but have always failed to obtain a representative collection. The chief cause of failure in this method is the unsuitableness of many good varieties for this purpose, owing to the fact of their having such weak peduncles. Take, for instance, Prince Alfred, Lady Hardinge, and Princess Teck among the incurved, how could these be staged satisfactorily without support? Again, some sorts produce peduncles 12 inches long, and consequently no foliage can be staged with the blooms, and this renders them gaunt-looking objects. At present I see no means of altering with advantage the method now adopted of staging cut blooms.

Chrysanthemum Elsie.—There is not much doubt that this lovely reflexed Chrysanthemum will become one of the most famous of its class when it is better known, but as yet it is scarce. We remember this being shown last year at one of the National Chrysanthemum Society's meetings in two different phases. One bloom was from a plant that had been grown under the highest culture, so as to develop the flower to the largest size possible, and the other was from a plant that was cultivated more naturally. The difference between the two was most marked. The one was forced out of character, a rough, inelegant, and clumsy flower; the other a bloom of medium size, charming symmetry, smoothness, and fulness; the colour canary-yellow of the softest imaginable shade. Elsie is scarcely a variety for exhibition; it is more of a decorative flower, and as such it should be largely grown for its delightful beauty.

Japanese Chrysanthemums.—The varieties that Mr. Cannell introduced from Japan have proved magnificent additions to a class that has made rapid strides in recent years. It is only to be hoped that more will be obtained, but the cost of collecting and deaths that occur on the voyage home make it expensive work. It also shows to what perfection the Japanese have raised their national flower. It is as perfect in Japan as the Rose is in England; and another flower that the Japanese cultivate with almost the same marked success is the Kæmpfer's Iris. Such Japanese varieties as Mr. C. Orchard, bronzy red, the reverse gold yellow; Edwin Molyneux, crimson and gold; Lady Lawrence, pure white; Mr. H. Cannell, yellow; Mrs. H. Cannell, pure white; and Mr. Matthew, terra cotta shade, are of a type that we hope we shall have more of.

Avalanche.—This is one of the finest Japanese varieties that has been raised for some years, as the flowers are remarkably massive, solid, and of the purest white, having all the charm and quality of a typical Japanese Chrysanthemum. The plant is a strong grower, but there is one trait in the character of Avalanche that is likely to detract from its merits. On the same plant the flowers appear in different phases. An instance of this occurred with Mr.

Cannell at Swanley, and has doubtless done so with others. One specimen produced a flower of the proper nature, but bore also two others that were so different as to be quite distinct, the blooms being of medium size, with a smooth broad petal, regular form, and more like those of a reflexed Japanese. One specimen produced nothing but this kind of flower. If others have experienced this peculiarity in Avalanche, it would be interesting to record it.

TYPES OF CHRYSANTHEMUMS.

THE accompanying illustrations show the two types of Chrysanthemums that have attained a marked degree of popularity and excellence. To the ardent cultivator of Chrysanthemums all things seem possible in the way of improving existing varieties and introducing distinct kinds. James Salter is a good type of a Japanese flower, and it is this section that has given an impetus to the culture of the Chrysanthemum in England. New varieties increase as rapidly as in the case of any other type of florists' flower, and it is of great importance that they should each have a thorough trial before being sent out into the world with a name. Thousands of seedlings of Japanese varieties are raised, but few live long; and it is essential that a keen judgment be maintained for the sifting out of worthless flowers and keeping up the standard of excellence to its highest point. It is the Japanese Chrysanthemum that has shown the greatest advance, and many of the raisers' names are household words to the enthusiast in this gay autumn flower. Mr.



Japanese Chrysanthemum James Salter.

James Salter raised the variety figured, and in our own day we have English raisers that are doing much towards the improvement of this charming section, although some praise is due to Continental florists, as M. Délaux. A great era, it might also be said, in the history of this flower was the importing of varieties direct from Japan, the home of the flower. What may be done in the future we cannot say; but the recent splendid acquisitions, as Edwin Molyneux and others we could mention, seem to shadow greater things to come. These acquirements give a glimpse of the perfection the Japanese have brought a flower that is in Japan what the Rose is in England. There is, of course, a surprising diversity of character. Some, as Meg Merrilies, have ribbon petals, others broad and coarse, as in Comte de Germiny, and we must guard against losing the rugged, informal character of this flower, that is its great and enduring charm. The comparatively new class that has been formed, the reflexed Japanese, will receive all that have not the wild beauty of the more typical flowers, but some varieties are difficult to determine at all, as their characters are not sufficiently marked either for one or the other. There is in the Japanese flowers a great range of beautiful colours, from the purest white to the richest crimson and gold, and here they have an advantage over the incurved, although to many the formal incurved section is as dross. But each has his or her own special class. The incurved varieties certainly have not shown the improvement that can be traced in the Japanese. We have, of course, the splendid finish, fulness, and solidity that are necessary in a show flower, but there is very little progress in the raising of new sorts. The choice of colours is restricted. We have not the same number of brilliant hues as in the Japanese kinds, but there is a step forward by the additions that have been made during the last two or three years. At the last meeting of the National Chrysanthemum Society, Messrs. Davis and Jones, of Camberwell, showed a new reddish orange-coloured incurved variety, named H. Shoesmith, a sport from the useful golden-coloured Mr. Bunn, and inheriting its admirable incurved form. We hope there will be still further additions, so that we may keep pace in this section with the rapid advance that is going on in the Japanese class. While the energies of the cultivator are often almost solely restricted to these two divisions, a little more enthusiasm is wanting in respect to the Anemone-flowered, the Pompon, and the reflexed sections. In the Anemone-flowered we see signs of an increasing interest, also in the Pompons, which were many years ago eagerly sought after. The raising of such new Anemone-flowered varieties as Nelson, recently certificated, ought to bear good results.

This is a fitting season to place before our readers these two figures and remarks, as not only are Chrysanthemums the chief flowers of autumn, but never before in the annals of horticulture have they held such a high position. We can point to the National Chrysanthemum Society for evidence of this. Its work is increasing, and in every town and village in England there is an exhibition of a flower that is comparatively modern, although now become as famous as the Rose.

Chrysanthemum blooms damping off.—Mr. Molyneux's notes on the "Prospects of the Season" (Chrysanthemums) in THE GARDEN, Oct. 27, have been read with interest here. I wish to say a few words, hoping I may get information on the subject. My 300 plants are grown for large blooms, and received, in my opinion, the necessary attention in all stages of growth. They were carefully tied out, and the wood well ripened from being fully exposed to the sun, and there was not a drawn plant amongst the lot. The wood was as stout as any enthusiast could wish for, bearing splendid plump buds, some (not showing colour) being 2 inches in diameter. The plants were housed on the 1st of October in a new and dry house, and very carefully watered as they required it. They had the advan-

tage of a month of splendidly dry weather, with the exception of one or two fogs at night. They had also slight fire-heat at times. But all the same, my prospects of the season are a perfect blank, caused by the damping of the blooms, some upon showing colour and others when about a fourth expanded. I can assign no cause for such a result but to the excessive rain during the summer, as all my plants are taller than the height Mr. Molyneux mentions in his letter; for instance, Fair Maid is 9 feet; Madame C. Audiguier, Belle Paule, Prince Alfred, and Lord Wolseley 10 feet, all crown buds; all the Queen section the same height—7 feet 6 inches. One curious fact I noticed this year is that all plants from which I removed the crown bud before the 10th of August gave others in September, and in only one or two cases have I seen any terminal buds, and these on plants that showed a crown bud at the same time. Edwin Molyneux is the only variety that has not damped as yet. C. Audiguier has damped more than any other variety. I should state that all growers in this neighbourhood have suffered more or less from the same cause.—FREDERIC CLIBBORN, *Clonmel, Ireland.*

SHORT NOTES.—CHRYSANTHEMUMS.

Miss Gorton belongs to a class of flower we much admire. It is what we should call a recurved Japanese, and is of the most delicate blush colour.

Thorpe Junior is a large Anemone flower of a rich gold colour. It should be cultivated for its distinctness. We have none too many good flowers of this class.

Albert Victor is a Japanese variety, and raised by Messrs. Cannell and Sons, Swanley. It is full, solid, and of a shade of lilac-purple that is rather novel.

Lady Selborne is one of the most useful early-flowering varieties we have, although it is old. It is absolutely pure white, the flowers of true Japanese character and exceptionally beautiful. It should be cultivated by all.

Francois Marrouch is one of the finest of the yellow-flowered Japanese varieties. The shape of the bloom is excellent, and there is plenty of substance in the petals; while the colour is strikingly brilliant.

W. Holmes, the crimson reflexed variety, deserves all that has been written of it. It is the finest reflexed crimson variety in cultivation. Everyone who cultivates Chrysanthemums should have a stock of it.

Mrs. J. Wright, the pure white Japanese flower that created a stir last season by reason of its delightful beauty, promises well this year. It is a flower of splendid proportions and of great purity.

Chrysanthemums in the parks are looking well this year. There is a good exhibition in Finsbury Park, also in Southwark Park and in the Temple Gardens. Free shows of this character are of great value.

Sunflower, the Japanese Chrysanthemum recently certificated by the National Chrysanthemum Society, promises well. It is a flower of massive character, broad, solid, and of a brilliant yellow colour.

Elaine.—I can find the raiser's name of this beautiful white variety, but can get no clue as to the year in which it was introduced. Could any reader of THE GARDEN supply the information?—X.

Mrs. Annie Lowe, a beautiful, large, Anemone-flowered variety, we recently noted in Messrs. Davis and Jones' nursery at Camberwell. It is a sport from Lady Margaret, and has a flower of two different shades of colour.

Florence Percy is a Japanese variety that ought to become popular. It is creamy white, the florets fluted slightly and somewhat incurved, so as to give the bloom a compact appearance.

Mme. Blandineries is considered the best Anemone Japanese variety of the year. It is of splendid finish, with strong guard petals and a well-built disc, the colour being of a purplish crimson shade.

Single Chrysanthemums are becoming as popular as the Pompon varieties. The flowers, especially of such kinds as Snowflake, pure white, have a charming grace. Miss Mary Anderson is a flower which has stiffer, smoother petals of a blush tint.

Edwin Molyneux is already largely cultivated, although it is comparatively new. It is one of the finest Japanese varieties we have, as the crimson-and-gold colouring is especially rich, the flower of immense size, and the petals broad.

Chrysanthemums and earwigs.—I have been growing about 250 plants this year for big blooms, and have been quite infested with earwigs, especially during the early part of the summer. Persistent hand-picking has been my only remedy, the insects declining to enter traps of any kind. My sister and self have had a lot of work every morning in looking for these pests, which, when found, were speedily consigned to a can of hot water carried by one of us. Now the plants are housed they are again beginning to be somewhat troublesome, and as the blooms are expanding they require a great deal of watching. I should like to point out to those who are amateurs like myself the undesirability of using canes instead of stakes. I have found that the earwigs, where the cane has been cut between the nodes, have eaten out the pith and made the canes hollow quite down to the next node, through which they are unable to pass. This was a contingency quite unlooked for and never dreamt of till I caught one of them crawling out of the hollow cane, which, on being split, was found to be full of the earwigs. The holes were immediately filled with petroleum (a drop of which speedily kills these insects), and the plague was almost entirely stopped, it being quite a rare thing to find half a dozen on the whole of the plants, where previously it was no uncommon thing to find from 150 to 200. I find that the canes want another dose of the petroleum, but as the plants are housed I am filling up the hollow canes with large matches, which are thrust in head downwards. I caught a few earwigs outside this morning which had been trying to gain admission to the holes, but found the doors closed against them. Another year I shall take great care to close the holes in the canes or discard canes altogether and use solid wooden stakes, which, though not perhaps so neat, will certainly contain no hiding places for these insects, which are a great pest to nearly every Chrysanthemum grower.—C. J. H. C.

CHRYSANTHEMUMS AT CAMBERWELL.

IN one of the most densely populated districts of London, surrounded by houses, and, at the time of our visit, under a thick canopy of yellow fog, Messrs. Davis and Jones have a nursery that is devoted almost exclusively to the Chrysanthemum. Where a specialty is made of one thing, we generally find that it is brought to the highest perfection, and this is the case at Camberwell. There are several houses, and in the largest there were between five and six thousand flowers expanded, all of excellent quality, and of a colour that was surprisingly fresh and deep. There were many old varieties, but also a good proportion of recent acquisition, especially of the incurved section, and it is to this class that Messrs. Davis and Jones are giving special attention. Some effort is needed to create a variety in the incurved Chrysanthemums, as, unlike the Japanese forms, they have not increased at a rapid rate, so that we have the same kinds now on the exhibition board as were seen twenty or more years ago. Such splendid varieties as the deep purple Refulgens, the pure white Mrs. G. Rundle, Jeanne d'Arc, George Glenny, Hero of Stoke Newington, and Antonelli were in full character. More interesting than particulars of old kinds will be a reference to the new incurved additions, and these improve on acquaintance. Mrs. Norman Davis is of a bright yellow colour shaded with bronze, and being a sport from Princess of Teck has naturally a finished form. It should be seen to advantage this season, and also the sport from Mrs. Norman Davis, named Charles Gibson, which has a well-built bloom of a bronzy-red tint, the centre yellowish cinnamon colour. Messrs. Davis and Jones have secured the stock of a bronzy-coloured sport from Mrs. Heal, which ought to create a stir. The incurved variety Violet Tomlin, a sport from Princess of Teck, it would be difficult to overpraise, if only for the surpassing richness of its purple-violet colour. H. Shoesmith is a decided gain; it was described in THE GARDEN (p. 402). We require in the incurved class more varied colour, and this we are obtaining by the introduction of new kinds. The whole of the plants are in the best of health and have remarkably robust and deeply coloured foliage.

The Japanese varieties we can dismiss with comparatively few words, not that they are at Camberwell either few in number or poor in quality, as we have seldom seen them finer. There are splendid flowers of the reddish bronze Val d'Andorre, the salmon-red Wm. Clark, a new variety of great promise, the rich yellow M. Garnar, and such undeniably magnificent varieties as Avalanche, Mr. H. Cannell, Phœbus, Mme. de Sevin, Mrs. J. Wright. There are some that need a special note, as they are not so well known. These are Miss Gorton, lovely blush white and of beautiful form, in the way of Elsie; C. Wagstaffe, white; Dr. Don, creamy white; Mr. Mencke, yellow, of the character of gloriosum; Ralph Brocklebank, a sport from Meg Merrilies, similar in form, but golden yellow in colour; Mawet-Postula, lilac and white; J. Laing, orange-red; and Florence Percy, pure white.

There were beautiful blooms of the Anemone Japanese variety Nelson, a richly coloured deep purple flower; Sabine, yellow, with deeper coloured disc; Thorpe Junior, rich yellow; and Mme. Blandineries, purple-crimson, one of the best of the year in the Japanese Anemone section.

Messrs. Davis and Jones have also a good show of Pompon varieties, which seem to have increasing attention given them. Comte de Morny, rich magenta; Pink and White Trevenna; Golden Mme. Marthé; Maid of Kent, crimson; Mrs. Bateman, orange-red; and Nelly Rainford, pale bronze, are amongst the best kinds in this exceedingly beautiful, though modest section of Chrysanthemums.

STOVE AND GREENHOUSE.

ZONAL PELARGONIUMS.

THE zonal Pelargonium is evidence of the peculiar whims and fancies of Fashion. It has fallen from its position as a garden flower, but risen to the first rank of greenhouse plants, especially those for winter-blooming. This gay and brilliant flower illustrates again the ever-striving, indomitable character of the florist, who ceases not until the standard of excellence established in his mind's eye has been achieved, as from the two progenitors of the race (P. inquinans and P. zonale) a class of flowers has been obtained that we could ill afford to lose. Many complain, and justly, of the florist's work, moulding flowers into formal shapes as if they were clay; but in the case of the Pelargonium there has been a progress no one would wish to have stopped, as there is a range of delightful colours, from the purest white to the deepest crimson, too numerous to define. There is still much to be done, and a few of the newer kinds of Messrs. H. Cannell and Sons, Swanley, show further advance. One of these is the lovely pure white single variety, Swanley White, of which a coloured plate appeared in THE GARDEN for July 7, 1888. We gain here some idea of what has been achieved. There is a magnificent truss, large individual blooms, and these of the purest hue, a good habit, and vigorous leafage. And belonging to the same breed as these are such splendid varieties as Rhodope, salmon-scarlet; Countess of Derby, white, salmon centre; Rev. Dr. Morris, scarlet, white eye, very fine truss; Friga, scarlet-crimson; Perdita, salmon; Dr. Tucker, purple shade; Henry Cannell, jun., purple-crimson; Brilliant, splendid scarlet; and Lovegold, scarlet tinted with yellow. These are the newest additions, and show a steady advance. We have a gradual improvement in the salmon tints, the scarlets are becoming brighter, the crimsons richer, and the whites purer by careful hybridisation, and it is alone by this that we have made such strides. Of the older kinds, such as Hyacinth, scarlet; Countess of Rosebery, salmon, white eye; Norah, blush; Lady Frances Russell, pink; Edith Miller, lilac; Mr. H. Cannell, splendid scarlet; and Lady Randolph Churchill, clear salmon, are worth retaining, but older kinds do not generally stand much chance of remaining long in the catalogues with the new and better kinds that are fast appearing.

As in the case of the tuberous Begonia, there has not yet been the marked progress with the double as with the single varieties. But the

Swanley Double White is an invaluable addition. It is very free, the truss of good size, and the flowers are not only of the purest white, but quite double, and on this account useful in the highest degree for wreaths. Mme. Leon Dalloy is a variety of value for the lovely blush tint of its flowers. Here we may remark that, as in the single varieties so in the double, there is an infinite variety of colours, but the most decided tints are the best, not the mixtures that often produce weak results in the greenhouse. We want a blue and a pure yellow-flowered variety, but these are as far removed at present as the blue Rose, though nothing seems impossible to the ardent hybridist.

There are other sections that have each their good points. The decorative class is of the greatest value, and Mr. Cannell has a batch of the pure white-flowered Venus, a variety that blooms just when we require white flowers; there are also others of this interesting section quite as beautiful. It is this class to which attention is now given. The flower-loving public has tired of the huge show kinds, and discerned greater beauty in the freer and more graceful style of the decorative Pelargoniums. There is another section, if one may so call it, that offers great advantages, and that is the dwarf double Pelargoniums, of which Mr. Cannell has several seedlings that have a dwarf habit and free display of flowers. Lady Emily Peel, lilac-pink, and Dr. Butler, salmon, are two useful additions. Another kind of the West Brighton Gem character, and named Snowdrop, has double flowers of the purest white and the same bushy habit as West Brighton Gem, and the leafage is slightly variegated. From these few notes it can be seen that there is no sameness nor monotony in the zonal Pelargoniums. If the gardener or amateur does not like one section, he can grow another. A glance at Mr. Cannell's houses show what brilliant effects can be made in the autumn and winter with these plants. They are in 4½-inch and 6-inch pots, remarkably robust, and grown in houses that admit of every ray of sunshine. Considering how easily the zonal Pelargoniums are grown, their adaptability for a winter display, and the small attention they need, it is rather strange that amateurs do not cultivate them more largely than is at present the case. They do not require the strong heat often supposed necessary, and to those who wish for plenty of cut blooms, few plants yield such an abundant supply.

Cinerarias dying off.—I have got a disease spreading among my Cinerarias, and I wish to know if you could inform me what it is and a remedy for the same. I have never seen anything like it before. Plants that to-day look well and in good health, to-morrow I find flagging, as if through want of water. During the night they revive again, only to go down during the day. In this way they go on for about a week till they fail to come up at all in the evening. They are standing in an ordinary frame on a bed of coal ashes. Until a fortnight ago they were facing the north, but since then I have turned the frame to the south and shaded them with thin tiffany during the day. This is my first season in these gardens, but my assistant, who has been here over four years, says that the Cinerarias have always suffered in the same way. I may add that the plants have never been watered with manure water, but I used a little Clay's fertiliser with the potting soil.—C. S.

*** When specimen plants die off in October, as in this case, it is owing to something being wrong with the roots. As far as I can gather, the plants have not been watered with manure water, but artificial manure was mixed up in the potting soil. Taking the plant you sent as a guide, I would say it was injured by having too much water applied to the roots before they had thoroughly permeated the potting soil, while a rich compost would aggravate the evil. The plants being placed in a position hemmed in by trees would not be of such a vigorous constitution as if they were grown in the open; that again would also tell against them. Still, I believe they would not die off if the compost is not too rich, say four parts loam, one leaf-mould, one well decayed manure, and some sharp sand, with a little broken charcoal added to it. When the plants are potted let them be moderately moist at the roots, and the potting soil should also be in a fairly moist condition, and after potting no water should be given for a week, unless the plants should show signs of distress. When water is applied, let it be rain water, and enough be given to moisten all the soil; subsequent waterings should be applied with caution until the roots have thoroughly penetrated the new soil. The frost early in October injured our Cinerarias in frames, although protected with mats. They were at once removed into a heated house where they have quite recovered. I would like to add that Cinerarias are more easily injured at the roots by manure water than many other soft-wooded greenhouse plants. When I was an apprentice in a large garden in Scotland I saw a fine lot of plants in preparation for an exhibition totally ruined by being watered with diluted sheep manure made too strong. Quite recently we had plants which suffered from soot water. In any case when plants show signals of distress by drooping their leaves, the man in charge of them ought to have a better notion of what is the reason than anyone else. I find that too much shade is an evil, whether from surrounding trees or scrim canvas stretched over the glass. Let the plants have plenty of air from the first, and sunshine, unless in very hot weather, does good, not harm. Shaded plants produce large leaves of thin texture, while plants freely aired and exposed to some sunlight have smaller leaves of good texture and quite brittle when touched.—J. Douglas.

WORK IN PLANT HOUSES.

Stove.—Gardenias.—Where strong pieces of the current season's growth that have each formed several shoots set with flower-buds were put in as cuttings in the way advised early in autumn, they will now have filled their pots with roots. They should be stood as near to the glass as they can be got, for on this much depends the flowers opening at the time when they are wanted, about the beginning of the new year. If there happens to be a shelf over the path in a stove where enough heat is kept up, it is just the place for them. If the small pots in which the plants were struck seem to be too small, a size larger may be given, but the object is to get the buds that are already formed to come on rather than to encourage more growth. See that the roots are kept fairly moist, as if the soil is allowed to get very dry, the chances are that it will cause the buds to fall off. Where larger examples are wanted to flower at the time named, means should be taken to place them near the glass, without which, however strong the plants may be and well prepared for blooming, the opening of the flowers during the depth of winter is uncertain. Avoid syringing overhead, as if the water remains long about the buds, it is liable to cause them to drop. Keep the atmosphere moist, but this must not be overdone or a similar failure will follow. Gardenias will bear a lower temperature in winter without injury than most stove plants; consequently, it is not necessary to keep the portion of the stock that is wanted to flower towards spring so warm as those plants intended to bloom in mid-winter. Where the plants are of necessity wintered in colder quarters than desirable, say 55°, no more water should be given than necessary to prevent the soil getting dry.

Amaryllis.—The time the growth of these plants is completed depends on their having flowered early or late. Where they bloomed early in spring and were pushed on in heat afterwards, the growth will have been finished some time, and the foliage will now be ripened off. The soil should be kept comparatively dry, but there is no necessity for carrying the drying process as far as used to be considered requisite, especially in the case of bulbs that have not yet attained their full size.

Coleus.—These plants are so easily and quickly grown to a useful decorative size, that, except of any variety that happens to be scarce, it is not worth while to keep large specimens through the winter, as cuttings struck in autumn will get large enough for any purpose before the return of summer. If sufficient young stock has not been propagated, cuttings may yet be put in. With a moderate stove temperature they will root in about a fortnight. They should be kept near the glass, as if they do not get plenty of light the growth that is made during winter will be soft and weakly. Cuttings that were struck early in autumn will be large enough to move into 5-inch or 6-inch pots.

Dracænas.—Plants of any variety of Dracæna that require to be grown in heat, and have been stood in conservatories and other places during the summer where there is not sufficient warmth to keep them in health, should at once be moved to where they will have a stove temperature, as they will soon begin to lose their leaves. Plants that have been kept too cold must be carefully watered until growth commences again.

Oranges.—Large specimens of Oranges that are now carrying a crop should, if the object is to have the fruit in the best condition, be kept during the winter in a warm house. The fruit, under the cool treatment Oranges often receive, is too long in ripening to be of good quality, in addition to which the trees frequently become unhealthy when kept too cool. Large examples that have got into a weak state, and with a view to bring them round have been kept through the summer in heat, should have a continuance of the treatment. This, provided the soil is good and the drainage efficient, will do more to set them right than anything that can be done for them.

Greenhouse.—Azaleas.—Where Azaleas are required to be in bloom at the end of the year, the plants should be put in heat now. To have them in at the time named it is necessary that they should have been prepared for the purpose by having their growth made early in the summer, and by having been kept in heat long enough to admit of the buds getting large and plump. Without this it is useless to attempt to bloom them so early, as however much heat they are subjected to it will not bring them into flower. Another matter of importance is that the plants to be now forced should have been bloomed early last year, or still better if they have been for several years brought in soon, as in this way they get used to flowering early, and come on readily with comparatively little forcing. Do not subject the plants to a high temperature. Another important matter is to have them during the time they are being brought into flower in a house or pit that admits as much light as can be had, and that they are stood well up to the glass Syringe overhead once a day, but not more than this, as too much moisture causes the flowers to be soft. For early blooming the two common sorts, Fielder's White and the old white, are the best The less formal shape of the flowers of these varieties, combined with the length of wood which their freedom of growth admits of being cut with the flowers, adapts them better for use in any combination of cut blooms than the newer sorts.

Mignonette.—The plants that have been raised from seed sown during the early part of autumn for flowering early in spring, and that have up to this time been kept in cold frames, must now be housed. They should be kept through the winter in a house or pit where a temperature of 45° or 50° can be maintained. With this amount of heat they will go on growing. They should be stood close to the glass, as without this it is not possible to prevent them being more or less drawn. When Mignonette is well grown the plants when in bloom are as compact and sturdy as if they were in the open ground. If the tops, as already advised, have been pinched out they will have made three or four shoots each. These, as soon as long enough, should be tied well out, to lay the foundation for compact specimens.

Mignonette is a spare-rooting subject, but under pot culture it does not like to remain too long in the pots in which the seeds were sown, as if this occurs the growth gets stunted, a condition from which no subsequent treatment will get the plants to move freely. This being the case, they should be shifted into the pots in which they are to flower as soon as they have made sufficient roots to hold the balls together in the operation. Where it is grown as what, for want of a better name, is known as Tree Mignonette, the plants raised from seed sown much earlier, and either trained standard fashion or in the shape of branching pyramids, under liberal treatment, will now occupy 8-inch or 10-inch pots. They should be kept in a light, airy house or pit, and will do with a little less warmth than is necessary for the later-sown examples. Manure water should now be given frequently, as without assistance in this way the foliage is apt to become yellow and sickly, a state that spoils the appearance of the plants, in addition to which, when not well supported, the flowers come weak.

PALMS.—One of the advantages connected with the cultivation of several of the most beautiful species of Palms is that they will bear a lower temperature in the summer and autumn than might be supposed from the heat they are subject to in their native countries. Cocos Weddelliana, one of the most elegant species in cultivation, is an evidence of this, for not only will it bear being kept in a cool house in summer, but it will also do in a temperature of from 45° to 50° in winter. Lower than this it is not safe. Another beautiful genus, the Geonomas, will bear cool quarters in summer, but will not do with so low a temperature in the winter as the Cocos. Where there is a conservatory or roomy cool house that has to be kept partly furnished with fine-leaved plants, some of the cool species of Palm should always find a place. Amongst the most desirable kinds are the Kentias, including K. Belmoreana, K. Fosteriana, K. Canterburyana, and K. australis, all of which are so much alike that for ordinary purposes one is as good as another, the principal difference being in the length the leaves attain. For general use K. Belmoreana is as good as any. An ordinary greenhouse temperature is quite sufficient for any of the Kentias named, except in the case of small examples that have to be grown on without delay. The Kentias are much better plants than Seaforthia elegans, which they a good deal resemble, but they will bear much more moving about when used for the decoration of halls and rooms, as their leaves are not so liable to be injured and they do not turn the objectionable yellow colour that the Seaforthia does when kept cool. Corypha australis is another useful Palm that will stand much hard usage. Chamærops Fortunei and C. humilis are both useful cool house plants. The former, if not given too much pot room, can be kept for a long time within moderate bounds. Where a slender, small-growing Palm is required, Rhapis flabelliformis is the best. T. B.

SHORT NOTES.—STOVE AND GREENHOUSE.

Echeveria retusa.—There are few more useful plants than this for winter. Messrs. H. Cannell and Sons have a large batch of it in their nursery at Swanley.

Begonia Carrieri.—This is as useful as the old B. Weltoniensis. It is of compact habit, very easily grown, and produces its pure white flowers during the winter.

Agathæa cælestis is of use at this season for its lovely blue flowers. Messrs. Cannell and Sons have several plants of it in full bloom but it is not often seen. Cuttings of it strike readily in spring.

Calla æthiopica ripening seed.—I should be obliged if you would tell me through the medium of your paper whether Calla æthiopica seed ripens sufficiently well in this country to germinate, and whether it would be likely to produce anything different from the parent form.—J. R.

Autumn-flowering Amaryllis.—There is a possibility of obtaining an autumn-flowering race of Amaryllis, and the variety Autumn Beauty, shown by Messrs. J. Veitch and Son, of Chelsea, recently gives hopes for the future in this class of bulbs. It is the result of a cross between A. reticulata and a variety of the A. Leopoldi type, and has been raised about five years. It is dwarf, exceedingly free-flowering, and is a great improvement upon A. reticulata, being far more robust, blooming more freely, and with larger flowers. The well-shaped bloom is of a rosy tint, and a few plants in full beauty at this season are a change from Chrysanthemums, Bouvardias, &c.

Lapageria rosea and L. alba.—These plants are now flowering profusely in Sir Trevor Lawrence's garden at Burford Lodge, the whole roof being covered with the exquisite white and rose-coloured bells, and contrasting well with the many other plants, consisting of tuberous Begonias, many kinds of Salvia, and perhaps one of the finest displays of the old, but truly beautiful Tritonia aurea. At Mr. Laing's nursery at Forest Hill the Lapagerias are superb just now. On one plant I saw some seventy flowers on 4 feet of stem; this, I think, is the densest raceme I have ever seen. These Chilian climbers certainly deserve the greatest attention, their requirements being so simple and the returns so great that they cannot fail to be universally admired.—W. H. G.

Bouvardia President Cleveland.—Can any reader of THE GARDEN enlighten me as to the origin of this Bouvardia, which is certainly, by far, the finest of all the bright-flowered class? It is, I believe, as its name suggests, an importation from America, but it certainly was not heralded by that flourish of trumpets that one would expect in the case of such an important acquisition. It was, indeed, but little known till last autumn, when a considerable amount of attention was directed towards it, and a first-class certificate was then conferred upon this Bouvardia by the Royal Horticultural Society. That such a mark of merit was worthily conferred is shown by the increased numbers that are now grown, and it is more than probable that by another year it will be found in every garden wherever Bouvardias are cultivated. President Cleveland is a free-growing variety, bearing good-sized trusses of a rich deep scarlet colour. The individual blooms are large, while their beauty is still further enhanced by the sparkling coruscations that overspread the petals and give to them the appearance of being frosted. In the matter of brightness, this Bouvardia greatly surpasses the older kinds, such as Dazzler, elegans, Hogarth, &c.—T.

Aphelandra Margaritæ.—This Aphelandra seems to flower with more freedom about the month of October than at any other time of the year, and it forms just now a bright and effective object in the stove here, for, like most of its class, the blooms are very richly coloured. It is one of the least robust of all the Aphelandras, and is especially liable to lose its bottom foliage. The leaves of this kind are broadly lanceolate and of a deep olive-green on the upper surface and purplish beneath, while the principal veins are marked with a silvery stripe, which stands out very conspicuously against the ground colour of the leaf. The upper surface is thickly studded with hairs, but on the lower side they only mark the course of the principal veins. The flowers, which are borne in a spicate cluster, are of a bright orange-vermilion colour, and, like most of their class, small plants but a few inches high will bloom freely. All the Aphelandras strike root easily from cuttings, and besides this some of them often ripen seed, from whence young plants can be readily raised.—T.

Rivina humilis.—In THE GARDEN, October 27 (p. 399), "A." speaks very highly of the above named plant as an ornamental one when grown in pots, and which, from experience, I fully agree with. I now ask him and others if they have ever grown this planted out. If not, and they would like to see the beauty of the plant brought out to its fullest extent, I would advise them to do so if they can secure a suitable place for it, either against the back wall of a stove-house or for clothing the pillars of such houses or those of a conservatory where it can be kept at an intermediate temperature. In such positions, when a generous treatment is followed out, I have seen the plants several feet in height, and their beauty is not to be compared to that of pot-grown plants. I have tried the plant in several different mixtures of soil, but find none to suit better than good peat and turfy loam in equal proportions with a suitable quantity of sand added to keep the soil open. The plant should be provided with good drainage, as it enjoys plentiful supplies of water when growing. If the soil is 1 foot in depth after being pressed down, it will be sufficient, but as its roots are mostly confined to a short distance from the stem and are very numerous, yet none of them large, top-dressings of the same sort of soil should be given every spring. I have grown the plant 8 feet in height, and when in good health there are hundreds of racemes of red berries as well as green ones, which, with the flowers, though insignificant, mix agreeably with the others, and make it one of the most beautiful and ornamental plants grown. The plants will sometimes need a little pruning. This consists of thinning out the shoots when they become too crowded. A more useful plant for Christmas decoration it would be difficult to find; the only fault is that its berries easily fall off.—T. R. F.

GARDEN FLORA.

PLATE 674.

TYDÆAS.*

WITH the exception of Gloxinias and Achimenes, the many beautiful genera of the Gesnera Order find little favour in English horticulture. To obtain some idea of the rich colours and great variety of these plants, one must pay a visit to some of the Continental nurseries where they are made a speciality. First amongst these is the nursery of Mons. L. Van Houtte, Ghent. Here, from July to October, the display of Gesneriads of all kinds is wonderfully good. Achimenes, Dicyrtas, Eucodonias, Gesneras, Gloxinias, Nægelias, Plectopomas, Scheerias, and Tydæas, as well as numerous others, are abundantly represented in almost every shade of colour. This nursery has been famous many years for good work done amongst Gesneriads. By cross-breeding and selection very great improvement has been made in all the genera above named, and most conspicuously so in the genus Tydæa. Next to Gloxinia, which must always be placed first among the Gesneriads as garden plants, the Tydæas are of the greatest value as flowering plants. They are very easily grown, increase rapidly, and produce large and bright-coloured flowers in abundance for at least three months in the year; indeed, some of the kinds will flower almost all the year round if properly managed.

What is a Tydæa? Botanists say it is an Isoloma, as also are some of the Gesneras so called and Achimenes, as well as other less well-known genera. Of all garden plants none show such muddle and confusion of names as the Gesneriads. Gloxinias are not Gloxinias, but Sinningias; Plectopomas are Gloxinias; Scheerias, Dolichodeiras, &c., are all Achimenes, and so on, according to the botanists. We are only concerned just now in finding out what are Tydæas as known to horticulturists. Most of us know an Achimenes when in flower by the narrowness of its tube and its usually broad, flattened, Pansy-like limb. True Gesneras have a large, often woody tuber; leaves usually in whorls and an erect panicle of flowers. Tydæas, or, if the reader prefers, Isolomas, have numerous scaly rhizomes, suggestive of caterpillars, erect leafy stems, and axillary, rarely terminal, racemes of flowers. They are not unlike some Achimenes in habit, but the flowers are different. What may be called a good Tydæa has numerous upright stems 2 feet high, with good foliage clothing the whole of the stem, and many axillary racemes of brilliantly coloured flowers crowding

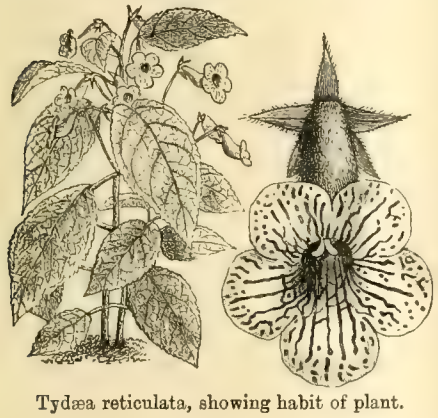
* Drawn for THE GARDEN in the Royal Gardens, Kew, by John Allen, July 5, 1888. Lithographed and printed by Guillaume Severeyns.



TYDÆA "MADAME HEINE

about the upper part of the stems. Such a plant is that shown in the plate. Mme. Heine is a hybrid or seedling of French origin, which was made known in England by Mr. W. Bull, who distributed it in 1875. It has been at Kew at least ten years, and it has not yet been beaten by any newer kind grown there. If it is not of much value for cut flower purposes (why is this almost always set down as the quality most desired in a flower?), it is exceedingly beautiful when let alone. Each flower remains on the plant at least a week, and a strong stem will go on pushing out fresh racemes for a long time. Whilst the old stems are exhausting themselves in producing blossom there are young ones springing up from the pot, so that when the former have run their course they may be cut away, and the young stems will be up and flowering in a month or two. This Tydæa is only one among dozens of equally attractive kinds. Altogether there are about sixty species known, but the majority of these have never been in cultivation. The oldest amongst those introduced and which most likely were the progenitors of the numerous seedling forms known in gardens, are the following :—

T. DIGITALIFLORA.—This has stout, erect, hairy stems, large ovate pointed leaves, and erect axillary racemes from the top of the stems. The flowers are 1½ inches long, 1 inch across, the tube white, with a large blotch of crimson, the limb emerald green with numerous dark spots, and the throat white with red spots. New Grenada.



Tydæa reticulata, showing habit of plant.

T. PICTA, a gorgeously coloured species from Colombia, has large heart-shaped green leaves, the flowers large, crimson on the upper part of tube, yellow beneath, whilst the limb is scarlet spotted with crimson.

T. MOLLIS, a velvety-leaved species, with stems 1½ feet high. Its flowers are crowded about the upper part of the stems, which are hairy; the tube funnel-shaped and deep red; the limb bright orange, thickly spotted with red. This is the old Gesnera mollis, a figure of which is in the *Botanical Magazine*, t. 3815.

T. ORTGIESI has large ovate leaves, stout stems clothed with fiery-red hairs and numerous axillary racemes of large orange-scarlet flowers, thickly spotted with crimson on the lobes or limb, and bright yellow in the throat.

T. PARDINA is very remarkable in the colour of its flowers; they are small, scarlet, yellow in the throat, and the lower lobes, marked with oblong spots, are green with a white edge. The stems are reddish brown, and the leaves fleshy, smooth, and green.

The above five species played an important part in the production of the many garden kinds which were raised by L. Van Houtte and others. Cross-breeding and raising new kinds is very simple work, so far as these plants are concerned. They ripen seeds freely and the flowers are easily manipulated. But no one in England appears to have paid much attention to them. However, the work has been well done by Vallerand, Duval, and L. Van Houtte, and anyone desirous of growing a collection of Tydæas can obtain them from the nurserymen in winter at about 10s. for a dozen good named sorts. Here are a few of well-known excellence: Mme. Heine; Belzébuth, flowers 2 inches across, crimson spotted with black-purple; Robert le Diable, flowers very large, deep crimson with black veins and spots; Sapé, flowers well formed, bright vermillion with crimson dots, yellow in the throat; Le Vésuve, flowers dark yellow with a network of fiery red; Alba kermesina, flowers white and rose, with crimson stripes; Jupiter, tube coral-red, limb pale yellow with crimson dots; Xenophon, large flowers, tube bright red, limb salmon-red with a purple network. These are not the newest, but they are really beautiful plants.

CULTIVATION.—If the rhizomes are procured in February they should at once be potted in a mixture of sandy loam and leaf-mould, two-thirds of the latter to one-third of the former. Six rhizomes in an 8-inch pot, or two in a 4-inch pot, will be quite thick enough. The treatment should then be exactly the same as for Gloxinias. Cuttings strike freely and soon grow into flowering plants. If seeds are preferred they should be sown in February and the rhizomes treated as if they were Gloxinias. By potting up and starting some of the rhizomes at intervals of about a month, a succession of plants in flower may be had for six months in the year. Certainly Mme. Heine was flowering at Kew all this summer and it commenced soon after Christmas. When at rest the rhizomes should be shaken out of the soil and kept in a little dry fibre in pans or boxes till potting time. W.

KITCHEN GARDEN.

LEAVES FOR MUSHROOM BEDS.

MANY more Mushroom beds would annually be made but for the scarcity of what is generally considered the most suitable, I might say indispensable, material, viz., fresh, or nearly fresh, horse droppings. Where only one or two horses are kept, it is not possible to procure sufficient of the orthodox material to form a good sized bed in less than three or four weeks, and the chances are the mixture of quite fresh with very stale and maybe previously over-heated manure will not answer at all well. A Mushroom bed ought not to heat violently after it is formed; but if raw manure is added to much that is nearly exhausted and at once used, this is most likely to happen, to be followed probably by an equally sudden loss of all warmth. To be profitable, a bed must be formed with material that has been well prepared or sweetened by short spells of fermentation, and yet be capable of sustaining a gentle heat for not less than three months. Various substitutes for the droppings have been tried with varying success, but none that I have experimented with or seen tried have answered so well as a combination of leaves and manure. Last November we collected a rather large heap of manure that had been mixed for some time with straw litter just as it was wheeled out from the stables. This had heated strongly, and when the droppings were shaken out, thrown together in a heap, and watered, very little warmth was generated. It occurred to me that this material would answer well for surfacing over a bed formed with well-prepared, slow-decaying Oak and Beech leaves. This was done, and the bed duly spawned and soiled, the ultimate result being a heavy and fairly continuous supply of Mushrooms throughout the winter and again in the spring. What, however, is more remarkable is the fact that we have this autumn again pulled several good dishes of Mushrooms from the leaves that were left after the manure was removed in the summer. At the present time the only partially decayed bed of leaves is overrun with the spawn, and Mushrooms are being produced equal in size, substance, or quality to any I have yet seen. Mushrooms also sprang up in various positions where the manure had been used. Some of the leaves will be substituted for the ordinary spawn when a new bed of leaves and manure is ready for spawning, and I am confident will answer equally as well. Although of a less rank heating nature than stable manure, leaves yet require a certain amount of preparation before being made into a Mushroom bed. This season they have fallen rather suddenly, and being in a semi-green state, will, if used without much preparation, heat fiercely and soon become much too dry in the centre. What is wanted is a steady, sweet and lasting heat, and the less steam given off the better. We prefer the more durable Oak leaves, but failing these would use those from Beech trees, and a mixture of the two would probably answer equally as well. When first collected all should be thrown into a large heap and covered with strawy litter, the latter hastening fermentation, and also keeping the leaves together. As soon as the centre of the heap has become thoroughly hot it ought to be turned inside out, covered as before, and left for a few days. At least one more turning must be given, and by the end of three weeks the mass should be well sweetened, and yet be far from exhausted. The manure that is to face over the beds ought also to be somewhat similarly sweetened as much as possible, and if wet and stale the fermentation will also get rid of much superfluous moisture. If there is not sufficient life left in the droppings to generate a strong heat, then they must be dried in another way. Spread out thinly in an open shed and frequently turned, they ought to be dried sufficiently by the time the heap of leaves is sweetened and ready for use.

The floors of Mushroom houses, warm sheds, or outhouses and spare horse boxes, and there are many not in use now-a-days, are all suitable positions for making Mushroom beds of leaves and manure. Benches are unsuitable, as a considerable depth is needed, and besides if much exposed the leaves dry too much, decomposition ceases, and Mushrooms fail early in consequence. If formed against a back wall it will be necessary to strongly board up the front and sides to a depth of not less than 3 feet. A solid bed of leaves 2 feet in depth should first be formed, these being well shaken out and mixed as the work of filling in and trampling goes on. From 6 inches to 8 inches of the horse droppings should be spread over the leaves and also firmly trampled or beaten down, and the whole left to get uniformly hot. The leaves, thanks to the heavy trampling given, will rarely get excessively hot, but the spawning ought not to be too hastily carried out, or it might end in failure. Wait till the trial stakes or plunging thermometer show that the heat will not exceed or has declined to about 80°, and then spawn the bed. Insert good-sized lumps of fresh spawn about 8 inches apart each way, and only just below the surface of the manure, making all firm again with the back of a spade. If the bed is formed in a rather exposed position, cover over the surface at once with dry and soft strawy litter, otherwise there is no necessity for this till the soiling has been done. Should the heat of the bed keep up well, delay soiling

for about a week, but if it declines rapidly it ought to be done in the course of three or four days. The fibreless or loose portion of turfy loam collected for potting purposes answers well for casing over Mushroom beds, and, failing this, the sweetest fine loam procurable may be substituted. It is a mistake in all cases to be too sparing of soil, and there should be a depth of 2 inches after it has been evenly spread over the bed and well beaten down with the back of a spade. A covering of not less than 6 inches of soft, dry litter should then be placed on the bed, and if all goes well, Mushrooms will be plentiful in the course of five or six weeks. Instances have also come under my notice where Oak leaves and horse droppings, each duly prepared and mixed together in equal proportions, have answered well, and this is a good method of increasing the size and productiveness of a bed. In this case benches may be utilised for the beds, which should be formed fully 15 inches deep at the front and 3 inches deeper at the back.

Too much heat and moisture often ruin many Mushroom beds. That which I have alluded to as proving so very productive here was formed in an unheated, well-sheltered house, and no water, or at any rate a good soaking, was given till this autumn, or nearly twelve months from the time of forming the beds. Cold will not injure the delicate Mushroom spores, but much moisture will; while a forcing temperature of 60° and upwards soon exhausts a bed. Instead of giving much fire, well batten down all the doors and shut out as much cold air and drying winds as possible, and if the soil of the beds is found to be somewhat dry, gently moisten the litter with tepid water; this, if done in good time, being sufficient. W. Iggulden.

PROTECTING BROCCOLI IN WINTER.

Notwithstanding that there is an uncertainty attending the cultivation of Broccoli, and many fail to obtain anything like an adequate return for their labour, the question arises, Is it necessary to protect them during winter? Last week, when visiting a well-known place in the midlands, I noticed the garden men busily engaged in heeling the Broccoli. Now this, I maintain, is unnecessary labour, in spite of many assertions to the contrary. I readily admit that there are varieties which are totally unfit to withstand the rigours of our winters without protection, but, at the same time, we have a few varieties that, when properly grown will withstand an average English winter with impunity. My experience leads me to write thus, for after having seen Broccoli grown in many parts of the British Isles, I am fully convinced that the secret of keeping it through the winter lies, not in the best system of protection given, but in its culture from the beginning. This has been proved over and over again, and by men of much longer experience than myself, yet in the face of all this we still see and hear of men failing to keep their Broccoli from being killed by the frost, even where protection is given. Why is this? Simply because it was of a soft, succulent growth, instead of a sturdy, dwarf habit. No doubt on some soils and in some seasons this state of affairs cannot be avoided. A rich soil renders the plants soft and pithy, with the consequence that the first severe frost injures them severely.

Another mistake in their culture is that of planting them too thickly. As a rule, Broccoli planted less than 2 feet apart each way smother each other before the autumn is over; consequently the plants do not have a free circulation of air. Better by far plant them farther apart, allowing say 3 feet, or even more, each way. By adopting this plan, the plants become much hardier and more fit to withstand the winter. Again, it is pretty well known that a more sturdy growth, so essential in Broccoli culture, is brought about by planting on a firm soil. Although I am no advocate of the crowbar system, I must admit that planting firmly is of much more importance than many people think. By well treading the soil around the plants when planted, or as soon as they become established, I have proved that good Broccoli may be grown and samples that will withstand an average winter with impunity. At a place in Northumberland—not the most favourable county, by the way, for Broccoli culture—in 1887 I saw a batch of some 1500 plants, and out of these possibly not more than 50 plants were in any way destroyed by frost, which had been very severe during the previous winter. The varieties which stood the test best were Backhouse's Winter White, Lauder's Goshen, Veitch's Self-protecting, and Eclipse. The ground on which they grew was moderately rich, and had been dug previous to being planted. It was, however, made very firm by treading after the plants were well established, and in this lies to a great extent the secret of Broccoli culture. From what I have seen, the coming season will be a bad one in many parts for Broccoli should the winter prove severe, for soft succulent plants are very conspicuous in a great number of gardens. This, probably, is partly due to nearly a sunless season, combined with the injudicious culture set forth above. Of course, in such cases as these it may be advisable to protect; but in the face of all that is said to the contrary, I maintain that we have some grand hardy Broccoli that, when judiciously grown, need no protection whatever. C. Collins.

KITCHEN GARDEN NOTES.

Early Seakale.

Towards midwinter a few good dishes of well blanched Seakale are sure to be appreciated. It is possible to have it fairly good in November, but according to my experience December is quite as early as most people care to have it. Supposing a good breadth of ground is planted with Seakale, a portion of the crop may well be lifted and forced, the remainder being reserved for either forcing or blanching where established. By far the finest produce can be had from the undisturbed plants, but such force very slowly, and require a rather large and unsightly heap of heating material, such as leaves and manure, to bring them forward. Extra strong one-year-old or good two-year-old roots are the best for lifting and forcing early. These can be packed rather thickly in large deep pots filled with fairly rich loamy soil, and set a few at a time in a forcing or well-heated house of some kind. In order to thoroughly blanch the growths other large pots should be inverted over the crowns, and the crevices kept closely packed with Moss, so as to exclude all light. If the soil used is at all moist no water should be given at first, much moisture causing the necessarily much damaged roots to decay quickly, but directly it gets somewhat dry give tepid water and liquid manure freely. No time can be fixed for commencing cutting, so much depending upon the amount of heat the roots are subjected to. A gentle bottom-heat of leaves or leaves and manure in a heated pit brings on Seakale rapidly, the roots being either placed in pots and plunged, or else planted in a deep bed of soil. Care must be taken not to plunge in or place the roots over a hot-bed not well prepared, hot steam soon proving fatal. The Seakale may either be covered with leaf soil or light mould, or the pits be darkened with the aid of mats. If cut cleanly over, strong roots will yield a fairly good crop of shoots, and after this has been cleared off they are of little further use, unless saved for propagating purposes.

Rhubarb.

This also is the most quickly forced or gently forwarded in forcing houses and pits, Mushroom houses, cellars, or any warm position under cover. Johnston's St. Martin's, Royal Albert, and Linnæus are best adapted for forcing purposes, but the Giant Victoria and the poorly coloured older varieties also force readily, and are certainly better than none at all. The oldest roots, or those that have been planted six years and upwards, are usually lifted for early forcing, and after every leaf-stalk is drawn out of them, the rubbish-heap is their final destination. As the clumps of this age are very clumsy, they cannot be potted or set anywhere, and the Mushroom house is the most suitable place for them. They may also be forced under the staging of well-heated houses, or on gentle hot-beds in pits or frames; warm cellars also answer well, very fine early Rhubarb being frequently obtained in such positions with but little trouble. From three to six strong clumps, according to the demand, should be introduced into heat at fortnightly or rather longer intervals, the aim being to maintain a steady supply without any gluts occurring. Being lifted with a good amount of soil about the roots, the clumps may be set rather closely together, the spaces between them being filled in with good soil, the crowns also being covered with more of the same. Not much water is needed, especially when the clumps are set in a rather moist position, but any that are at all exposed to fire heat and dry air ought to be watered whenever found at all dry.

Forcing Asparagus.

Asparagus is very easily forced, and no dish of other early vegetables can be said to equal it in value. Strong roots suitable for forcing can be purchased at reasonable rates compared with other luxuries, but very few care to invest largely in this direction, and the Asparagus has to be either specially prepared for forcing either where grown or for lifting, or else an old and partially exhausted bed is broken up annually. This necessarily entails the labour and expense of forming a fresh bed every spring, but so well does the system answer that few are disposed to cavil at it. Gentle forcing only should be resorted to, as a strong heat, or a temperature say usually much above 60°, causes a spindly growth. We prefer hot-beds consisting principally or wholly of leaves, formed in deep, slightly heated pits, and excellent crops may be obtained with the aid of hot-beds and frames. Whatever heating material is used, or whether leaves or leaves and stable manure mixed, ought first to be well prepared by being thrown together into a heap to ferment and sweeten. Fully three weeks ought to be expended on this preparation, the heap being turned inside out two or three times, or whenever found very hot in the centre. About 2 feet of firmly built hot-bed is sufficient for a warm pit, and a hot-bed in the open air should be 3 feet to 4 feet deep, and rather wider than the frame to be set on it. Being well prepared, the bed ought not to become dangerously hot, but, as a rule, it is advisable to surface it over with about 6 inches of good loamy soil, and then leave it for about a week. When the trial stakes kept thrust well into the bed can be borne comfortably in the palm of the hand, there being no tendency for the heat to rise to a dangerous height, or above 80°, the Asparagus roots may safely be introduced. They ought to have been very carefully forked out of the beds, and not long exposed in any way to drying or cold winds. One light if large, two if small, are ample to fill at one time to meet the demands of the majority of establishments, and in these a considerable number of roots may be packed closely together. They ought to be covered with the warm rich soil, on this being placed about 3 inches of fresh and rather fine mould or leaf soil. When only very lightly covered I always fancy the growth is weaker. At any rate the growth when well buried can be cut better blanched and of a good length. A top heat ranging from 50° to 60° is sufficient, and if this is maintained with the aid of the heating material and mats or other covering on the lights, it is preferable to fire-heat. No water ought to be given at the outset, but the soil should never become very dry, the most succulent shoots being obtained from plants rooting in moist, rich soil. Gently forced, many fresh fibres are formed by the roots, and it is only those that have suffered for want of water and grown in a dry heat that are eventually turned out without any apparent movement of the roots. A fresh supply of roots may be placed in heat every three weeks. Always use warm water, and the less air admitted to the frames or pits the better.

Chicory.

Endive has done unusually well this season, and

in this district at any rate is both plentiful and good in quality. Where, however, Lettuce is largely used in salads and the Endive is not good, a free addition of well-blanched Chicory greatly improves their appearance, the flavour also pleasing some tastes. Strong roots being available, a few of these should be forked out of the ground, have their tops either twisted or cut off near to the crowns, and be then packed rather closely either in pots or boxes of rich soil. They must not be hard forced, but if set in a Mushroom house, dark cellar, or outhouse, numerous fresh leaves and small hearts will be formed in less than a month. Strong roots continue pushing up fresh leafy growth for several weeks, and these will be found very crisp and tender.

W. I. M.

TREES AND SHRUBS.

TREE NOTES FROM HOLWOOD PARK.

THE LEBANON CEDAR (Cedrus Libani) is, beyond doubt, the glory of Holwood, and it is questionable whether any other park of equal extent to that of Holwood contains either so many, or so large, specimens of this particular tree. Growing on the lawn around the mansion buildings are several of huge proportions, and whose far-spreading branches sweep the greensward for a distance almost equalling their height. These are, in truth, noble objects of, in some instances, fully 70 feet in height, and with the characteristic table-headed appearance so common to this tree when it has attained to almost perfect development.

Within the fence which surrounds these grounds are seven specimens, the stem-girths of which, at a yard from the ground, vary from 6 feet to fully 14 feet; while the diameter of spread of branches in several instances exceeds 70 feet. The following are measurements of two of the largest:—

No. 1, growing on the lawn almost opposite to the conservatory, is 62 feet in height; girths 14 feet 4 inches at 3 feet from the ground, and 12 feet 7 inches at 5 feet up, the diameter of branch spread being 72 feet. The branches of this tree are long and lithe, but, unfortunately, and for what reason I am totally at a loss to know, the foliage wears a rusty appearance, and is more sparsely distributed than on any of the neighbouring trees of the same kind. No. 2 is a large and well-branched specimen standing opposite to Holwood House, the bole of which girths 12 feet at a yard from ground level, and 11 feet 11 inches at 5 feet up. The total height is 67 feet, and the branches cover a spread of 66 feet in diameter. As is indicated by the bright green foliage, this stately and far-spreading Cedar is in perfect health, and is in every respect a worthy occupant of the rather conspicuous position it so nobly fills on the well-kept lawn. On the gradually sloping ground between Holwood House and the farm are nine magnificent specimens of this Cedar, the stem of the largest girthing 12 feet 2 inches at 3 feet from the ground, and containing 190 feet of timber. The soil here may best be described as a stiffish loam, which rests at no great depth on a bed of chalk. Growing on the rampions of the Roman camp are numerous specimens of goodly proportions; while at Keston Lodge are not a few, one close to the house having a stem girthing 12 feet 5 inches at a yard from the ground, after which it divides into two limbs, which girth 7 feet 9 inches and 7 feet 10 inches respectively at 3 feet from point of junction with the main stem. The height is 68 feet, and the branch-spread 61 feet in diameter. At Hollydale there are also numerous fine old Cedar trees, the largest of which, that growing on the banks of one of the lakes, has a branch-spread of fully 66 feet and a stem girthing 10 feet 8 inches.

THE THORN OR FALSE ACACIA (Robinia Pseudacacia).—This tree would seem, judging from the numerous large specimens to be found in various parts of the estate, to be well suited for the climate of Kent. Two of the largest are growing at Hollydale, and close to the public road leading from Keston to Farnborough. Of these the largest has a stem-girth at a yard from the ground of 14 feet 10 inches, the height being 78 feet and the diameter of branch-spread 54 feet. The other girths at 3 feet and 5 feet respectively, 11 feet 8 inches and 11 feet 7 inches, and contains fully 100 feet of wood. In this specimen one of the largest limbs, which girthed 8 feet, was broken off some years ago, but otherwise the tree is perfect in every respect. The height is 76 feet, and the branches cover a spread of 54 feet in diameter.

THE CLUSTER PINE (Pinus Pinaster) in the grounds at Keston grows with unusual luxuriance, and has there attained to large dimensions. The finest specimens are growing nearly opposite the gardens or on the right side of the drive leading from Keston Lodge to the gardens, and in conjunction with the Highland Pine and numerous hardwooded trees. The largest measures 85 feet in height, girths at 3 feet and 5 feet, 8 feet 8 inches and 8 feet 7 inches respectively, and contains 112 feet of measurable timber. There are six others of nearly similar dimensions, and which contain on an average 97 feet of wood each. These trees are, generally speaking, destitute of branches for from 40 feet to 50 feet from the ground, and in nearly every case the stems are perfectly straight and with a gradual taper from base to tip, this owing to their having been grown in close contiguity with other Pines and not allowed to develop many side branches.

THE BEECH is everywhere abundant, and, as might be expected, thrives with unusual luxuriance wherever a calcareous matter is present in the soil. On the gently sloping ground to the south of Holwood House are numerous specimens of large dimensions, trees of 87 feet in height, nearly as much in spread of branches, and with stems girthing from 10 feet to 12 feet being not at all uncommon. In my opinion, however, by far the most ornamental tree of this kind is growing on the left side of the drive leading from Holwood House to the lakes, and within the fence. At 3 feet from ground level this highly picturesque tree is 20 feet 6 inches in girth of stem, after which it divides into ten massive limbs, two of the largest of which girth 5 feet 3 inches and 5 feet 4 inches respectively at a yard from point of junction, the whole tree containing 235 feet of measurable timber. The head is beautifully rounded and amply furnished with branches, the diameter of the spread of these being fully 78 feet. As a picturesque tree this noble Beech justly occupies the front rank, and growing, as it is, at a considerable distance from any other and on the greensward, the ample proportions and fine contour are shown off to perfection. Numerous other specimens of nearly similar size to that just recorded might be noted, but already sufficient has been given to show to what giant proportions the Beech attains in the "Garden of England."

LIME.—Of this tree there are numerous large examples in the grounds at Holwood, and from their appearance it is quite evident that the soil is particularly well suited for their perfect development. Conspicuous on the lawn to the south of the mansion house are three almost unique specimens of this tree, these being planted in triangular shape, but hardly at sufficient distance apart for the spread of branches of each to become perfectly developed. They are in excellent health, as is clearly demonstrated by the well-rounded, lofty, and amply branched heads. The dimensions of the largest is as follows: Height, 87 feet; spread of branches, 87 feet; girths at 3 feet and 5 feet from the ground, 10 feet 6 inches and 9 feet 7 inches respectively, while the cubic contents are 218 feet. Another fine tree of this kind is growing in the grounds at Hollydale, the trunk of which girths 11 feet 4 inches at a yard up, while the far-spreading branches reach on either side for fully 30 feet.

THE LARCH is but sparsely represented, but there is one specimen at least which we must not pass by unnoticed. It is growing on the margin of the green drive that leads from Keston Lodge past the lake and on to the bridle path dividing the grounds of Holwood from those of Keston. This tree we must not class as an ornamental one; indeed, it is more of a curiosity than otherwise, the stem being bent in a peculiar fashion, although it is otherwise well formed and of large proportions. At 3 feet and 5 feet from ground level the stem girths 11 feet 10 inches and 10 feet 6 inches respectively, and contains 123 feet of timber. The total height is 72 feet, and the diameter of branch-spread 66 feet.

HAWTHORN.—There is an unusually large specimen of this tree growing in the park and within a few yards of the public path, where it joins the road at Holwood Farm. At 3 feet from the ground the stem has a girth of 14 feet 6 inches, after which it divides into six limbs, the circumference of each at a yard from point of junction being as follows: No. 1, 4 feet 2 inches; 2, 4 feet; 3, 5 feet 8 inches; 4, 2 feet 8 inches; 5, 4 feet 4 inches; 6, 3 feet 5 inches. The height of this giant specimen of the Hawthorn is 42 feet, and the branches cover a space of 63 feet in diameter. It is in excellent health, well furnished with branches, and shows no signs of disease in any of the stems.

THE COMMON PLANE (Platanus orientalis) is here represented by several well-grown and handsome trees, and whose far-spreading heads and rather unusual stem dimensions clearly point out that they are quite at home in this part of England. On the lawn in front of Hollydale House stands one of goodly proportions, the height being 78 feet, and the branch-spread 75 feet in diameter, while the stem at a yard up girths 11 feet 5 inches. This is the true London Plane (P. o. acerifolia), a first-class tree for general forest planting, it being of free growth, non-fastidious as to soil, highly ornamental, and one of the best for withstanding the deleterious effects of a smoke-laden atmosphere.

A. D. WEBSTER.

The Guelder Rose.—Mr. Goldring in his remarks upon the Viburnum (p. 349) says that the original form of V. Opulus is scarcely worth growing in a garden. With this I cannot quite agree. The cultivated sterile form is certainly very showy when in flower, but this is all. On the other hand, the original species is an attractive object for many months in the year. Though the flowers are flat and the central fertile blossoms comparatively insignificant, yet when taken as a whole with the sterile fringe and the more abundant foliage of this form of the tree, they do not compare unfavourably with those of the more popular variety. It is, however, its beautiful clusters of fruit, which mature early in the season, and which later on is associated with the rich crimson foliage, of which Mr. Goldring speaks, that make it so valuable. Growing on almost any soil from a light stone brash on the hillside to the heavy clay of the valley, it deserves a place wherever hardy ornamental shrubs are grown. Were it a costly introduction it would be everywhere appreciated, but being, like the Field Maple, common to our hedgerows, it is correspondingly neglected.—D. J. YEO.

Spiræa prunifolia fl.-pleno.—This Spiræa is by far the most conspicuous of the genus just as the leaves are about to drop, for they generally die off richly tinted, though this season they are not so brightly coloured as usual. It is certainly worthy of a place among the most select Spiræas, for it forms a shrub of very graceful and pleasing outline, while in the spring it is second only to the little S. Thunbergi in the production of its blossoms. Those of S. prunifolia fl.-pleno resemble little white rosettes, and are so freely borne that the long slender shoots are wreathed with them for a considerable distance. Another noteworthy feature of this plant during its flowering season is the tufts of young foliage, which make their appearance about the same period. The leaves when first expanded are of a beautiful light rich green, so that the long shoots, when studded both with foliage and flowers, form veritable living wreaths.—T.

Catalpa syringæfolia.—I had much pleasure in reading Mr. Webster's very interesting account of Catalpa syringæfolia in last week's issue of THE GARDEN. We have a very good specimen here, which measures 35 feet in height with a branch-spread of 51 feet in diameter, the trunk at 3 feet from the ground girthing 8 feet. It has flowered profusely this year

and I believe has done so for several previous years. It is the largest specimen that I have seen, and when covered with bloom presented a striking appearance. This Catalpa is a very ornamental tree, and is certainly well worthy of cultivation.—J. Milsom, *Claydon Park Gardens, Bucks.*

Hollies dying.—In October, 1887, I planted 150 Hollies in a sandy soil along a stone wall. About 50 have survived, and the rest look quite sickly; I therefore cut them down quite low. Will you kindly inform me if I should leave them or have a fresh supply? My garden is a soil never known to have been turned, and it is infested with wireworm. Will you kindly tell me what will destroy them?—Ruthin.

AMERICAN SHRUB NOTES.

"Shrub," or Strawberry Bush, as Calycanthus floridus is commonly called, was once considered an essential feature of every old-fashioned garden; and its fragrant, dark brown flowers are perhaps known to as many people as those of any American shrub. There are, however, two other species of this genus with the same brown and fragrant flowers, and they are not often cultivated, although they are hardier than C. fragrans, which in severe winters is often killed down to the ground, and which flowers here early in June, or some time earlier than C. lævigatus and C. glaucus, which are now in bloom here. The former has large oval leaves. In C. glaucus the leaves are narrower and considerably larger than in the other species. It has large flowers and rigid, upright branches, which are sometimes 6 feet to 8 feet high. The three species are natives of the Alleghany region from Virginia to Tennessee and Georgia, C. lævigatus extending as far north as Southern Pennsylvania. Gardeners have too long neglected this last species, which is one of the most desirable of all hardy summer-flowering shrubs.

The shrubby Cinquefoil (Potentilla fruticosa) is one of the most widely-distributed plants of the north temperate zone, being found through the northern portions of North America, in many parts of Central and Northern Europe, and through Central and Russian Asia to Japan. It is a dwarf and branching shrub, 2 feet to 3 feet high, an inhabitant of low ground, and just now a conspicuous object, with its large, terminal, pale yellow flowers. The short, flowering branches die down annually, but the base of the stems is truly woody. This has been found a useful plant for forming masses of low shrubbery among trees, as it spreads rapidly from underground shoots, soon taking complete possession of the ground. It may, however, become, like Genista tinctoria, a dangerous weed if allowed to spread indiscriminately. It has indeed already overrun and utterly ruined considerable areas of mowing land in some parts of Berkshire County, in this State, and in Connecticut, where farmers find it almost impossible to eradicate this plant, and where it is known as "Hardhack." Potentilla tridentata is another woody species now in flower. It is found sparingly on the New England coast north of Cape Cod, on the coast of the Great Lakes, and upon the summits of some of the high mountains of Eastern North America. It is a low, spreading plant, only a few inches high, with handsome dark green and shining, palmate leaves, bearing loose cymes of white flowers, half an inch across. This is an excellent plant for the margins of the rock garden, as it remains a long time in flower, while its foliage is ornamental throughout the season.

Lespedeza bicolor is also now in flower. It is a native of North-eastern Asia from Manchuria and Northern China and Japan, and is considered one of the most beautiful of the hardy shrubs introduced of late years into cultivation. Lespedeza bicolor is a slender, leafy shrub, 4 feet or 5 feet high, with slender, elongated and very graceful branches, and axillary or rarely terminal drooping or sub-erect racemes of showy rose-coloured flowers an inch long, which are described as sometimes white or violet.

Rhamnus Frangula is a widely distributed European and North Asian plant, closely related to the Carolina Buckthorn of our Middle and Southern States. It is a tall, erect shrub, growing to a height of 8 feet or 10 feet, with slender branches, handsome, glossy, pale green foliage, and small, yellow flowers, which are followed by rather conspicuous fruit, which is at first green, then bright red, and finally, when fully ripe, quite black. This plant continues to produce flowers in great profusion all summer long, and is covered during several months with flowers and with fruit in all stages of development, a peculiarity which as well as its handsome foliage and entire hardiness, should give this Buckthorn a place in collections of deciduous shrubs. The wood is known in England as black Dogwood, and, in common with that of other species of the genus, is much used in the manufacture of gunpowder. Another plant which flowers here from the middle of July until the coming of frost, and which produces flowers and ripe fruit simultaneously, is the Chinese Lycium (L. chinense), a near relative of the well-known and familiar Matrimony Vine of all old-fashioned gardens (L. europæum). It has pendulous branches, 10 feet or 12 feet long, rather large pale purple flowers, and abundant, showy, bright scarlet, oval or oblong fruit, which is nearly 1 inch in length. This is a free-growing and very hardy plant, admirably suited to train upon pillars or over trellises.

S. Tobolskia, a name not referred to by Maximowicz in his monograph of Spiræa, and here applied to a plant probably of garden origin, only differs from S. sorbifolia in its much smaller panicles of flowers, and in the fact that it blooms from two to three weeks later. It is an equally hardy and desirable plant.

Rosa setigera, the Michigan or Prairie Rose, is in flower. It is a widely distributed species, being found from Ontario and Wisconsin to Texas, South Carolina and Florida, and is the only American Rose with climbing stems. It is the origin of the Queen of the Prairies, Baltimore Belle, and other double-flowered climbing Roses, and in its single state is one of the most beautiful of our climbing plants, with broad and handsome foliage, and broad, flat corymbs of large flowers, which are sometimes nearly 3 inches across, and deep rose colour when first expanded, but turning nearly white before fading. The Prairie Rose requires rich deep soil and generous treatment to develop its greatest beauties, but when well grown it surpasses in beauty any of its progeny.—*Garden and Forest.*

FRUIT GARDEN.

PRUNING FRUIT TREES.

Where to prune and when to prune, what to cut off and what to leave on, are puzzling questions to any but those who have learned the art by careful study and due experience. The young gardener or inexperienced amateur may imagine it is a simple operation to manipulate the branches of a fruit tree properly, and yet find, when they come to the actual performance of it, and stand knife in hand before a set of trees or a quarter of bushes, that they are at a loss to know where and how to begin, and for one cut that is made right probably six will be made wrong. In fact, a sound knowledge of pruning in its various bearings can only be acquired by observing and studying the character and capabilities of the trees; their season and manner of fruiting must be learned before their growth can be guided and regulated in the most judicious manner. I am not going to lay down a set of rules for pruning, but rather to counsel moderation in the use of the knife, as far as possible allowing the tree to take its natural form of growth, simply guiding and regulating its course, for as a matter of fact the cultivator who studies to use the knife moderately is the most successful pruner. There is a wide difference of opinion on the subject of pruning, some growers advising the dispensing with it altogether, except for strictly trained trees, but with the cultivation of fruit in our gardens and orchards, better results are, I think, obtained when it is practised judiciously. Therefore, this being the case, to accomplish it in a manner best conducive to the formation of a tree, presenting the greatest possible amount of fruiting surface in a given space, should be the aim of the cultivator. Starting then with newly-planted trees, and assuming them to be young ones, I prefer leaving the branches entire, that is, not shortening or thinning them in any way. If stone fruit, they can be best regulated by disbudding the following season, whilst Apples, Pears, Gooseberries, &c., are best left to themselves until they have become re-established. If, during the first season after planting, the terminal buds on the branches have made several inches of growth, they are still best not shortened, but when the branches are too thick, which is generally the case, they may now be thinned out, leaving them about 18 inches apart, for trees on walls 9 inches to 1 foot. Lateral growth must be shortened to three or four eyes. From this time the contour of the trees must be studied; in many instances, both trained and untrained trees are spoiled at this stage by injudicious pruning, or their fruiting capabilities lessened by neglecting it altogether. As previously remarked, the object in pruning should be to obtain the greatest amount of fruiting surface, and this is best secured when every branch is exposed to the light and air during its entire length. Some varieties, from their natural habit, require little attention in this respect, Duchess of Oldenburg Apple being an instance. This variety seldom forms a tree in which the branches are too thick, but most trees of all fruits possess dense habits, and if shapely trees are desired with fruiting branches of equal vigour throughout, some pains must be taken in giving the trees an uniform start. In shortening the leading growths particular attention should be paid to cutting at the right bud, namely, one pointing in the direction it is intended the branch should grow. Often, through inattention to this point and by cutting off the shoots promiscuously, the growth soon becomes very irregular, resulting in an ill-shapen tree; whereas due attention being paid when pruning by cutting to a bud pointing outwards and only permitting branches to extend where there is ample room for them, an evenly balanced tree is formed, to every part of which light and air have free access.

Having then started the main branches upon their proper course, the next point demanding attention is the formation of fruiting spurs. A tree or bush trained as above should be furnished with these throughout, except on the youngest parts, and it will be found that their production is favoured by an extension of the terminal buds; therefore, these should be left as far as possible, only shortening those which appear to be taking the lead out of proportion to the rest. Where, from the conditions of soil and climate or the characteristics of certain varieties, fruiting spurs are formed abundantly, it will be found beneficial to thin them by cutting out all the weakest. Stout, well-ripened spurs produce good fruit, whilst those that are crowded, as a rule, bear a great quantity of poor fruit every other year.

The time to prune.—As far as practicable pruning should be reduced by disbudding and stopping the summer growths on all trained trees, but there will still remain a good deal to be done when the wood is ripe and after the fruit is gathered. No doubt the best time for doing it is as soon as possible after the trees are cleared of fruit. I do not assert that it is possible to accomplish all pruning at this time,

but an effort should be made to take in hand Peaches and Apricots soon after the fruit is gathered, and an early opportunity should be seized for operating upon the more hardy fruits. The advantage of commencing before the leaves fall is found in several ways. One point of no small importance is that a better idea can be formed as to what requires removing, and one is not so liable to fall into the common error of leaving the shoots and spurs too thick. The benefit to the trees from being divested of all superfluous shoots thus early is also considerable, accelerating as it does the ripening of the wood and buds.

Wounds caused in pruning are more quickly healed at this season than is the case after the turn of the year, and injury from bleeding, gumming, &c., is reduced to a minimum. I have never experienced bleeding in Vines when pruned immediately the leaves have fallen or before, provided the foliage is ripe. Whether it is sound in theory or not, it is noticeable in practice that hard pruning in spring is conducive to gumming, whilst the same operations can be performed without any such undesirable results in the autumn. If, then, training, nailing, &c., have to be deferred, I would counsel taking the earliest opportunity of pushing on with the pruning. A. Barker.

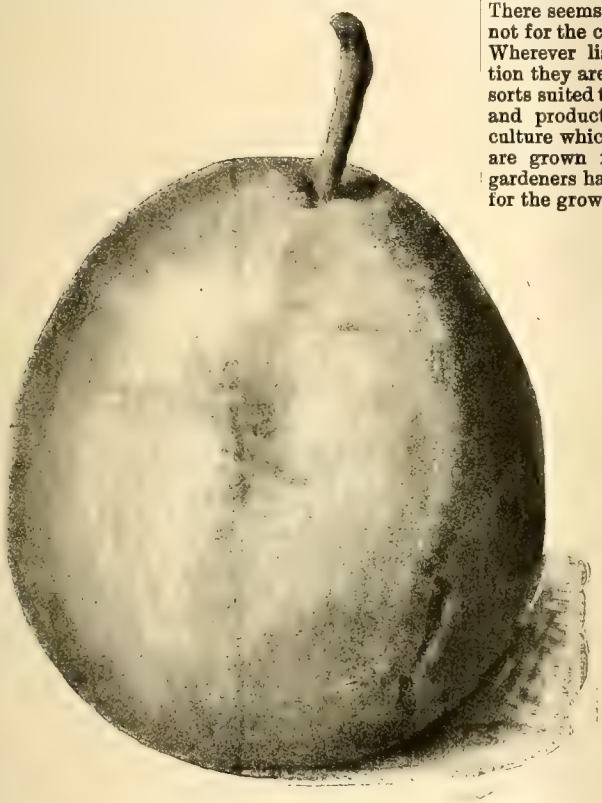
BUSH FRUIT TREES.

The beautiful illustration of this form of Pear tree (see page 389) and the excellent practical advice of "W. C." ought to set planters thinking of the form of trees they intend to plant, for I can say from daily experience that the more I see of the bush form the more I prefer it to all others, and my own stock of pyramids and other forms that used to be kept symmetrical have gradually assumed the bush form. My object in growing fruit trees is fruit, and the shape of tree that produces the finest fruit with the minimum of labour is the one that suits me, and probably will in the end suit others similarly situated. When first starting fruit growing here my admiration for tall trees requiring long ladders to get the fruit down was shaken by having such gales of wind sweeping along the coast that in some seasons very few of the fruits escaped injury; while the fruit on the dwarf trees if it did fall suffered but little, as I keep a good thick mulch under the bushes. All the young trees I have lately planted have been in the spreading bush form, and we suffer very little from gales now, as the bushes shelter one another, and by careful picking or throwing a net over any bush that is approaching maturity it takes a rough gale to dislodge the fruit. If any growers troubled with fruit blowing off would try a single fish net dropped over a bush they will not fail to adopt the plan extensively. Apples are just as satisfactory as Pears for the bush form, for in spite of the season that so many are deploring, we never had finer Apples, all the young bushes being well cropped while the fruit swelled out to a good size. Our soil is not suited for growing fruit trees to timber size, as it is comparatively poor, being a light sandy loam resting on gravel, which gives such abundant drainage that the heaviest downpour is gone in a few days, but with careful mulching and watering during protracted droughts I get good crops almost without any failures. The lightness and poorness of the soil, in fact, cause such a mass of fibrous roots close to the surface, that all one has to do is to take care of them to see that they do not perish by drought or become starved by grosser feeding crops close to them. We also escape most of the ailments that affect fruit trees on heavy, rich soils, and while the bark of the bushes shines as if varnished, the twigs keep healthy to the tips. As regards soil for bush fruit trees, there is far too much fuss made about deep loam and subsoils of some prescribed quality, for with these surface-rooting kinds of stocks a shallow soil appears to produce the most fruitful trees, for the simple reason that it is warmer. By all means let those living in Kent enjoy their opinion as to having the best soil in the kingdom for fruit, but do not let a single aspirant for competition with them be deterred by reason of his soil being not at all like Kentish orchard land, as I would sooner start fruit farming in Hampshire or Sussex than in the heavier and deeper soil of Kent. The bush form is sure to come to the front as soon as the present revival of interest in fruit culture assumes the practical form of planting, from the simple fact that the trees are cheapest to begin with, there being no expensive training to add to their supposed value, and being of the most natural form and under the complete control of the cultivator, they are the best suited for general use. J. Groom.

Gosport.

PEAR WHITE DOYENNE.

But for one defect, and that a serious one, namely, that of failing to keep in good condition but a very short time after being fit for table, this Pear would deserve a place in the very first



Pear White Doyenné. Engraved for The Garden from a specimen sent by Mr. A. Hossack, Castle Howard Gardens, York.

rank. It has all other essential qualities to make it a popular variety. It is a free and regular bearer, has a vigorous constitution, and is well adapted, being of moderate size, for growing as a standard, in which form it does exceedingly well, but better in bush form, and better still on a west wall, in which latter position the fruit attains a larger size, and on the Quince stock colours on the side next the sun as handsomely as does Flemish Beauty. The quality of flesh is not better, nor does it keep longer than if grown as a standard or bush. I think it would prove an excellent market Pear, being as free bearing as Hessle, Windsor, or Beurré de Capiaumont, and it is as handsome and of better quality than any of them. W. Wildsmith.

Duchess' Favourite Apple.—Those who saw the dish of this Apple shown at the last meeting of the Royal Horticultural Society could not fail to be struck with its beautiful colour, being of a rich bright crimson colour. The report of the first Apple congress, held at Chiswick, states in reference to this variety that it is "a fine early Apple and a great bearer." The fruit is so beautiful that the tree well deserves to be planted for ornamental purposes. In 1887 I saw some trees of it in full bearing at Boston, in Lincolnshire, and I was struck not only with the wonderful crop the trees bore, but also the rich colour of the fruit. The trees appeared to take on an elegant pendent growth, and the fruit seemed to hang upon them like ropes of Onions. It appears to me to be a variety adapted for planting in shrubbery plantations, for it is said to be charming when in flower, and particularly striking when in fruit. It is reported to be, by those who know the variety well, a free bearer, and so its annual fruitfulness can be depended upon.—R. D.

PEARS FOR THE MILLION.

The new Pear crusade seems to be directed against those which appear to have applied to them the now somewhat fashionable adjective of worthless. There seems to have arisen a belief that Pears are not for the common folk, but only for the well-to-do. Wherever lists are now given of Pears for cultivation they are almost exclusively confined to choice sorts suited to the epicure, somewhat chary croppers, and productive almost only under conditions of culture which can never be afforded to Pears which are grown for ordinary market purposes. When gardeners have at their command ample wall area for the growth of horizontal trained or cordon trees, or can afford, as Mr. Wildsmith showed at the Chiswick conference, that he did the best possible with deeply trenched soils, and labour in mulching and watering during dry weather, which must be persistent for Pear production on dwarf bush or pyramid trees on the Quince stock, there is no reason whatever why even the table of the epicure should not be amply served by the choicest varieties. But it is too well known that the culture demanded for these cannot be profitably bestowed on trees which are to produce ordinary market Pears. Still farther, it is obvious that if the great mass of fruit consumers had to wait until supplies of cheap Pears are furnished to them from the select sorts, they would have to wait until Doomsday. As it is there are some seasons where with a limited stock of the choicer Pears private growers find it hard to cull even a trifling crop. The fewer the sorts grown, and especially of tender sorts, the narrower the chances of getting regular crops. The greater the number of sorts grown, the greater the chance of securing a crop more or less in bulk in all seasons. Many an one has found that assertion amply verified this year in connection with both Apples and Pears; for whilst some widely grown standard kinds have as generally failed, others, less reputably productive, have fruited freely. Hence the wisdom in hardy fruit culture of having a number of strings to one's bow. But the question of the provision of an abundant supply of Pears for the million still remains comparatively untouched. For this purpose we must still depend upon the very varieties chiefly which the grower for the epicure would regard as worthless. But whilst our worthless kinds are invariably very abundant croppers, and fill bushels faster than the selected ones will fill pecks, the consumers of these moderate kinds have also palates none too refined. Happily it is so, for were the masses to reject such Pears and other fruits as market growers now offer them, fruit culture for market would soon become a bankrupt occupation. The Pears for the million may, perchance, not be seen in the centre row of Covent Garden, or in the fine shops of the west end of London, or in those of our rich towns. They are, however, seen in huge piles very often,

not only in greengrocers' shops of the plebeian order, but also on costermongers' barrows in bushels, tempting enough to the toiler and the worker, the street arab and the girl of the slums. Right down into the lowest depths of town life go cheap or common Pears in their season, and a thousand times better is it that the pence of the poor and the unfortunate be thus employed than that the money should go in the purchase of gin or of some other liquid poison. But, worthless as these common Pears may be, so far as finer varieties give us now a standard of quality, they are far from being worthless in respect of returns, especially during ordinary seasons.

During the past season, for instance, we have seen on the trees a very large crop of Hessles, but they have sold very cheaply—not a matter for surprise, considering first how heavy has been the crop, and how cold and sunless the autumn. Want of warmth at once signifies lack of flavour and lack of demand for fruit. Without doubt warm climates not only render larger indulgence in fruit essential to health, but also generate that taste for fruit which colder climates fail to engender. That the Hessle is after all a profitable Pear is evidenced by the fact that it is still so widely planted, and yet remains in market orchards in the proportion of two-thirds of all the Pears grown. But we do not want to limit the million to the short Pear season which the Hessle gives. There are numerous productive hardy small-fruited Pears so appreciated by the poor, and especially by children, which give some three or four months of season, and all are of their class very good. Earliest of these, perhaps, is Doyenné d'Eté, which ripens from the end of July through August, according to the season. It is really a very pretty and nice flavoured variety for such an early ripener, and is just of the size to ensure a popular sale. It is also a free cropper, especially on bushes. The trees beneath should be heavily littered with straw to catch the fruits as they fall, and thus be run off to market. The Lammas is yet another older, but very early Pear, and follows the preceding one closely in order of ripening. The flesh is soft and pleasant eating, and the tree is hardy and a large cropper. Next comes a very old favourite in green Chisel, in good seasons sweet, soft, and juicy, quite cool eating in the hot month of August, when it is at its best. It is a rather pretty formed fruit and the tree is a great cropper, yet a variety hardly known to the growing generation of Pear cultivators. A more pretentious and possibly one of the most popular of Pears is Williams' Bon Chrétien, the "Williams" of the masses. This Pear is still held in high favour in private gardens, whilst market growers also regard it as a valuable market variety. It will be long before Williams' Bon Chrétien is displaced in market orchards, as the trees rarely grow to an excessive size, are very hardy, and wonderfully productive. Next in order comes the Hessle, the "Hazel" of market trade. This is, perhaps, the hardiest and most productive Pear in cultivation, the trees also presenting a very handsome pendulous form of growth, especially as standards. This is very good if a thick dressing of litter be laid beneath the trees, the fruit being gathered and run off to market almost daily.

The Autumn Bergamot is an exceedingly ancient Pear, and for its season, that is the end of September and October, very good. The tree is hardy, erect in growth, crops abundantly, and the fruit will keep very good for a couple of weeks after gathering. Even a better keeper is Beurré de Capiaumont, also a favourite market Pear, not only because the trees are of erect, almost columnar growth, but crop freely, the fruits being of a pretty form and colour. It is a very hardy kind, and when well grown the fruits are very pleasant eating. Aston Town is a kind not much known in private gardens, but it may yet be found in some older market orchards. Its season is October and November. It is a good cropper, the tree is hardy, and is, when well done, a profitable kind. Suffolk Thorn is, again, another good old hardy sort which big-fruited kinds have elbowed out of favour. It is really a delicious flavoured Pear, but has had to give place to others because it is small. The tree is very hardy and a great cropper, and altogether Suffolk Thorn seems to stand out as a peculiarly valuable Pear for the masses. The old Swan's Egg is, without exception, one of the heaviest of croppers. The tree will rise to a considerable height, but in good seasons, in fact in nearly all seasons, the fruits hang on the branches like ropes of Onions, to use a familiar illustration. Swan's Egg is very nice, juicy eating, and is at its best during November. Bishop's Thumb is, again, an old and once popular Pear. It is very hardy, free-cropping, and excellent eating, but it will run off to sleep early, and that is its chief defect. In the case of market Pears gathered one day, sold the next, and eaten the day after, that defect is of little moment. The fruits have been converted into food by the people long before the sleepy condition can be reached. To complete the dozen of popular market Pears, I give last, but far from least, Alexandre Lambre, as being on the free stock a wonderfully prolific kind, and keeping well even up to the middle of December, thus making a season for Pears for the million of some five months' duration. If I were about to plant Pears for market sale I should put down a big lot of Alexandre Lambre on the Pear stock. The tree does not make a good standard because of its habit of sending out long branches, which the next year become laden with fruit. I have seen these 4 feet in length crowded with Pears, and so year after year once the trees have become productive. There is, after all, no pruning so efficacious as a heavy crop of fruit; hence Alexandre Lambre chiefly needs thinning of annual growths, and not shortening back. I should think that this kind will beat nine-tenths of the bigger fruited kinds in profitableness grown in plantations. It is a Pear of moderate size, firm, and of capital quality, is very clean, and in a cool place keeps well to Christmas. A. D.

LATE PLUMS *VERSUS* LATE PEACHES.

I TAKE my stand from a flavour point of view Has anyone ever eaten a good Salway or Barrington or Lord Palmerston Peach grown on an open wall, except from a very warm, sheltered spot in the extreme south of England? It has never been my good fortune to have done this, although I have lived in several good gardens in Dorsetshire where we could obtain Peaches very late, as the early frosts were never severe enough to compel us to gather them till they were quite ripe. But even under these conditions the fruit was poor and insipid. Also, has any reader ever eaten any of these late Peaches from open walls that would compare favourably, from a flavour point of view, with a good fruit of a late kind of Plum, say, a Golden Drop or Reine Claude de Bavay? If so, they will be doing good service to the horticultural public by recording their experience, giving the neighbourhood, situation, and soil where such results were obtained. I presume no one will gainsay the statement that in whatever is grown for table, flavour should be the first consideration. If the case is so, then why go on giving space on good walls, &c., to such worthless material when they could be occupied by trees that will afford fruit of the very highest standard for eating, cooking, or preserving? In large gardens it is no rare occurrence to see large fine trees of these late Peaches occupying good positions, and if you ask what these are used for, the answer is they are used for cooking, and many never used at all. How often do we find a garden where there is a great absence of late Plums. Recently when looking through a large garden in Hampshire where fruit is grown well, I observed what a quantity of Peaches they had that appeared would never ripen. I asked as to late Plums, and was told they had no trees of Golden Drop or Reine Claude de Bavay or any of this type.

I do not mean to say that from all gardens these late Plums are absent, but do we devote the space and time to these late Plums that their merits deserve? One often finds that after he has grown a Pear tree to a good size, the fruit is often found to be worthless. I should like to know if anyone ever had a late Plum that would not be most acceptable for kitchen use in November. And how few there are to be had at this time (I am speaking now of walls and sheltered spots more than of orchard cultivation).

One often sees sheltered situations where these late Plums would succeed even as bush trees, and surely they would pay when the price paid even in October for prune Plums—which at their best are poor compared with the best kinds even for cooking—is taken into consideration.

There are few people who do not highly appreciate a good Golden Drop when highly spotted (a sure sign of good flavour) and shrivelled. What a grand dish they make on a dinner table late in the season, when variety is on the decline and often the demand in country establishments is on the increase.

Late Plums would make a good point in collections of fruit on exhibition tables at late shows. It is not difficult to have good Plums late in November if proper kinds are selected, planted in good situations, and receive the attention they need. I had good fruit of Golden Drop, Reine Claude de Bavay, and Ickworth Impératrice every day through the month of November in 1887, and this was not a single instance, but a yearly occurrence. These late Plums were sought after and highly appreciated by my employers.

The long-keeping qualities of these Plums are great points in their favour compared with those of some kinds of Pears, which will only keep a few days at the best; while the Golden Drop Plum will keep six weeks after having been taken from the tree. I believe they may be kept even longer if they were wrapped in soft paper, put into boxes, and kept from the air in a cold place.

It must not be forgotten the length of time that Plums may be had from the open walls, beginning in July and continuing till November. Messrs. Veitch have done good service by placing before the public the grand collections of Plums. Having spoken above as to the results I have obtained in the cultivation of late Plums, I will give an outline of my cultivation. I am convinced that every locality and garden are not equally placed, but every observing cultivator can find many suitable situations in a garden of any pretensions. My fruits were obtained from trees grown on east and west aspects on brick walls, although I have grown them in Dorsetshire equally as good on stone walls, and even on a north aspect, and have seen them fairly good. Our trees were planted some eleven or twelve years ago, and although they grew very strong for three or four years after they had been planted, at the end of the third year they commenced bearing, and have continued every season.

The method adopted with these Plum trees was as follows: when a tree was seen to be getting too strong, a trench was dug at a good distance from the tree half way round, getting under the roots and preserving as many as possible. When close to the wall the roots were tied up to the stem of the tree, the hole being filled up to the level of the roots, which were then laid out in their proper positions and covered with the same soil, the object being to place the roots close to the top soil, and thus cause the trees to produce bunches of fruiting spurs instead of long watery shoots. Should this half lifting not produce the desired effect, the next August or September the other half was dealt with in the same way. By this method the trees do not receive such a check as they would have done if lifted all at one time, but keep on growing and producing good fruiting wood. Again, the fruiting helps to keep grossness in check. It is seldom that Plum trees are over strong when they attain to a large size and bear heavy crops of fruit. We did not cut these trees back, but preferred to lay in the shoots full length. These shoots always produced fruit the whole length in due course. The chief pruning these trees have is summer pinching of the shoots. Our trees grew more strongly than in many places, as the soil was light and open, inducing a coarse root growth.

When these trees are reduced to a proper fruiting state, we keep the roots at home by good feeding.

When in full fruit we give them a good drenching of manure water just as the fruit is stoning, and then the trees receive a good mulching at the roots. This, we find, increases the size of the fruit in a marked degree. We find the chief feature in the successful culture of Golden Drop is to keep the roots healthy and near the surface. Many people complain of this being a shy bearer, but my experience does not justify this when the trees are treated as above. As to gathering, I gather the fruit at intervals, allowing them to hang as long as possible, as by so doing the high flavour so valuable and so refreshing to late Plums is obtained.

It is often desirable and necessary to protect late Plums to keep them from birds and wasps. I have used close hexagon netting, kept out from the trees by upright sticks resting on the top coping, opening it at one end when the fruit wants looking over. It is surprising the length of time they will hang safely when protected on the trees in this way. When gathering I place one layer of fruit on cotton wool in a box, leaving it in the cold fruit room till wanted, thereby preventing it from being handled and the bloom rubbed off. Respecting the kinds most valuable to grow, we find that the best are Coe's Golden Drop, Reine Claude de Bavay, Ickworth Impératrice, Blue Impératrice, Bryanston Gage, of which we have a very large tree which does us good service, although not quite as late as Golden Drop.

I should be glad to hear if any reader can tell me if they know or have a kind under the name of Coe's Late Red. Some twenty-five years ago I used to live in a large garden in Wiltshire where there was a Plum grown in a cold orchard house under this name. It was a very late variety, but I have never met with it since that time. J. C. F.

Plum Angelina Burdett.—It was in 1853 that the late Mr. Henry Dowling, of Woolston, Southampton, sent out this fine Plum. Somehow or other it has not got much into cultivation, although Dr. Hogg speaks of it in flattering terms in his "Fruit Manual." He states respecting it that it is "an excellent dessert Plum, ripe in the beginning of September, and if allowed to hang till it shrivels it forms a perfect sweetmeat; the tree is a good bearer and hardy." Mr. Barron has it at Chiswick in one case trained against a west wall; the tree is very vigorous, but it bore sparingly and towards the points of the branches, but it was delicious when fully ripe. In the Plum plantation a large bush or small standard tree bore freely, carrying a very good crop. Perhaps it is generally regarded as an uncertain bearer, and possibly it can be said with some amount of force that being uncertain it is no use to grow it when there are so many other fine Plums of equal quality that can be depended upon to give good crops almost, or quite, every year. I observe that it finds no place in Messrs. George Bunyard and Co.'s fruit catalogue, a catalogue that is invaluable to anyone interested in fruit culture, but I think I should be disposed to grow Angelina Burdett for my own eating.—R. D.

Cordon Pear trees.—Seeing so much interest is being taken just now in fruit culture, it may be interesting to some of the readers of THE GARDEN to know how cordon Pear trees have done here this year. I have gathered a splendid crop of clean fruit from trees planted six years ago. They began to bear the second year after planting and have not missed a crop since. On a south wall I have three trees of the following sorts: Jargonelle, Williams' Bon Chrétien, Brockworth Park, Duchesse d'Angoulême, Beurré d'Amanlis, Beurré Hardy, Beurré Diel, Doyenné du Comice, Vicar of Winkfield, General Todtleben, Josephine de Malines, Bergamotte d'Esperen. On a wall facing east I have three trees of the following: Louise Bonne of Jersey, Fondante d'Automne, Souvenir du Congrès, Passe Colmar, Alexandre Lambre, Chaumontel, Beurré Bachelier, Easter Beurré. I do not say they are the best selection that could be made, but they are the sorts that have done well on our stiff soil. Anyone planting and giving the trees a fair amount of attention may be sure of a return for the outlay. My reason for recommending cordon trees is, first, they soon cover the wall; secondly, they bear the second year after planting; thirdly, you can plant a larger number of varieties, which is very necessary when you have to furnish a daily dessert. Eighteen inches I find is a good distance between, the trees being trained to an angle of 45°. I prune twice a year, June and September. If you think it will be of any interest to your readers I will send you a list of cordon Plums that have done well here. [Yes, do.—ED.]—GEO. JUPP, *Brantridge Park, Balcombe.*

FRUITS UNDER GLASS.

CUCUMBERS.

DRY fire heat being so detrimental to winter plants, the beds, now the sun has lost its power, should be thoroughly and frequently renovated with sweet, well-worked fermenting material consisting of sound Oak leaves, tan, or tan and leaves mixed together. Leaves, however, are best, as they contain all the elements essential to quick healthy growth. Moreover, they form a very useful potting material when rotten, whilst in most places their collection from beneath the trees in pleasure grounds is a necessary operation. Viewed from this point, pot culture has its advantages, as the beds can be turned out or over at pleasure when the moist, genial heat economises fuel and enables the cultivator to discontinue syringing the foliage. The walls and floors, of course, must be syringed once or twice a day, and the roots must have plenty of water, but other conditions being satisfactory, the copious syringing so beneficial in summer may now be discontinued until after the turn of the year. The mild weather throughout October having been so favourable to ventilation and a quick short-jointed growth, plants generally are in the best possible condition for going well through the winter, but this will not justify the slightest relaxation, as successful winter culture is bound up in attention to a series of details, such as daily manipulation and tying in, removal of male and female flowers where fruit, now comparatively valueless, is not wanted, keeping the glass free from accumulations of confervæ, and last, but not least, the removal of all decaying matter from the interior of the house. A sweet, fresh atmosphere in the winter Cucumber house is quite as important as in our own dwellings, and the only way in which this can be secured is by top-dressing the pots or beds frequently with fresh turfy loam, by the regular scrubbing of shelves, kerbs, and floors with clean water and washing the walls with quicklime, to which may be added a handful of sulphur. If old plants are producing sufficient for the demand, young ones expected to fruit from Christmas onwards will be the better for the entire removal of all shows until they have covered their allotted space, and then light cropping will do them no harm. No great credit, however, attaches to fruiting maiden plants through November and December, but Christmas left behind, the true test of skill must be measured by the supply from the beginning of January up to the end of March when spring-raised plants come into bearing. To produce these results the house must be well constructed, efficiently heated, and, as I have just observed, constantly charged with ammonia from fermenting material. Covering in these days is too much neglected, but it is an important factor not only in keeping in warmth and moisture and preventing radiation on cold or moonlight nights, but also in saving the plants from that drying heat which ruins so many in their infancy. The best material for this purpose is oiled canvas as manufactured by Messrs. Eddy & Co., of Cornwall. Here it has been used for some years, and apparently is none the worse for exposure to the elements. It is not quite so warm as good, dry mats, but being clean, waterproof, and untearable, it will stand a great deal of rough handling when frost and snow render mats literally useless. Another important matter is a continuous supply of dry warm compost for top-dressing. Light rich turf, as I have often stated, is best adapted for winter use, or, lacking this, heavier loams may be corrected by a liberal admixture of peat, leaf-mould, and lime rubble. To have the turf in good condition it should be taken off very thin and stacked in narrow ridges early in the autumn. When the Grass has withered it will be fit for use, that is provided it is moderately dry and free from wireworm, a most troublesome pest in the Cucumber house. Soils containing this or ordinary worms should be carefully hand-picked and liberally dusted with soot before they are taken into the house for mixing with the other materials, and on no account should the compost be applied to the roots before the whole mass is properly warmed and fermented. If poor it may be enriched with bone-dust or guano in preference to animal manure, which renders the whole mass inert and sour by holding too much water in suspension.

THE ORCHARD HOUSE.

Where this house is divided into sections, and one of these compartments is devoted to forcing purposes, no time should be lost in cleansing and putting it into thorough working order. The trees meantime must be carefully washed with soap and water, but unless we have a most decided change in the weather they need not be housed until the time fixed upon for starting has arrived. In a great number of gardens a structure of this kind is now started early in November, or perhaps the first week in December, and the trees employed being more remarkable for precocity than the quality of their fruit; but little difficulty is experienced in getting Peaches and Nectarines fit for use by the first week in April. Early Louise, Early Beatrice, Amsden's June, Alexander, and Waterloo Peaches are the earliest. Then we have a second and still better set of four, including Hale's Early, Condor, A Bec, and Early Grosse Mignonne, which lead up to the supply from the Peach house proper. Although Peaches do not require much heat, the structure devoted to this very early work should be light, not too large, well ventilated, and so efficiently heated that every part can be kept at an even temperature without making the pipes more than comfortably warm. Head room, however, is of importance, as each tree when housed should stand on a large inverted pot capped with a sod of fibry turf, to make room for the introduction of fermenting leaves or tan, not only as an aid to the fires, but also as a producer of a continuous stream of warm vapour. With this aid the trees need not be fired during the first fortnight, but afterwards the pipes must be warmed whenever a minimum of 45° to 50° and a maximum of 55° cannot be maintained with a continual circulation of air. Air, in fact, should never be excluded by night or day, as it strengthens the swelling buds, keeps the vapour in constant motion, and enables the attendant to bathe his trees with tepid water when the mornings are fairly bright for December. After the turn of the year forcing goes well enough, and then it is that these very early sorts make rapid progress to maturity. For succeeding the first batch of trees another should be started in January, and as these will give the amateur full employment I would say put off until the end of the month in preference to closing the house at the beginning. The same kind of house and arrangements will be necessary, but instead of confining myself to semi-clingstones I should choose for my own forcing such sorts as Hale's Early, Early Grosse Mignonne, A Bec and Stirling Castle Peaches; Advance, Lord Napier, Stanwick Elruge and Violette Hâtive Nectarines. The first in each section might predominate, as they are very early, but the second should be well represented, as they are really good, and although a little longer about their work, they will pay for the pains and patience bestowed upon them. Figs and Strawberries may be forced in the January house, that is, provided the trees and plants are thoroughly established in their pots, quite ripe, and in every way fit for starting. Figs should be plunged in warm leaves at the warmest end of the house, where they can be well syringed and have plenty of water. Strawberries, like the Peaches, must have light, fresh air and a low starting temperature. A back shelf within 18 inches of the highest part of the house answers best, as the plants can be copiously syringed when

the Peaches do not require this treatment. Being subject to spider, moreover, this semi-isolation is an advantage later in the season.

THE GENERAL ORCHARD HOUSE,

as a matter of course, is full of Chrysanthemums, not that I object to its being used for this purpose, as I do not consider it necessary to remove the trees from the open air before Christmas. When this period arrives a complete clearance, of course, must be made, as cleansing must follow the occupants which sometimes leave a legacy of green-fly and mildew. The trees meantime, including the species and varieties usually met with in the mixed house, must be made secure from the ravages of birds and wind, and the pots must be well tucked up in Fern or long litter for protection in frosty weather. Frost, I believe, does no harm to the roots of trees, no matter how thinly they may be covered with soil, but by expansion of the latter it plays sad havoc amongst the pots, and for this reason it should be carefully excluded. If the annual supply of trees has not been selected for potting up no time should be lost, as this long mild period may be succeeded by weather of a totally different character. Where soil of suitable quality is kept under cover fruit trees can be potted at any time, but there is nothing like getting them in early, as the roots then commence growth, where otherwise they may perish or take half the following season to recover. The best plan, however, is to have a small spot of ground specially laid out as a home nursery, not for working, as the nurseryman beats the gardener into fits, but for growing on the trees from the maiden and training them into any form best adapted to one's own requirements. Nearly all the best varieties of Pears do well on the Quince stock, and in a year or two make most fertile pyramids or bushes in the open ground. Moreover, being on the spot they can be lifted and potted in September with every chance of a full crop of fruit the following season. Apples in good districts, especially where walls or boarded fences can be utilised, are not considered worth house room, but for special purposes the very highest grade, including Ribston and Cox's Orange Pippin, the Nonpareil, White Calville, and King of Tomkins County, as seen the other day at Chiswick, may, and must, have the shelter of glass. I do not assume that they will pay, as each Apple may cost the price of a bushel of good outdoor fruit, but such magnificent specimens give pleasure far beyond their intrinsic value. Those on the Paradise stock and a good selection of the best large Bigarreau Cherries on the Mahaleb stock may be grown and grown well in an ordinary orchard house without the aid of fire heat, but they will do better with a flow and return pipe when setting in spring and ripening in the autumn.

PINES.

The weather since the beds were renovated for the winter having been so unseasonably fine, plants in all stages are enjoying a temperature somewhat above the average for November. A spell of this kind is very acceptable, as it helps the winter along, and were it not for the fact that we may have to pay at the other end, we might wish a continuance up to Christmas. In the Pine houses, however, where the plants begin to look up after the turn of the year this dalliance with autumn is a decided gain, especially where late fruit is swelling or the winter growth of young stock is likely to prove advantageous. In the fruiting house plants in various stages must be kept progressing by the maintenance of a minimum temperature ranging from 68° to 70° with plenty of atmospheric moisture from the evaporating pans and frequent syringing about the walls and over the surface of the bed. Overhead syringing, unless the house is very light and airy, is hardly necessary, as too much moisture only increases the size of the crowns, often at the expense of the fruit, which, by the way, should be kept as close as possible to the glass. Late Queens after this date are of very little use; consequently they may as well be thrown away to make more room for Cayennes, Rothschilds, and the fine old Black Jamaica where this excellent variety is still grown. When fruit has attained full size and shows signs of changing, no more water must be given to the roots, but others less forward may have moderate supplies of extra warm diluted liquid when the pots ring hollow and the plunging material is up to the full average of 80° and inclining to the dry side. As nights become longer and colder and fire heat is increased, it may be well to examine the beds, especially where they are resting upon chambers, which soon absorb moisture from the lower parts of the pots. Direct watering in cases of this kind is absolutely necessary, but the better to prevent a recurrence, it is a good plan to draw a portion of the plunging material away from the pots and pour in warm water until the base of the bed is thoroughly moist. As this operation may increase the bottom-heat, replacement of the material may be deferred for a few days, otherwise the remedy may prove as baneful as the defect. The same attention should be given to successions and autumn-struck suckers, as premature starting frequently follows, keeping the pots in a moisture-absorbing medium through the winter months. If the earliest Queens now resting are likely to become too dry at the root, the tan or leaves in which they are plunged may be heaped up over the rims of the pots and slightly moistened with warm water, but not to an extent that will increase the bottom heat; 68° to 70° is a good resting bottom heat for Queens, but they should not sink much below this, otherwise the tender roots may perish, when deformed fruit will be the inevitable result. The general stock of fruiters hitherto kept growing must now sink gradually to rest, and water must be very sparingly used not only upon the bed, but also in the house. Cayennes and Rothschilds, being hardier than Queens, will take no harm if by Christmas the bottom heat touches 65°, but nothing is gained by starvation, as many of our best summer Pines are obtained from quickly grown plants, which continue rooting throughout the winter. Young stock in sparsely heated pits will derive great benefit from the addition of good fermenting linings and external covering through the night. Indeed, Pines in all stages and of all ages will soon repay this protection not only in the saving of fuel, but also in their escape from its baneful effect. W. C.

DESTROYERS.

MEALY BUG ON VINES.

I SHOULD be extremely obliged if you would kindly let me know through the columns of your journal what is really the best thing to exterminate mealy bug in Vines. I have tried almost everything without any perceptible effect, and should esteem it a favour if you would help me to get rid of this pest. —B. H.

*** Although this insect, a native of a clime warmer than our own, makes very little progress even in summer in the open air, it unquestionably heads the list of destroyers when introduced into our plant and fruit houses. There is hardly a stove plant upon which it will not live and thrive, and when it once gets thoroughly established we may burn and destroy every plant, and yet paths, walls, borders, and trellises will send forth months afterwards a whole horde of insects ready and willing to fasten upon the next set of occupants. Its introduction to a vinery, above all other places, should be rigorously guarded against, for if once thoroughly established, it is hardly possible to get rid of it without injuring the Vines. It increases very rapidly in warm houses, and in the thick, flaky bark of the Vine it finds a secure home through the winter, whence it emerges with returning spring to spread over the young wood and leaves and eventually the clusters of fruit, from which no power can dislodge it. Indeed, so disgustingly offensive is it when it gets into the fruit, that no one would think of eating the berries; therefore the best and cheapest way of dealing with it is removal of every cluster to the nearest fire, as a sort of clearing the decks for persistent warfare. When this has been done, the Vines and every part of the house may be well syringed with paraffin and water, a wineglassful of the first to three gallons of the second, as a check to future progress, until such time as the canes are dormant and still sharper measures can be put into force. The paraffin, it must be understood, must be kept well mixed with the water by incessant agitation with one syringe, whilst a second person applies it to the wood and foliage with another. Further, paraffin must only be used when the Vines are in leaf, as its application to dormant wood and buds often results in death or blindness. An occasional syringing with this or Fir tree oil will keep the enemy in check until the leaves fall, and then the fray in earnest may be commenced. The first operation, of course, will be the removal and scalding or burning of everything that is portable; the second, the removal of every tie, pruning and burning the young wood; third, spreading a sheet over the floor to catch the bark and insects as they fall in the process of cleaning, for every bit of loose bark, it must be understood, the size of a sixpence must be removed, and all old knots and spurs must be scraped and scooped out not only to break up the nests, but also to prepare the way for the composing stopping in due course to follow. When all the Vines have been made free from the loose, flaky bark, but not scraped—a most barbarous custom—scrubbing and washing with strong soap and water will make a tolerable clearance, but this stage is only the beginning of the work of annihilation, for the glass and woodwork must be well washed and the latter carefully stopped with turpentine putty and well coated with turps paint. The trellis must undergo the same process; sash cords must be removed and dipped in boiling water; walls scalded, scraped, well stopped and washed with quick caustic lime; floors and borders scraped, swept, and cleared of every particle of loose soil and mulching, and then the dressing which I am about to recommend must be applied. To one peck of dry, finely sifted loam add one pint of old gas tar; work and pound the two together into a paste in an iron pot; pour in boiling water until the whole mass is reduced to the consistency of thick paint and it will be ready for use. When nearly cold, stop every hole and crack in the old stems and spurs first; then with a half-worn paint-brush coat every part of the Vines from the ground-line to the extreme tips, working the mixture well in, especially about the spurs and eyes; suspend the rods clear of the trellis, and in this position allow them to hang until they break into growth. When in full growth tie them up, but do not rest satisfied, as individuals after all this may emerge from some out-of-the-way hiding place, and soon, if left alone under the influence of heat, they will spread from base to summit, when this troublesome process must be repeated, and in this way a young man may go on until he is grey. Many I know have followed these directions faithfully and well up to this point, and have rested upon their oars, but the time as yet has not arrived for rest and thankfulness. Millions or thousands may have been reduced to units, but these units are enough to leaven the whole lump, and it is the destruction of these as they emerge to warmth and sunlight that I am now about to insist upon. The heavy work is finished, the remainder is light and simple, and may be accomplished in the following manner: Having procured a bottle of methylated spirits and a small camel's-hair brush, let some sharp-sighted person go over every knot and spur twice a week for at least two months after the Vines are tied up; if he finds nothing worthy of notice, so much the better; if he does, a touch with the spirits will dissolve it in a moment, and in this way the most infested Vines may be made clean in a single season. The trellis, wood-work and walls must also be inspected, as I have known a fresh colony to start from these quarters when the Vines themselves were clean. If the Vines do not break quite so quickly as usual, no fear need be experienced, as I have found this tardiness result from the tar dressing. Further, I may say this detailed advice is not theoretical, as I have treated Vines and Figs in a similar way, and the result has been extremely satisfactory. I ought to say the borders should be well dressed with quick-lime or lime water before they are surfaced with fresh compost, and a keen eye should be kept on the stems, as bug

that has had a house for years to itself not unfrequently descends deeply into loose dry borders.—W. COLEMAN.

CATERPILLARS ON FRUIT TREES.*

THE past summer has been noted among other things for the plague of caterpillars which have infested the fruit trees in many places, causing much injury to the crop, and consequently great loss to the cultivators of fruit trees. The dry, warm summer of 1887 was no doubt very favourable to insect life, and though followed by a long winter the latter was not one apparently which caused much destruction to insect life. Insects are not so easily killed by cold weather as most persons imagine, and whether as eggs, chrysalides, or hybernating as caterpillars, or perfect insects, cold and dampness do not have much effect on them; but should they recover animation and leave their quarters during a few warm days in a mild winter, a sudden return of cold or wet weather is very fatal to them. It is very certain that last year a larger number of eggs and caterpillars survived the winter, and soon made themselves at home on the fruit trees in the spring. The Agricultural Department have just published a very useful and timely paper on the subject of caterpillars which infest fruit trees, which it is to be hoped will have a large circulation. In a few introductory remarks the compiler of this paper (I presume Mr. C. Whitehead, whose very valuable reports on insects for this department are well known) says: "As methods of prevention should be adopted during the autumn and before winter with respect to the most destructive species of these insects, it is most important that fruit growers should be informed concerning these at once, and before the appearance of the annual report of the agricultural adviser, to be published in January, which will give full details of the mischief caused by caterpillars, as well as of the history and habits of the numerous species noticed on fruit trees this season, together with remedies against them." The insects on which this report treats are divided into two groups: those whose depredations may be prevented by stopping the females, who are nearly wingless and perfectly incapable of flying, from crawling up the stems of the trees, and those whose females can fly and cannot be prevented from gaining access to the trees by the means adopted for those in the other group. The moths in the first group, among which the common winter moth (Cheimatobia brumata) is the chief offender, may be baffled in their attempts to reach the young shoots by fastening a belt of canvas, sacking, or hay bands, covered with some sticky material which will not soon dry, tightly round the stem of the tree, or painting a band of the same compound round the trees. Methods of this kind have been employed for a long time, but they are not used as frequently as they should be. The object is to catch the wingless moths as they try to ascend the trees; therefore the composition, if it gets dry, must be removed, and if a band is put round a tree care must be taken to see that the moths cannot creep underneath it. If a stripe is painted round the stem it should be at least a foot wide. It must always be remembered that in the case of espalier trees or trees against walls it is no use only protecting the stems, as the moths have other means of access to the trees. The best compounds to use are a mixture of tar and cart grease, Davidson's composition, Calvert's carbolic soft soap, or soft soap and paraffin. These preventive measures should be taken at once, as it is now that the moths usually begin to emerge from their chrysalides. A very simple, but efficacious guard is used in America. It consists of a hoop of tin somewhat larger than the stem of the tree; to the upper edge is attached a strip of stout linen canvas, which is tied tightly round the tree; the under side of this apparatus is coated with some sticky composition, which from its position does not dry so quickly, nor is so easily washed off by the rain as if it were exposed. A figure of this simple guard is given in the paper mentioned above. These methods are not available in the case of Nut bushes. When these have been attacked they should not be pruned until the following January, as by this time the females will have laid their eggs, most of which will be removed when the young shoots are pruned; the portions cut off should be carefully collected and burned. The second group of moths are not so easily dealt with as the first, as the females can fly, and the remedies which are useful in the first case are obviously useless now. Digging and hoeing round the trees are very useful, as many chrysalides are in this way disturbed and brought under the influence of the weather and the notice of birds. A heavy dressing of lime on the broken-up ground will also be very useful. The loose, rough bark on the stems and lower branches should be removed and soft soap and paraffin oil, or some oily or greasy compound mixed with paraffin oil or carbolic acid should be well rubbed in. All dead leaves which have fallen, as well as those which have not fallen with the others, should be collected and burnt. Powdered quicklime thrown up into the trees on a damp, foggy morning is very useful; it kills the Moss and Lichen which often afford shelter to insects. This paper is published at the small cost of one penny, so that it is not beyond the means of the most humble fruit grower, and is well worth study by all interested in the fruit question, which is growing in importance every day. All must hope that ere long our markets may be better supplied and with better fruit than they are at present. Fruit growers cannot do better than study and act upon the suggestions and advice given in this report. G. S. S.

* Report of the Agricultural Department. London: Eyre and Spottiswoode. 1888. Price 1d.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

A SPECIAL meeting of the council was held on Wednesday, October 31, at 1 p.m, when it was resolved that a cordial vote of thanks be sent to all those who were kind enough to read papers, exhibit fruit, or in any other way assist in making the late Apple and Pear Conference at Chiswick a success.

It was resolved that a report of the conference be forthwith prepared, with a view to its publication in a number of the journal of the society.

The two resolutions passed at the Chiswick Conference were then read and considered, and, with reference to the suggested sub-committee on law and parliamentary matters, it was resolved

That the Government having, at the suggestion of the council of the Royal Horticultural Society and others, expressly included horticulture in the bill for the establishment of agriculture, it would be unadvisable to appoint a separate law and parliamentary committee, the council considering itself to be in a position to fulfil the duties of such proposed committee more advantageously than any other subsidiary body.

With reference to the second conference resolution, relating to the society's garden at Chiswick, the following resolution was passed, viz:—

That the council of the Royal Horticultural Society fully appreciate the value attaching to Chiswick Garden, and are anxious to extend and develop its resources to the greatest possible extent in every direction for the advancement of horticulture as far as the means placed in their hands will allow.

It was resolved to invite the members of the fruit and floral committees, and also the principal exhibitors, to attend a meeting at the council room, on Tuesday, November 13, at 11 30 a.m, to discuss as to the best place in which to hold the fortnightly meetings for 1889. It was further resolved to hold a general meeting of the Fellows of the society in the council room on Tuesday, November 13, at 2 p.m., in order to submit to them the draft of new bye-laws with a view to their adoption.

It was determined that at the two next meetings of the society, on November 13 and December 11, any tender plants may be placed in the council room, where they will be free from exposure to cold.

By kind permission of the treasurer and benchers a grand flower show will be held by the Royal Horticultural Society in the Inner Temple Gardens on the 30th and 31st of May, 1889.

It was resolved to contribute £10 to the funds of both the Auricula and Carnation Societies if their exhibitions are held under the auspices of the Royal Horticultural Society in the year 1889.

NATIONAL CHRYSANTHEMUM SOCIETY.

NOVEMBER 7 AND 8.

ONCE again the Chrysanthemum season has returned, and the greatest show of the autumn is a thing of the past. We wish it could be said that it was the best exhibition that has ever taken place; but this cannot be the verdict, not that the exhibits were few or the classes limited, as almost the whole of the Royal Aquarium was occupied, but the quality of the flowers was below that of last year in many instances. This will not astonish those who have watched the Chrysanthemum through this exceptionally trying year, as, without doubt, it has been one of the worst ever experienced, the sudden frost of October 2 dispelling the great hopes many had anticipated of a brilliant season for the gay flower. In an exhibition of this extent there were, naturally, many beautiful stands of blooms; but after the first prize exhibits there was a conspicuous roughness, especially in the incurved, reflexed, and allied sections, though throughout the Japanese kinds were in their truest character, and especially in the great class for forty-eight blooms, in which there were many exhibitors. From a show of this extent there is much to be learnt by the keen observer, as when growers meet from all parts of the country the rise and fall in particular classes or varieties is evident. Thus we see such a magnificent Japanese Chrysanthemum as Edwin Molyneux rise with a bound to the front, shutting out many of the old favourites that were once the pride of the exhibition table. There have been many new introductions amongst the Japanese, and throughout such varieties as the lovely pure white Avalanche, the pale yellow Ralph Brocklebank, a sport from Meg Merrilles, the white Florence Percy, and better known kinds as Val d'Andorre, Mr. H. Cannell, and Mme. Laing, were excellent; also there were splendid blooms of the old Thunberg, Golden Dragon, and Belle Paule, which is the most recent of the three. As regards the incurved, of course there was not the same choice of varieties; but we were glad to see that already such recent acquisitions as Violet Tomlin, purple; Mrs. Norman Davis, yellow; and C. Gibson, yellowish bronze, have taken the high place they are entitled to. It was in the Anemone-flowered and Pompon classes that there was the least competition, though why this should be is hard to say, as they are, of all Chrysanthemums, those that have the most charming grace and freedom. And as regards the Pompons, we must raise a word of protest. Why try to force them to the largest possible size as is done with the incurved Japanese and reflexed? A Pompon should be a small neat bloom, not a flower that is almost as large as the reflexed Cullingfordi, and without the characteristic beauty of this crimson-coloured variety. In one of the stands for Pompons there were three kinds, viz, Rubrum perfectum, Cendrillon, and Comte de Germiny, that would have passed for something far different to a Pompon. In the reflexed section there is a visible improvement, which Chrysanthemum growers should strive to maintain. It is a class that deserves encouragement. Besides Chrysanthemums in this great exhibition there were numerous classes for fruit and vegetables, and although the Apples and Pears were only second-rate, this falling off was atoned for by the excellence of the Potatoes and vegetables.

A novel feature in the schedule was the national competition of Chrysanthemum and horticultural societies, and that the idea was a good one was shown by the large number of competitors. The prize consisted of a challenge trophy and £10, and was won by Mr. Doughty, The Gardens, Angley Park, Cranbrook, of the Weald of Kent Gardeners' Society. The class was for forty-eight blooms, twenty-four Japanese and twenty-four incurved, and amongst

the former were fine blooms of Baronne de Prailly, Edwin Molyneux, Mme. B. Rendatler, Mons. Astorg, Carew Underwood, Belle Paule, Comte de Germiny, Mme. de Sevin, Meg Merrilies, Val d'Andorre, Dormillon, Criterion, Peter the Great, and Emilie Dufour; the incurved consisted of Lord Alcester, Bronze Queen of England, Golden Empress of India, Mrs. W. Shipman, Hero of Stoke Newington, Mrs. Heal, Prince Alfred, Violet Tomlin, and Lady Hardinge. And here we may mention that the majority of the Queen family were of general excellence. There were comparatively few rough flowers of this type, and some were surprisingly clean and fresh. The incurved Chrysanthemums brought many competitors, and there was a hard fight for first place in the class for forty-eight flowers, and Mr. Doughty was again the chief prize-winner. The blooms were not so hard forced as we have sometimes seen them, but neat, fresh, well coloured, and smooth, especially with respect to those of Lord Alcester, Princess of Wales, Jeanne d'Arc, White Venus, Alfred Salter, Lady Hardinge, Jardin des Plantes, Venus, Queen of England, Prince Alfred, Empress of India, Charles Gibson, Cherub, and Mrs. Norman Davis. We give the names of a few of the best to guide those who require first-class exhibition varieties. Mr. J. Horsfield, The Gardens, Heytesbury, Wilts, was second. After we passed this splendid class there was a falling off, though Mr. Sullivan, gardener to Mr. D. B. Chapman, Downshire House, Roehampton, showed a good stand of twenty-four blooms, in which the Queen family were again in the front rank for freshness and smoothness of petal. Mr. T. Skinner, East Sutton Park Gardens, Staplehurst, had the best twelve flowers, though Mr. D. Hill, Beachboro Park Gardens, Hythe, was not far behind. Mention may be made of the class for six blooms, one variety, to give Mr. Doughty a word of praise for his specimens of the Golden Empress of India. Messrs. J. F. Thorne and J. Hewett both exhibited the handsome Empress of India to the best advantage.

The Japanese flowers were the feature of the show, far eclipsing the incurved both in quantity and quality. Both sides of one long table were filled by competitors in the class for forty-eight blooms, and none were better than those of Mr. J. McKenzie, gardener to Mr. T. S. Cornwallis, Linton Park, Maidstone, who had charming flowers of great freshness, brilliant colour, and delightful beauty. Well worthy of note were the specimens of Ralph Brocklebank, Marguerite Marrouch, Florence Percy, Criterion, Elaine, Mme. Laing, Mme. Lacroix, Mme. Blanche Pigmy, Mons. Burnet, Thunberg, Edwin Molyneux, Maiden's Blush, Soleil Levant, and Mr. H. Cannell. An excellent second was Mr. W. Packman, The Elms Gardens, Foot's Cray, Kent, who had the lovely snow-white Avalanche, the pink, smooth-petalled La Triomphante, the popular Golden Dragon, and the light crimson Marso, a flower with pink petals with a silvery reverse. There was also a strong competition for twenty-four flowers, and here Mr. Cox, gardener to Mr. J. Trotter, Brickenden Grange, Hertford, was the most successful; his blooms of the delicate lilac-coloured Belle Paule, Val d'Andorre, Ralph Brocklebank, and Criterion showed marked culture. Again there was a creditable display in the class for twelve flowers, in which Mr. Skinner was the most successful, showing the same varieties as were so good in other stands. Mr. C. Edwards deserves mention for his well-developed blooms of leading kinds. The class that, in our opinion, is one of the most interesting and effective, regarded merely from a "show" point of view, is for six flowers of one kind. It is an open question whether the six magnificent blooms of Edwin Molyneux put up by Mr. J. McKenzie displayed this variety in a character not its own. The colour was grand, but the flowers were undeniably coarse and apparently dressed to a perfection that is only possible with the skilful exhibitor. How much stimulant has been given to produce such results? More to our taste were the beautiful and delicately coloured flowers of Meg Merrilies, put up by Mr. J. McKenzie, in the class for six flowers of any white variety, though this is scarcely white; and Mr. Jupp's specimens of Avalanche were also noteworthy. To give an idea of the comprehensiveness of the schedule, there was plenty of scope for the amateur, single-handed gardener, and metropolitan grower to try his fortune, and in the several classes there were many surprisingly good stands. The twelve Japanese flowers of Mr. W. Carruthers were quite up to the average. Mr. H. Glasscock, Bishop's Stortford, and H. Fincham were also worthy of mention. The Chrysanthemum is one of the best town plants, and, therefore, good blooms were to be expected from London growers. An excellent display of twenty-four incurved blooms came from Mr. S Gilbey, of Upper Clapton, and Mr. F. Bingham, of Stoke Newington, the English home, it may be said, of this flower.

The blooms of the reflexed varieties were finer than we expected, considering the season recently experienced. Mr. C. Cox, gardener to Mr. J. Trotter, Brickenden Grange, Hertford, showed such excellent kinds as Cloth of Gold, King of the Crimsons, White Christine, Dr. Sharp, Chevalier Domage, Felicity, and Cullingfordi in perfection; and those of Mr. Howe, Park Hill Gardens, Streatham, were also very fair, especially the flowers of Phidias and Elsie, a beautiful kind that we are glad to see becoming so popular.

There was a fair contest in the classes for Japanese reflexed kinds, a section which does not appear to have a very specific distinction. Val d'Andorre is as much a Japanese variety as almost any we know of, and so is L'Adorable, but such varieties as Maiden's Blush, Amy Furze, and Criterion it is right to admit. Mr. Hewett and Mr. J. Kipling both deserve mention for the excellence of their exhibits in this division.

Of the Anemone-flowered and Pompon Chrysanthemums there is little to be said. Mr. Sullivan had twelve good blooms of large Anemone-flowered varieties, and Mr. Ives, gardener to Mr. E. C. Jukes, Hope House, Winchmore Hill, showed well in the Japanese Anemone class, the several kinds of which are difficult to grow well.

SPECIAL PRIZES were offered by M. Simon Délaux, Toulouse, France, for the best collection of those kinds sent out last and this year. Messrs. Davis and Jones were first. The flowers were all of the Japanese type, and the most promising were Mme. Louise Langdon, rich yellow; Agnes Rondière, blush. Mr. Holmes, of Frampton Park Nurseries, Hackney, showed Mr. J. J. Hillier, a reflexed Japanese, of a blush colour with a yellow centre, very promising; and Bonnington, rose, besides other noteworthy kinds.

PLANTS.—Trained specimens become fewer every year, and we fully expect the classes for them will disappear, as in the case of the stiff Azaleas and hard-wooded plants. A splendid group was put up by Messrs. Davis and Jones, of Camberwell, the individual flowers good, and the plants not drawn out of character; Mr. J. Hudd, Blackheath, was second. A group that was to be admired for the dwarf, free-blooming habit of the plants was staged by Messrs. J. Laing & Sons who were first in the class, and we wish more of this kind of culture were practised. Amateurs should make note of it. The nine trained specimens, consisting of varieties such as Mme. B. Rendatler, Elaine, W. Robinson, Lady Selborne, &c., were marvels of skilful growing; they were a mass of bloom. There were also other classes for plants, in which the exhibits were of fair quality.

VEGETABLES were magnificent. If there had been no Chrysanthemums at all these would have been worth a visit, and we wish space would allow of a fuller notice. There were numerous special prizes offered by Messrs. Sutton and Sons, of Reading; Webb and Sons, of Stourbridge; Deverill and Co., of Banbury; and C. Fidler, of Reading, and the produce was remarkable for grand quality. For twelve dishes of Potatoes Mr. J. Hughes, gardener to Colonel Cartwright, Eydon Hall, Byfield, showed splendidly fresh, clean, and sound tubers of Mr. Bresee, Snowdrop, Chancellor, Adirondack, Reading Russet, and London Hero. These were so fine that we have given the names. Mr. E. G. Wiles, Banbury, Oxon, had the best six dishes. There was a keen competition for Messrs. Sutton and Sons' prizes, and an excellent collection of vegetables was put up by Mr. S. Haines, Coleshill House Gardens, in the class for these, Mr. C. J. Waite coming second. Mr. E. G. Wiles was again first for Potatoes. For Messrs. Webb and Sons' prizes there were several excellent collections, showing how splendidly vegetables have grown this season. The competition for the prizes offered by Messrs. Deverill and Co. for Onions, and Mr. C. Fidler for Potatoes, was also keen. The specimens of Onions shown by Mr. Deverill were of very large size, clean, and firm.

FRUIT showed a falling off compared with last year. Six excellent dishes of cooking Apples were shown by Mr. J. McKenzie, and a similar number of dessert kinds were put up by Mr. C. J. Goldsmith, of Beckenham, but the fruits, as a rule, were undersized. The last-named exhibitor had the six finest Pears, showing Louise Bonne of Jersey, Durondeau, Duchesse d'Angoulême, and Pitmaston Duchess in fair condition. Grapes were few in number, but the bunches of Muscat of Alexandria from Mr. G. Luff, Wimbledon, the magnificent clusters of Alicante from Mr. W. Howe, Park Hill, Streatham Common, and of Gros Colman from Mr. J. Lambert, Onslow, Shrewsbury, were noteworthy for their grand colouring and finish.

The miscellaneous division was a large one, and added considerably to the interest of the exhibition. Messrs. H. Cannell, of Swanley, exhibited plants of the beautiful Begonia Octavie—described in THE GARDEN (p. 408)—zonal Pelargoniums in variety, and Chrysanthemums. Mr. May, of Edmonton, had an excellent bank of well-grown Ferns. Messrs. Hooper and Co., of Covent Garden, exhibited fourteen varieties of double-flowered Primulas. The collection of Potatoes, comprising many well-known varieties and several not yet in commerce, from Messrs. Sutton and Sons, Reading, was of great extent and interest. Collections of Pears came from Mr. Butler, of Sittingbourne; Messrs. C. Lee and Son, Hammersmith; and Thomas Bunyard, Ashford. In Mr. Butler's collection we noticed some very highly coloured examples of Beurré Clairgeau, and several other sorts were also represented by good fruits. Collections of Apples were sent by Messrs. Cheal, of Crawley, and John Laing and Sons, Forest Hill.

Floral committee.—A meeting of this body was held during the afternoon, Mr. E. Sanderson, president, in the chair, a considerable number of flowers being submitted for consideration. First-class certificates of merit were awarded to the following Japanese varieties: Japanese Anemone James Weston, pure white guard petals with primrose centre, very pretty and pleasing, from Mr. J. Ridout, gardener to Mr. T. B. Haywood, Woodhatch, Reigate; George Daniels, delicate pink, very fine; Avalanche, pure white, extra fine; Fimbriatum, delicate blush, pale primrose and white centre, and Miss Gorton, delicate silvery pink, darker in the centre, from Mr. R. Owen, nurseryman, Maidenhead; to Florence Percy, a charming pure white Japanese, from Mr. E. Molyneux, the Gardens, Swanmore Park, Bishop's Waltham. To incurved variety Alfred Lyme, a pretty silvery lilac sport from the white Novelty, a very full and fine flower, from Mr. J. Lyme, Belvedere, Wimbledon. To the Japanese kind Othello, orange-buff, with dark reddish brown centre, from Mr. G. Stevens, St. John's Nursery, Putney; and to Japanese Mons. Bernard, dark magenta, with silvery reverse, from Messrs. J. Laing and Co., Forest Hill.

A golden sport from Mr. Heal (incurved) came from Mr. H. R Hayes, which the committee wished to see again. The same request was made respecting Miss Mary Byass, a charming, flesh-coloured sport from Mme. J. Laing, only one flower being shown. Mr. W. Holmes, Hackney, sent Mr. J. J. Hillier, a very pretty Japanese variety in the way of Faustine; the committee wished to see this again. The Japanese variety Albert Victor, from Mr. J. Ridout, is promising, and will no doubt be seen again in better form. A yellow-flowered single annual Chrysanthemum named Golden Fleece from Mr. R. Owen was commended for its winter flowering. A vote of thanks was passed to Mr. E. Baxter, gardener to Mr. R. C. L.

Bevan, East Barnet, for a basket of seedling winter-flowering, sweet-scented Pinks, that promise to be very useful for cutting from.

By the vegetable judges first-class certificates of merit were awarded to Messrs. H. Deverill and Co. for the following Onions: To the variety Ailsa Craig, for its general utility; Lord Keeper, a variety of great size and value for exhibition; and to Wroxton Improved, as a very fine keeping kind.

NOTES OF THE WEEK.

Esmeralda Clarki.—This is not unlike Esmeralda (Vanda) Cathcarti, but the lip is smaller and the sepals and petals more spreading. It also flowers much more freely than the better known E. Cathcarti. It is in bloom at Kew.

Spathoglottis Veillardi.—This is the correct name of what is known as S. augustorum. It is a beautiful plant, very free in growth, and the flowers last a long time. Each flower is like that of a Phalænopsis Lowi, but larger. A plant of it is flowering at Kew.

Negro Largo Fig.—What a useful Fig this is for growing in pots. I was much struck with its value when recently looking over the gardens at Gunnersbury Park, where Mr. Roberts has it fruiting in small pots. Plants in 8-inch pots were carrying from eight to ten good fruits.

Phaius bicolor is now in bloom at Kew, but this might have been said of this species any time within the past six months. It is similar to P. grandifolius, but the flowers have red-brown pointed sepals and petals, a yellow lip with a broad margin of deep purple all round; this margin changes to tawny brown with age.

Masdevallia macrura.—This is one of the largest and most remarkable of the Masdevallias, but wanting in colour attractions. It is near M. Moorei, M. ephippium, &c., but has longer tails, a smaller cup, and the colour is pale tawny brown, with darker spots and warts on the inner surface. A plant is blooming in the Kew collection.

Pleiones, or Cœlogynes, under which name they are now classed, are the brightest Orchids in bloom now, and a few pans of the leading forms should be in every Orchid house. In the small annexe to the Orchid house at Kew the kinds in bloom now are P. Wallichi, C. maculata, and lagenaria. The fact that the leaves appear without the flowers only shows up the latter more brilliantly.

Roman Hyacinths.—The value of these Hyacinths to the florist cannot be over-rated when it is taken into consideration the length of time they may be had in bloom, and this with but very little trouble. When calling at Victoria Nursery, Reading, on October 15, I observed a batch of them in boxes in full bloom. Remarking how early these were in bloom, I was told the first batch had flowered at the end of September.—J.

The Drooping Urn Flower (Urceolina pendula).—This pretty winter-blooming bulb is very beautiful, and quite distinct from most plants flowering at this season of the year. It is now flowering well in the stoves at Gunnersbury House under the care of Mr. Hudson, who speaks highly of it. He informed me that plants of it began blooming early in October. He expected to have it in bloom till the end of the year. A coloured plate of this was given in THE GARDEN, May 12, 1888.—F.

Desfontainea spinosa.—As in the case of Myrtles, Oranges, &c., there is a doubt as to the hardiness of this plant. The hardiness is a question of locality, situation and treatment in a more or less degree. The shrub now under notice is one of great merit, far surpassing that of many plants that are cultivated in pots and have a deal of attention bestowed on them. The long tube-like flowers, which are yellow at the top and bright red about two-thirds of the way down, contrast well with the deep green Holly-like foliage. The blooms in shape resemble more those of a Correa than anything I know. Recently, when calling at Messrs. Cripps' nursery, Tunbridge Wells, I observed a good strong plant of the Desfontainea 3 feet high and 2 feet through in full bloom, with from two to three dozen blooms upon it and many buds still opening. I was told that this plant had been in bloom, more or less, from June till the time of my visit (Oct. 25). The plant under notice was growing in the open border facing north-east, sheltered only by a few large shrubs. I was told that this plant had stood in this same position for the last three years, and had never been protected in the least during that time. The shoots made this season were from 6 inches to 8 inches long. From this it would appear that this beautiful shrub is not so tender as it is supposed to be by some, and ought to be tried in other places.—J. C. F.

Sweet Verbena (Aloysia citriodora).—A bed of this in a quiet corner upon the lawn at Ketton reminds us how this and other sweet-scented plants are now neglected. It is much hardier than many suppose, for even farther north than Ketton the rootstocks survive the winter if slightly protected with leaves or Fern.

Ipomæa Horsfalliæ.—This is now flowering finely in the stove at Kew. It is, perhaps, the best of winter-blooming stove climbers, as it grows very rapidly, has healthy, dark green foliage and a large bunch of bright crimson, Morning Glory-like flowers from almost every axil. The variety known as Briggsi will also shortly be in flower at Kew. This latter was lately figured in THE GARDEN. It has smaller flowers, almost green when in bud, the colour of the expanded blossoms being rosy red.

Disa graminifolia (the blue Disa), generally known as Herschellia cælestis.—This was shown in flower by Mr. Tautz at a recent meeting of the Royal Horticultural Society, and was awarded a first-class certificate. It is pretty, the spike being 15 inches long, with four flowers, each 1 inch long by three-fourths of an inch across the mouth. The colour is purplish violet. This plant will never become popular, as it is too difficult to grow and flower in England. It is in flower at Kew.

Phaius callosus.—This is a handsome species from Java. It is similar in habit to P. Wallichi. The spike is stout, 2 feet high, and bears nine flowers, each of which is 3 inches across; the sepals and petals are nearly equal, one-fourth of an inch wide, yellowish brown; the lip is tubular, white for the first few days after opening, then changing to canary-yellow, with two faint blotches of red on each side of the short limb. A good specimen is flowering at Kew.

Begonia socotrana.—This beautiful plant is now in flower, and will continue so for at least a month. It is a distinct and pretty Begonia, well worth including in every stove collection. It is also interesting as the parent of the new race of Begonias, of which John Heal and Winter Gem are the most useful. These also bloom in winter, and they remain in perfection a long time. There is every promise of a really useful race of Begonias being obtained by crossing B. socotrana with other kinds.

Abutilon vexillarium.—A plant of this handsome species has been growing against a warm, sunny wall out of doors at Kew for at least four years, and it is now in fine health and clothed with its pretty urn-shaped scarlet and yellow flowers. It is evergreen, too, and it flowers in the coldest weather till December. In the south of England this plant might be used as a wall plant in many positions in which one usually sees only common deciduous climbers, which in November are leafless and ugly.

Schizostylis coccinea and Sternbergia lutea make a pretty picture when planted together in a good bed or border. They come into flower together, and the clear yellow, Crocus-like flowers of the latter form a gay carpet, above which the bright crimson flowers of the Schizostylis make a rich glow. Of course the season when these two beautiful plants flower, viz., November, is often unfavourable to them, but they are both good this year. There is a small bed of them now in fine bloom at Kew.

Roses in November.—On the 5th I picked a good bunch of Tea Rose Homère, the flowers fresh and uninjured. Also a sweet and lovely handful of Rosa polyantha Mme. Cecile Brunner from standards. It is a very deeply coloured Rose this time of year, and is still a mass of buds. Anna Maria de Montravel is still flowering on standards better than on dwarfs; this time of year it is a first-rate miniature Rose. Rosa lucida rivals the Virginia Creeper with its brightly tinted foliage; its scarlet heps are harder and less appreciated by birds than those of Rosa rugosa. Several yellow Roses of the Gloire de Dijon type are in flower, also Paul Néron, Captain Christy, W. F. Bennett, Mme. Isaac Pereire, the scented Stanwell Perpetual, and last, but not least, the flowering Souvenir de la Malmaison. A few crimson Carnations are still left, as also Antirrhinums and Nicotiana affinis. Bushes of the old gold-coloured Pompon Chrysanthemum Inimitable look very bright. La Vierge, Ile des Plaisirs, and Margot are the only other varieties which have done well out of doors here this year. A deep violet-flowered Veronica is blooming profusely against a wall, and Jasminum nudiflorum is also showing well.—E. AMES LYDE, *Thornham Cottage, King's Lynn.*

Pelargonium Mme. Crousse.—For covering walls or trellises this Ivy-leaved Pelargonium is most useful. We recently saw it trained over the wall of a conservatory, where it made a pretty effect. Its fine trusses of flowers, which are not too double, are used for cutting, and for this purpose it is largely grown at Ketton Hall. In one of the large Peach houses there are two wire screens, one on either side of the path. These screens are entirely covered with plants of Mme. Crousse, which in addition to their great beauty Mr. Divers says are nearly always in flower. When the plants become straggling they are cut hard back, but they soon break again and wreathe the trellis in beauty.

Dahlia flowers from Rothesay.—We have the pleasure of sending you, to-day, a box of Dahlias as a proof of the mildness of the climate here. They are all fresh and clean, and show but little signs of November weather, with the exception, perhaps, of a reduction in size. In 1886 we cut a lot on the 30th November almost as good as the ones we now send you. We have many hundreds in bloom yet in the open air, while in the south we understand they have been cut down some weeks ago.—DOBBIE & Co.

*** The Dahlias in the southern counties were destroyed as early as the 2nd of October, on which the first frost of any severity occurred.—ED.

Chrysanthemums William Holmes and James Carter.—I have some 300 Chrysanthemums, the majority now in bloom, growing finely against a partially protected south wall. Of the newer introductions I would specially commend these two. The first is a reflexed Japanese of the deepest and richest velvety dark red. Cullingfordi, Jeanne Déaux (F. A. Davis), and Roi des Précoces are very much of the same colour. The last is a free-blooming October variety, but cannot compare in size with William Holmes. It is the only variety I know that comes near Sœur Melanie in opening all its blooms together, and thus becomes very useful for cutting. It is also nearly as sweetly scented as Progne or Dr. Sharp. James Carter, a beautiful, compact, reflexed amber-coloured sort in the way of Distinction, is a decided acquisition.—W. J. MURPHY, *Clonmel.*

BOOKS RECEIVED.

"The Native Flowers of New Zealand." Illustrated in colours by Mrs. Charles Hedley. Sampson Low, Marston and Co (limited), St. Dunstan's House, Fetter Lane, Fleet Street, E.C.

Names of plants.—*C. E. H.*—Escallonia Philippiana. —*G. Mantin.*—1, Oncidium varicosum; 4, Cymbidium Mastersi; 6, Phalænopsis Lowi. Impossible to name the others sent, being such poor specimens. We only undertake to name four specimens at a time.—*H. B.*—Ornithogalum pyrenaicum.

Names of fruits.—*A. B.*—1, not recognised; 2, Gansel's Bergamot; 3, Marie Louise d'Uccle. Apple: Duck's-bill.

"The Garden" Monthly Parts.—*This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price* 1s. 6d.; *post free,* 1s. 9d.

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London: 37, *Southampton Street, Strand, W.C.*

WOODS & FORESTS.

DISEASES OF FOREST TREES.

I HAVE read "J. F.'s" remarks on this head in THE GARDEN, Oct. 20 (p. 382), but fail to find any fresh information on the subject. The writer says:—

> The point at issue between Mr. Webster and myself is this: He maintains that the combined action of wind and frost is the cause of the ulcerous disease of the Scotch Fir, and I say it may be some sort of fungoid parasite, or it may be constitutional disease.

Now the fact is that there is no point at issue between "J. F." and myself at all, for the simple reason that he affirms nothing; he does not even go so far as to tell us on what grounds he is led to suppose that the disease is caused by a fungoid parasite; therefore his suggestions are vague and meaningless. With regard to constitutional weakness being the cause and origin of the disease, if "J. F." would read my former remarks upon this head he will find such a supposition to be altogether fallacious, and not in the least in keeping with known facts regarding the tree when grown on the spot from seed in its native habitats. Although "J. F." says that wet ground has nothing to do with the disease, yet my object in selecting a tree growing upon a wet spot of ground was to show that under such conditions ulceration was promoted and produced in a much more serious and malignant form than when the tree is grown on ground that had been thoroughly drained, the reason of which I formerly explained. But "J. F." tells us that if the tree had been set in the same soil and place with the ground dry and the water running by, there would have been no signs of the ulcer upon it. Probably not, but if so, the disease would have been of a much more milder type, owing to the dry, wholesome surroundings of the tree. Perhaps "J. F." will be surprised when I tell him that part of the site of this forest is upon dry, gravelly ground, which requires no drainage, and which slopes down to the bank of a river, which traverses its margins for upwards of a mile, and although the quality of the timber here was really of the highest order and the trees in a very healthy condition, and adding to their cubic contents year after year in a remarkable manner, yet I found many of them here and there throughout the plantation occasionally frost-bitten, thus laying the foundation for the disease called blotch or ulceration. I have been told by gentlemen who have travelled on the Alps, where the Larch is growing in its natural state, that many of the trees when in a rapid state of growth are apt to be frost-bitten in a similar manner to that of the Scotch Fir in this country, and the results produced are in every way similar. This is certainly strong proof that frost is the principal agent in promoting this particular disease even when trees are quite at home and growing in their natural habitats. It is new to me that "J. F.'s" observations show that trees with the thickest and coarsest of bark will be found in the centre of the largest plantations as well as in the smallest belts, and that the nature and quality of the bark of trees are due rather to the several kinds of the same tree than to any external circumstances. The fallacy of this statement needs no comment, further than to say that trees in the dense forest have not only thinner bark than such as are exposed, but likewise present fine smooth stems free of branches for at least three-fourths of their entire height, while trees on exposed places have not only thick bark as a general rule, but likewise assume a bushy habit of growth. Further on the writer says:—

> Admitting that some of the vessels of the stem of the tree are ruptured during a severe gale, does Mr. Webster affirm that out of such ruptures the disease called ulcer proceeds?

Certainly not; what I have said is that frost is the origin and principal cause of the disease, and that the oscillation of the stem by wind during a gale when the stem is in a frozen condition promotes the rupture of the vessels at the spot, and thereby facilitates the formation of the blotch on the trunk. Again, "J. F." says:—

> If so, it might be inferred that anything which would cause a rupture of the vessels of the stem would cause ulcer. Hence, for instance, taking a slice with any edged tool off the side of a tree might be expected to cause ulcer. Does it do so?

No. A surface cut with an edged tool on a tree will bleed, and perhaps discharge other matter at the spot for a time, but if the wound is kept clean, Nature, through course of time, will perform a perfect cure by effectually healing up the spot, but not so if the wound has originated from a frost-bite. The work of Nature in this case is completely baffled, and for this reason, that the bark and tissues which convey the sap to the spot affected have been destroyed by frost and rendered dormant, and incapable of performing the functions assigned to them by Nature, circulation is arrested, the sap becomes stagnant, decomposition gradually sets in, and the disease known as blotch or ulceration then makes its appearance on the side of the stem. When a tree is frost-bitten there is generally a discharge of resinous matter for some time after at the spot, this being an effort of Nature to get rid of the sap suddenly arrested at the part affected. This discharge generally dries up in course of time, but the wood never unites with the fresh yearly deposit of the same, but remains a dead, dormant patch on the side of the trunk. Now, if any fungoid parasite or constitutional weakness had anything to do in promoting this disease we would expect the trees to show symptoms of distress before and after the outbreak, but in place of this we find that it is generally the healthiest trees, and such as are in a rapid state of growth, that are first affected, and as they continue to add to their cubic contents for many years after, I have no hesitation in saying that such a theory is groundless.

J. B. WEBSTER.

Forestry conservancy in Upper Burmah.—One of the early measures adopted for the administration of Upper Burmah was the establishment of a system of forest preservation. According to the first report of the new department, the officers have not yet mustered their full strength, the staff in July consisting of 11 conservators in place of 21 allowed by the Secretary of State. Several reserves have been marked out, surveys have been made, the regulations are beginning to be enforced, although in the state of the country it was not desirable to enforce them too promptly or severely, and nurseries have been established in various places at which foreign trees are being acclimatised. Attempts are now being made to rear 149 different kinds of European fruit trees. Under the Burmese Government a revenue of 14 lakhs of rupees was derived from the forests, but as there was no attempt whatever at conservancy, this would doubtless soon have diminished. The British Government, in place of farming the forests at different places for a lump sum, purpose levying an *ad valorem* duty on the wood actually extracted. Several of the late king's leases are, of course, still in existence, and these remain in force until their termination. Even in its first year nearly 2 lakhs of rupees were cleared by the Forest Department, in spite of the circumstance that the political situation, and especially the presence of dacoity, seriously impeded the work. An instance of the manner in which the disturbances paralysed the work is given in the report. From the forests of one district the lessees, an English company, extracted 63,000 trees in 1885, while in the two following years they got only 18,000 and 26,000 trees respectively. Some anxiety is felt on account of the wholesale destruction of the cutch trees. On the whole, the Chief Commissioner says of the first year's working of the department: "It is a record of good work done under difficult circumstances, and shows that already a substantial advance has been made in the organisation of an efficient forest department in Upper Burmah."

THE HUON PINE.

(DACRYDIUM FRANKLINI.)

TASMANIAN trees are not, as a rule, hardy in this country, yet the present subject has, after a fair and unprejudiced trial, been found to be perfectly well suited for planting in almost any part of the British Isles. This note may come as a pleasant surprise to some persons, for the Huon Pine is usually designated as a half-hardy Conifer, and one that must only be coddled in some warm corner of our southern English gardens. No greater mistake was, however, ever made than to class this pretty tree amongst tender plants and shrubs, for from Edinburgh southwards nearly every county can boast of its specimen—specimens that have stood unscathed through the worst winters that we have experienced during the past dozen and more years.

To see the Huon Pine to perfection one must visit the Longleat policies, where is perhaps the largest and best furnished specimen that is to be found in any part of the kingdom—a specimen of about 40 ft. in height, and a perfect picture of health.

In the Botanic Garden at Edinburgh there was a few years ago another fine tree, whose healthy appearance and rapidity of growth clearly demonstrated that the surroundings suited it.

As seen in this country and when in good health, the Huon Pine is usually of pyramidal contour, the branch-spread of a 30-feet-high specimen rarely exceeding 6 feet. It is, however, well furnished with branches, glimpses of the stem being only visible at long intervals, the branch-tips having a semi-pendulous habit, and imparting to fair-sized trees a most distinct and desirable appearance far from common in tapering-habited Conifers. The foliage is of a beautiful and enticing green—almost a pea-green, and the colour is retained throughout the season.

The leaves may best be described as resembling those of an Arbor-vitæ, they being scale-like and closely packed together. At Kew there are several examples of the wood, and these show well how beautifully grained and hard the timber is, and how well suited it must be for ship-building and the several other purposes to which it is commonly applied. It is pleasantly perfumed, works readily, and takes on a smooth and pleasing polish. Soil would not seem to be a very important factor in the cultivation of this Dacrydium—at least judging from healthy specimens growing on this side of the Atlantic. Preferable, perhaps, is a sweet and warm peaty loam or rich alluvial deposit, the latter particularly if mixed with a certain proportion of sharp sand. Situation is evidently of far more importance, and this should always be sheltered and free from cold draughts, else the tree soon assumes a by no means prepossessing appearance. In its native wilds (the banks of the Huon River, in Tasmania) it attains, so a friend tells me, far larger proportions than those usually assigned to it in our books on Conifers. One specimen he states to have measured fully 110 feet in height, and with a bole 7 feet 6 inches in diameter at ground level. Usually the trunks grow straight and circular in shape, and have a gradual taper throughout.

That it will ever be of value in an economic sense in this country I do not for one moment suppose, but what I wish to point out is, that from a register kept for some years past of its behaviour in England, Ireland, and Scotland, so far north as Edinburgh, I can confidently recommend it as a perfectly hardy and very ornamental Conifer, and one that is of the easiest culture, if, like most other trees, its peculiarities of soil and situation are duly considered.

A. D. WEBSTER.

No. 887. SATURDAY, Nov. 17, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT NOTES.

OCTOBER PLUMS.—Coe's Golden Drop is undoubtedly the best late dessert Plum, and all who appreciate a really delicious fruit should grow a tree or two of this variety. With us it seldom misses a full crop; at the same time it is not one of those very prolific kinds that require very severe thinning to prevent the trees from so far exhausting themselves as to be unable to bear any fruit the following year. Late Plums, unlike late Peaches, are not affected in flavour from being ripened in the shortening days of autumn; neither does the flavour deteriorate after the fruits have become ripe; on the contrary, the latter are improved by keeping—a point of no small importance. I have kept the above Plum and Ickworth Impératrice well into November. The last-named variety is a purple Plum of most delicious flavour when it becomes a little shrivelled. The tree, however, is not very free-bearing; at least I have not found it so, but it is worth growing for its lateness and high quality.

LARGE PEACHES.—Frequent complaints are heard respecting the inferiority—I might almost say worthlessness—of very large Peaches. It seems a pity that anyone should be persuaded to plant these monster kinds of doubtful quality when we have numbers which are all that can be desired in point of flavour, and which will, under good or even ordinary cultivation, attain to a fair size. A luscious Peach is always appreciated, and is, moreover, a very wholesome fruit, but a great mass of flavourless pulp, such as is represented by these large Peaches, is the reverse of either. Royal George is, perhaps, the type of a really first-class Peach. I do not know a variety by which it is excelled. A Bec and Early Grosse Mignonne very nearly approach it, whilst for succession Dymond and Bellegarde are excellent. If Noblesse is added we have the cream of the Peaches. If an earlier kind is desired, Hale's Early is the best. There are not so many bad varieties, as a rule, amongst Nectarines, but still there are some possessing undesirable characteristics, such as dropping their fruit before fully grown. Victoria has this fault; others, of which Albert Victor is one, are subject to cracking. The best kinds I have had experience with are Lord Napier, Stanwick Elruge, Pine-apple, and Humboldt. If confined to two kinds, they would be the first and the last named. These are all of first-class flavour, good growers, and fruit freely.

APPLES AND PEARS AND THE SEASON.—After such a cold, sunless season, we could not expect to have these fruits up to their usual standard of excellence; in fact, it is somewhat surprising to find them so good as they are in many cases. The abnormal dryness and temperature of the ground have, I think, contributed greatly to such good results under otherwise adverse conditions. However, I have noticed a great difference in the behaviour of different varieties, some apparently not being much affected either in size or quality, whilst others are small almost beyond recognition, and equally deficient in flavour. Blenheim Orange, Cox's Orange Pippin, Margil, and, in fact, all which are known as dessert kinds show this lack of size and colour, while the large varieties, represented by Ecklinville Seedling, Warner's King, Loddington, and Cox's Pomona, are as fine as usual. There must be something different in the constitution of this class of Apples to enable them to defy the elements better than the more solid-fleshed varieties. Amongst

PEARS, Thompson's, Josephine de Malines, Fondante d'Automne, and Bergamotte d'Esperen are poor. On the other hand, Marie Louise, Louise Bonne of Jersey, Winter Nelis, and others are as large and good as I have seen them in the best of seasons. If the late kinds only had exhibited this diminution in size and quality it would not have been so noticeable, but I have observed it amongst early and late kinds alike, whilst some late kinds are as good as usual.

PEAR NOUVEAU POITEAU.—A gentleman who is considered a very good judge of fruit tasted this Pear here the other day, and pronounced it the best he had eaten this year.

I send you a few pieces of home-grown Banana from plants grown in a Pine stove. We have one large cluster ripening now and another to succeed it. We shall have a supply of Bananas for two or three months, and they will prove very valuable for the dessert. A. BARKER.

ROSE GARDEN.

T. W. GIRDLESTONE.

NEW ROSES.

OF the Roses first generally distributed in this country in the spring of 1887, the majority have of course now been seen very fairly in character, with the result of maintaining the impression made last season that they include some very valuable additions, and constitute 1886-7 a Rose year decidedly above the average.

TEAS.

CHATEAU DES BERGERIES (Ledéchaux).—A pale yellow Tea with a long bud and well-formed flowers; the petals not quite as substantial as might be, but when well grown a pretty addition to the light yellows.

CLAUDINE PERREAU (Lambert) is a seedling from Souvenir d'un Ami with very full globular flowers, somewhat similar in colour, but very distinct in form; the plant is very vigorous and bushy, and the flower-stems very stiff, so that the blooms are carried perfectly erect and well displayed instead of being semi-pendulous, like those of the parent.

DR. GRILL (Bonnaire).—This is a very pretty Tea which was seen to great advantage in Messrs. Curtis and Sanford's nurseries at Torquay. The plant is vigorous and very free blooming; the flowers well formed and opening easily, of good size, and of a most pleasing coppery yellow colour, deeply shaded at the base.

DUCHESSE DE BRAGANCE (Dubreuil).—Another pale yellow which at one time appeared promising, but which seems rather near Monsieur Furtado both in habit and flower.

ELIZABETH DE GRAMMONT (C. Levet).—A bushy plant with open-cupped, short-petalled flowers of a somewhat ordinary shade of pale rose; it is not likely to prove at all valuable.

ETHEL BROWNLOW (Dickson).—The great substance of the petals of this charming novelty has enabled the flowers to withstand the rain, and consequently to be one of the most conspicuous Teas in the garden during the wet season of 1888. The plant is vigorous, exceedingly free blooming and perpetual, of a pleasing rosy shade with yellowish base, and perfectly distinct, and the variety is one that all growers may safely plant.

LUCIOLE (Guillot) produces a bud of wonderful length and of still more wonderful colour, but, beautiful as it is, there seems no reason to alter the opinion expressed last year, that it will be only a bud Rose. To attempt to describe the colour is hopeless, for it is a kind of epitome of all the shades existing among Tea-scented Roses, but there seems to be no two opinions about the beauty of the half expanded blooms, which will be in great demand wherever cut flowers are appreciated.

MME. ETIENNE (Bernaix).—Fairly vigorous and very free, a pretty fresh rose-coloured Tea of good size and form, and, though wanting a finer season to prove it thoroughly, distinct and promising.

MME. SCIPION COCHET (Bernaix).—A variety which makes a good branching plant with beautiful glossy, though not large, foliage, very free flowering, and thoroughly autumnal; the flowers are of fair size and of a pleasing rosy yellow colour with a deeper yellow base, but the margins of the petals are generally wavy or even crimpy, which makes the bloom appear to lack quality.

PRINCESS BEATRICE (Bennett).—A very beautiful and refined flower of rich coppery yellow colour, invaluable for exhibition and for cutting generally, as it lasts long in water, of good size and perfect form; the plant grows well and is very free, and the variety cannot fail to take a prominent position in collections of Teas.

ROSES OTHER THAN TEAS.

COMTE DE PARIS (Lévêque).—A fine crimson Hybrid Perpetual of great promise, vigorous, a free autumnal, and with large well-formed flowers.

DR. ANTONIN JOLY (Besson).—A very large flower of distinct salmon-rose colour, vigorous and free, and likely in a fine season to be good.

EARL OF DUFFERIN (Dickson).—Unquestionably the best Rose of the year, and a Rose that is certain to be universally cultivated. The vigour and freedom of the plant, the rich crimson colour of the flowers shaded with maroon, their fragrance, and the constancy of their fine form combine to render this variety one of the most valuable dark Roses that has yet been raised.

GRAND MOGUL (Wm. Paul).—The cold, sunless season does not appear to have suited this dark crimson Rose at all well, and it has not been seen in character; it is, however, vigorous and perpetual.

GRANDIFLORA (Bernaix).—The large-flowered single multiflora makes a gigantic climber, and when covered with its great white flowers is most beautiful. First-class certificate Royal Horticultural Society.

JOSEPHINE BURLAND (Bernaix).—A hybrid Polyantha very distinct from the miniature Mignonette type, having perfectly formed, almost white flowers of considerable size, but solitary; dwarf habit and most free.

LADY HELEN STEWART (Dickson).—This beautiful crimson Rose appears to have been well suited by the cool season, and has been constantly very finely exhibited. In the garden it has been incessantly in flower both during summer and autumn, and from its erect habit and immense freedom has been most effective. The blooms are of good size, with large smooth petals, always expanding well, and the variety is altogether most reliable.

MME. BOIS (C. Levet).—A most attractive addition of the Victor Verdier race, but quite distinct in colour; the flowers are very large, well formed, and of great depth, and of a most telling shade of fresh rose colour. The plant is vigorous and free and the flowers most constant.

MME. DESIR (Pernet père).—A large, very full, distinct salmon-rose flower which in a hot season will probably prove valuable.

MME. DE WIERRE (Lévêque).—It is impracticable to continue trailing about this Rose's interminable original appellation, and it will therefore be best at once to employ the above shortened form. The variety is a promising dark Rose of good size and form, very fragrant, free blooming, perpetual, and a vigorous grower.

MME. HENRI PEREIRE (Vilin).—One of the very dark Roses and an exceedingly fine flower; the plant free and very vigorous. It has frequently been very finely exhibited during the past season, and is certainly not a variety to be lost sight of.

Mme. Joseph Desbois (Guillot).—A very beautiful Rose of first-rate quality. The habit is sturdy and erect, as in Captain Christy, from which, however, it is totally distinct; the flowers are large, perfectly formed, almost pure white, with a rich flush of salmon-rose in the centre, and are most freely produced, the variety constituting an invaluable addition to the light Hybrid Perpetuals.

Mme. Treyve-Marie (Liabaud) may be described as a cherry-coloured Marie Baumann, not quite so good in quality, but of similar form and more erect, and of so taking a shade as to be well worth growing.

Mat. Baron (Veuve Schwartz) has been a good deal exhibited this year, but is of a deplorably gloomy colour.

Mrs. John Laing (Bennett) has proved the most constant Rose of its colour. Every bloom comes perfect, and the plant is most vigorous and free. The only possible objection that can be urged against it is that its colour is rather an ordinary shade of rose, but in the autumn, when abundant flowers are produced, even this objection does not hold good, for late in the year the colour becomes more clear and pure.

Silver Queen (Wm. Paul).—A good light Rose very much in the way of Queen of Queens, but more pleasing in colour.

The Puritan (Bennett) has caused little surprise by being out of doors this year a complete failure. The flowers are of such immense substance that it seemed impossible that they could ever expand without very great heat, and the absence of sunshine this year settled the question. As a Rose for forcing at a high temperature it will probably be valuable.

Of the 1886 Roses the most prominent by far has been the exquisitely beautiful Viscountess Folkestone (Bennett), which seemed to defy the unpropitious season, and developed bloom after bloom in the greatest perfection. Charles Dickens, Clara Cochet, Florence Paul, and Her Majesty were well exhibited from time to time, and in the autumn Miss House, which may be described as a greatly improved Bessie Johnson, has been very pretty in its delicate blush colour. Mme. Musset and Raoul Guillard are two similar and fairly good reds of Marie Baumann race; Rosieriste Chauvry and Souvenir de Victor Hugo, two very free deep reds of Victor Verdier family; Max Singer, the hybrid multiflora, has proved a most useful red climber; and Princesse Amédée de Broglie makes a striking pillar Rose, its immense growth being clothed with large flowers of a distinct shade of telling rosy carmine. Mention should also be made of Mme. Villy, that all growers may avoid it, for it is without doubt one of the most worthless Roses that has been sent out for years; worse, if possible, than the similar Joseph Metral distributed by the same raiser two years earlier. Among the Teas, The Bride has been far in advance of all contemporaries and is already a very general favourite; Ye Primrose Dame, Reine Nathalie de Serbie, Comtesse de Frigneuse, and Claudius Levet have been fairly good, while the pretty-coloured bud varieties Marquise de Vivens and Souvenir de Victor Hugo have been very charming in their way. Edmond de Biauzat makes a handsome plant with glossy and abundant foliage, and the flowers are of a very fresh rose colour, but they are not large and are too irregular.

Thus it will be seen that among the novelties of each year there are some that can already be confidently recommended, and it is only to be hoped that there will be found as many varieties above the average of interest among the Continental hybrids distributed here last spring as among those sent out the year before.

Rosa grandiflora (Bernaix, 1886).—As an indication of the vigour of this new variety of Rosa multiflora, it may be mentioned that a plant budded on a dwarf Brier stock in June, 1887, has just been transplanted, of which the central shoot measures 13 feet in length, and numerous laterals and other shoots from 5 feet to 8 feet each, making a total length of growth in one year from a single bud of 75½ feet. As a rampant climber for covering bare spaces with great rapidity it should prove invaluable.

ROSES.

I think there can be little doubt that "C. J. G.'s" suggestion in The Garden, Oct. 27 (p. 383), would be very useful and interesting if it can be carried out. Only, the essential points desirable in a garden Rose should be carefully kept in view, and these I would recapitulate as being more or less as follows:—

In the plant:—
1. Hardiness.
2. Vigour.
3. Capacity to resist mildew.
4. Persistence of foliage.

In the flower:—
1. Freedom of production.
2. Continuity of production.
3. Erectness (*i.e.*, not pendulous, unless climbers).
4. Colour.
5. Immunity from disfigurement by sun or wet.
6. Form.
7. Fragrance.

Correspondents should also give the locality from which they write, the nature of the soil, aspect, and stocks on which the Roses are grown, the length of time the writers have cultivated the varieties they advocate, and the approximate number of plants of each sort that the writer's own experience thereof is derived from. If a discussion on some such basis could be had it would, I think, make an invaluable addition to Rose literature of the most practical kind.—T. W. Girdlestone.

—— I have just read "C. J. G.'s" suggestion at page 383. It is, I think, an excellent one, and I trust it may be carried out before long. What could be more interesting or more instructive than an exhaustive discussion on the merits, capabilities, and peculiarities of the numerous varieties of the Rose now grown in our gardens. Rose culture under glass has of late years been brought to a high pitch of perfection; but much remains yet to be learnt by the hundreds who, either from choice or necessity, grow their Roses altogether in the open air, and in no direction is ignorance more conspicuously displayed than in the selection of suitable varieties for different purposes. A discussion such as suggested is sure to be most popular; it will bring to light a vast amount of valuable information not otherwise obtainable, and will do more to benefit the Rose-growing community than all the books ever written on the subject.—R. B.

Rose Gloire Lyonnaise. — In reply to "T. W. G.'s" inquiry respecting the perpetual flowering character of this Rose, it was not until the year 1887 that this character was so marked. During the past season it has developed the same character to such an extent, that I have planted two strong plants under glass, as I find that the half-open flower-buds are as much admired as those of Marie Van Houtte or Devoniensis. Like "T. W. G.," I find the above Rose suffers very little from mildew. —J. C. C.

Sonerilas.—These little stove plants are, as a rule, grown only for the sake of their prettily variegated foliage, but when treated liberally during the summer they grow into compact little specimens, which flower in November and make a pretty display. They require a light, well-drained soil, plenty of moisture, shade from bright sunshine, and a stove temperature. They are also very useful for clothing the surface of large Orchid pots, such as those used for Vandas, Angræcums, &c. In the warm Orchid house at Kew there are some fine examples of this kind of thing, the effect being very pretty. The Sonerila does not deprive the Orchid of anything it requires, and it thrives perfectly when planted in the Sphagnum about the roots of a Vanda or large Angræcum.

ORCHIDS.

W. H. Gower.

CYPRIPEDIUMS AT THE WOODLANDS.

These just now are flowering freely, and they bid fair to continue so for months to come, one of the very best and most showy at the present time being the old C. insigne and its varieties, which contribute upwards of 500 flowers to the display, the varieties being albo-punctatum, Maulei, Fraseri, and numerous beautiful, but unnamed forms. The number of fine forms of this old species which have appeared within the last few years is quite astonishing, and the fact of its being so easy to grow renders it very popular. C. Spicerianum, also in great variety, is flowering in profusion; in one plant the dorsal sepal, which is usually pure white, is wholly suffused with rosy carmine, which renders it very attractive and showy. C. Sedeni and its variety porphyreum, and also C. cardinale, call for special notice for the number of flowers which are borne upon each spike; from the bracts on the upper part of the spike are produced numerous lateral stems which give a profusion of bloom and render the plants extremely showy, the richness of their colours being always acceptable. Here, too, are numerous others, amongst which may be noted that beautiful hybrid œnanthum and its variety superbum. I really think that if I were compelled to confine myself to one hybrid Cypripedium, œnanthum would be my choice; its flowers are neat and elegant and its colours bright. Cypripedium Arthurianum, a fine form of Crossianum, and C. Seegerianum, a cross between C. Spicerianum and C. Harrisianum, and in which the colour is very rich, were also in flower. Here also are various beautiful forms of concolor, which is still one of the best. The new French hybrid, C. Barteli, a cross between C. insigne albo-punctatum and C. barbatum, is also very beautiful, the dorsal sepal being very brilliant. An excellent large-flowered form of C. conchiferum is well deserving attention, as this form of the plant is a decided acquisition. Other notable kinds now blooming are C. callosum, auroreum, Hartwegi, Curtisi, tonsum, Io, Mrs. Canham, and Measuresianum. In addition to the above many others were sending up their flowers, and thus the Cypripedium house will be as gay throughout the dull winter months as a house usually is at midsummer. I would strongly urge upon the rising lovers of Orchids to cultivate this deservedly popular genus. Cypripediums are easily grown, flower freely, and the blooms last long in full beauty. It may be said that they are expensive, but although one may indulge his taste up to any extent, 150 guineas being given for a small plant of C. Marshallianum, beginners in Orchid culture can obtain some of these beautiful plants at Geranium prices.

Maxillaria praerupta.—Flowers of this species named by Prof. Reichenbach have just been received from Mr. Buchan at Southampton. The gardener, Mr. Osborne, says that in growth it resembles M. nigrescens; the flowers are large and fragrant; sepals and petals long, rich dark brown in colour, the lip being small and of a darker hue. It is distinct, and deserves a place in a large collection on account of the season at which it blooms.

Cattleya Bowringiana.—The more one sees of this lovely Cattleya the more it must be commended. I believe it is a Veitchian introduction. I have heard people depreciate this plant when

poorly grown and producing only a single flower. but grow it well and it will prove to be not only one of the showiest, but one of the most free flowering species of the whole genus. It likes warmth and moisture all the year round.—W. H. G.

THE MADEIRA ORCHID.

(ORCHIS FOLIOSA.)

MOST persons on seeing a well-established flowering mass of the Madeira Orchid for the first time exclaim what a pity it is that so distinct, stately, and beautiful a plant is not oftener seen gracing with its ample foliage and purplish spikes of flower a well chosen spot on the rockwork or peat bed. It must be that the plant is not well known, for the readiness with which it may be cultivated in any dampish flower border, its perfect hardihood, and beauty of both foliage and flowers combine to render this Orchid one of the most desirable plants in cultivation.

Half a dozen years' experience in the culture of this Orchid induces me to say that it is amongst all the hardy species one of the easiest to manage, and, what is equally commendable, it grows rapidly, single crowns soon increasing to a tufted mass of from five to seven or eight in as many years. The soil best suited for it is a sandy peat freely mixed with strong brown loam, to which may with advantage be added a handful of broken oyster shells. In planting the big fleshy tubers, care must be taken that they are not injured in any way, and it will be found a good plan to surround these with a small quantity of rough gritty sand. When the plants are a few inches above ground I have always applied a top-dressing of rich leaf mould, and in a few weeks it is surprising how the fibrous rootlets have found their way upwards into the compost.

During the growing season plenty of water should be supplied; indeed, I have not found it too much to give the contents of an ordinary watering-can each day, and this should always be applied in the early morning.

As a pot plant this Orchid does remarkably well, but it wants a large amount of space and gross feeding in order to bring it to perfection. The leaves in well-grown specimens are of rather unusual dimensions, they being as much as 10 inches long by fully 3 inches wide, and of a bright and pleasing green. In some of my own specimens grown out of doors the spike attained to the extraordinary height of 3 feet 3 inches, 7 inches of the top being thickly studded with flowers.

There is one little point in the culture of the Madeira Orchid that I would like to point out, and that is that a triennial lifting and dividing of the tubers are very important. They increase so rapidly and are of such a large size, that the soil in which they are planted is sure to become impoverished. To avoid this, lifting and dividing the roots are necessary, and advantage should likewise be taken of this opportunity for renewing the soil amongst which the tubers are growing.

The flowers vary much in colouring, that of some specimens being a deep purple, others have a pinky tinge, while others again are almost white. I have never seen nor possessed a pure white-flowered form, and should be glad to hear if such has ever been known.

Slugs are very fond of the young foliage of the Madeira Orchid, and that dreaded Orchid pest, the wireworm, works irreparable damage amongst the bulbs. The ravages of wireworm may be greatly minimised by using rough, sharp sand around the roots, while slugs must be hunted out and destroyed, or trapped by bran or Potatoes being placed in close contiguity to their haunts. A. D. WEBSTER.

Cattleya aurea.—There is no Cattleya so gorgeous as this. The lovely C. gigas, Mossiæ, and Trianæ pale before it, and it is a matter for congratulation that it is becoming commoner than heretofore. Mr. Roberts, Gunnersbury Park Gardens, recently had a splendid variety in bloom, and when in its truest character the colouring is intensely showy. The sepals and petals are gold colour, and the huge, spoon-shaped lip deep purple closely netted with rich yellow veins, except at the apex, where the colour is self purple of the deepest shade. It is very evident that this is but a form of C. Dowiana, and certainly cannot be classed as a species. It was formerly designated as a species, and one reason was that their habitats were far apart, C. Dowiana being a native of Costa Rica, while C. aurea was found on the Cordilleras, to the west of the Upper Magdalena, in New Granada, in company with C. gigas. But there is such a strong likeness between the two as to make the relationship undeniable. There is another point in its favour, and that is its autumn-flowering character. We hope that it will become as much cultivated as C. gigas and others of its race. A coloured plate of it is given in THE GARDEN for Feb. 4, 1882.—C.

Cattleya Massaiana.—This is a comparatively new Cattleya in this country, and I believe it has flowered out of one of the St. Albans importations. The flower is very large, showing well that it is a natural hybrid between C. Dowiana and C. gigas. The sepals and petals are of the same colour as those of gigas, whilst the lip is a beautiful combination. The front portion is wholly of that rich purplish crimson as in Dowiana, and the same colour extends in a somewhat narrow line along the middle of the throat to the base, and is more or less netted with lines of gold. On each side are the two eye-like spots, so conspicuous a feature in C. gigas, but here they are large and of rich golden-yellow. It is equally as good as C. Hardyana, and also very distinct.—G.

A fine gathering of Orchid flowers came on the morning of the 5th of November from Mr. Buchan. In the collection were many flowers of great beauty, such as those of Odontoglossum Insleayi splendens in variety, Oncidium Barkeri, a fine form, the flowers yielding a delicious odour resembling that of Violets, and a very fragrant species with narrow greenish brown sepals and petals, and a broad, bilobed, canary-yellow lip. This is a most desirable kind, which is unknown to me. There were also flowers of Trichopilia tortilis, a fine old Orchid, Pilumna fragrans, Dendrobium Jamesianum, and a form of Lycaste with the appearance of L. Skinneri, but which to me appears distinct and worthy of a name.

Cattleya chrysotoxa.—I have seen this new variety of Mr. Sander's at last, and it certainly is a gem. It has the appearance of C. aurea in growth, but is somewhat stronger, and the flowers, beautiful as are those of aurea, are infinitely grander. I recently observed C. chrysotoxa in bloom, close by being a very good form of aurea, and its distinctness is clearly to be seen. In chrysotoxa the flowers are much larger, especially the lip; the sepals and petals are soft clear yellow and without spot or blemish, the lip very large, the ground colour being of an intense deep velvety crimson-purple, the front portion being quite plain, but all the remaining portion broadly netted with lines of bright golden-yellow. This richly coloured flower to be produced at this dull season of the year renders it doubly valuable.—W. H. G.

MARKET GARDEN NOTES.

CHRYSANTHEMUMS.—If we are to have a continuance of such autumns as we have experienced this year and last, the majority of Chrysanthemum growers will not care to risk their plants in the open after the end of September. The losses from frost are greater this year than last, and no doubt late Chrysanthemum blooms will be scarcer than they have been for years. A friend who grows for local markets has lost every plant, both early and late kinds, and one grower for the London markets estimates his loss at £150. The value of the blooms is so much greater after Christmas, that those who grow for profit are tempted to keep their plants out to a much later period than it was formerly customary to do. That such a practice is fraught with danger everyone knows. No plant likely to be injured by frost is safe in the open air after the 15th of September. By the last week in that month it is customary to get all such things under cover. If, however, Chrysanthemums are housed at that time and the autumn and early winter should prove mild, the chances are that the grower will witness the passing out of bloom of the majority of his plants just as prices are going up. The problem of how to keep the plants safe from any frosts we have up to the middle of October whilst allowing them to remain in the open is one that the ingenuity of growers individually will have to solve. It is, of course, mainly a question of expense. The ordinary protection of canvas will not do; to be quite safe, the material employed must be of sufficient substance to guarantee us against 15° of frost, for we are liable to get that amount at any time in October. I have fully made up my mind not to be caught again. I would sooner give up growing for late bloom than have the mortification of seeing that the labour of a season has gone for nothing. One large London grower was fortunate to save his plants in a simple manner. They were laid down on their sides and thickly covered with straw. When the plants are in pots it is practicable to save them in this way when a severe frost comes on suddenly, but when they are planted out it is impossible to do so.

TOMATOES.—Growers of these will probably not agree in their estimate of the past season. As regards outdoor crops, there can be but one opinion. It has been the most disastrous year experienced for a very long time; indeed, I doubt if the oldest Tomato grower can recollect such a trying season. The summer was cold and wet, but a fine September seemed about to recoup us in a measure for lost time. Plants were strong, with plenty of fruit on them; we wanted no more than a fairly fine October to get it ripe. Then came the severe early frost, and in one night all were destroyed. Those who got their plants set out early under glass have done well—that is, where the disease did not take them, which was the case in some instances. The scarcity of outdoor fruit naturally led to a brisk demand for indoor produce, with the usual satisfactory result to the grower. Even late crops of indoor Tomatoes, that in a general way do not realise much, coming in, as they do, generally when there is so great a supply, have proved very profitable. Such seasons as we now experience will, no doubt, give an extra impetus to the culture of Tomatoes under glass, and will in a great measure discourage the outdoor growers. I know of one man who will not have made a penny from several acres of ground. The expense of raising plants from such an area is considerable, and the labour incurred through the summer is great. It is, however, what all must expect who grow in the open.

ARTIFICIAL MANURES.—There is, I find, an increasing disposition on the part of market growers to use bone-dust for outdoor crops of vegetables. I remember that once in THE GARDEN Mr. Peter Henderson said that he had yet to find a crop that this artificial stimulant did not suit. The term stimulant is, perhaps, not quite as applicable to bone-dust as to the majority of artificial manures. Some forms of concentrated plant food act immediately and forcibly on the plants, but they seem rather to diminish the natural productiveness of the soil than to add to it. Take nitrate of soda, for instance. This is a very forcing manure, and is a favourite one with growers here, being used with superphosphates, equal parts of each. It has a wonderful effect on growing crops, and is especially valuable for pushing on crops that are likely to be backward. But it is said to exercise a peculiarly exhausting effect on the soil. It is like the action of lime on some soils: it renders more soluble the nutritive properties already existent in the ground. Wherever this manure is used a heavy dressing is indispensable for the next crop. This objection may be made to some other manurial stimulants, but it does not apply to bone-dust, the beneficial effects of which more nearly resemble those obtained from good manure. The practice in this neighbourhood is to top-dress with it, well raking or harrowing it in. When a crop is seen to want helping a little, this, of course, is a good plan, but I do not see why artificial manures should not be worked into the soil in the same way as manure. We use them in this manner for potting; why not dig or plough them in? I have long used soot in

this way, as it then becomes thoroughly incorporated with the soil instead of lying on the surface waiting for rain to wash it in. Nothing can perhaps quite replace manure, but the labour of putting it on the land is great, and there is sometimes a difficulty in getting enough of it, so that it would be almost worth while trying how far bone-dust used in just the same way would replace it. I think that we are in our infancy as regards the employment of artificial manures. We ought to be able to save much more of the labour that the use of manure involves. Take the cost of carriage to a distance of twenty miles and the loading up at and hauling from the railway station, a ton of manure becomes, by reason of cost of transport, more expensive than it ought to be. The difference in this way between manure and artificial manures is so great that it behoves market growers to give the latter the best trial possible. A friend was lately complaining that he should be unable to do his ground quite so well as he would like this season owing to being short of manure. The nearest railway station is a mile and a half distant, so that in buying London manure there is a great expenditure of horse power in getting it home. This, owing to work generally being in a backward condition this late season, he thought he could not spare, and, therefore, some of the land must go undressed until spring and then be top-dressed. But I said, Why wait till spring in such a case? As much artificial manure can be transported in a day as would suffice for many acres of ground, and it would thus be incorporated with the ground and where the roots could find it as soon as they begin to work freely in spring. It is not only bone-dust, but other concentrated manures that can be used in this way. The objection that many make to artificial manures is that they are more or less lacking in some nutritious property. But it is always practicable to change the diet, and thus make sure that every element of nutrition is in its turn brought into the ground. J. C. B.

NOTES OF THE WEEK.

Strawberries flowering in Dorset.—Mr. J. Harris, Woolland House, Dorset, has sent us two specimens of Vicomtesse Héricart de Thury and Royal Hautbois Strawberries, both in flower and fruit. This is one evidence of the mildness of the season.

Iris Histrio from Ireland.—I send you herewith what I consider is the first of the Iris family from the open, I. Histrio, as the stylosa species has not yet flowered outside, although I saw you had a bloom of stylosa alba grown indoors from "Fota" some time ago. I. Histrio is a gem in its way, but it has not the colouring nor yet the fragrance of the netted species.—W. H. Blair, *Patrick Street, Cork.*

A new Grape.—A promising black Grape named Mrs. Clarke was shown last Tuesday at the Royal Horticultural Society's meeting by Mr. E. H. Woodall, of Scarborough. It is a cross between Gros Colman and Black Hamburgh, and has the good qualities of both parents. The berries are large, black, and firm in the flesh, but with much of the richness of those of the delicious Black Hamburgh. It deserves a thorough trial, as we badly want a good Grape for use in the winter season. Good quality is not one of the recommendations of Gros Colman.

Saxifraga Fortunei.—This is certainly a most beautiful species, and though almost sure to be damaged in the open air, we have found it do so well in a cold house as to be able to recommend it for this purpose with perfect confidence. We have tried to grow it in the open air for many years, but just when at its best it is caught by the early autumn frosts and destroyed. This year, however, we have grown the plants in pots in a cold frame, and when they showed flower placed them in an unheated house, the effect of large graceful racemes of pure white flowers being very striking. It may be propagated to almost any extent by division, and does well in ordinary soil in a rather shady position. S. cortusæfolia is a near ally of the above, differing chiefly in the shape of the leaves and in having entire, not serrated petals, as in S. Fortunei, and also in one or more being far longer than the others. It is a good plant, though not by any means so useful as S. Fortunei for the cool house or rockery. Both are natives of S. China and Japan. Another plant belonging to this section is S. cuscutæformis, a rare little species first figured in Loddiges' "Cabinet." It has been flowering since February, and is now (November 12) as gay as ever. It forms numerous runners like a Cuscuta climbing over the edge of the pots and hanging down in graceful, attractive festoons; the leaves are beautifully marbled or veined.—K.

Mesembryanthemum blandum is a good plant for flowering at this time of year. It grows to a height of about 1 foot, is shrubby, with narrow angular leaves 1½ inches long, brown branches and terminal heads of flowers. Each bloom is Daisy-like, white, tinged with rose, and measures nearly 2 inches across. This species blooms freely in the summer, as well as in November. The flowers also have the character, exceptional in this genus, of remaining expanded all day, whether the sun shines or not. M. curviflorum is another similar species. Both these are now flowering at Kew.

Sweet Gum (Liquidambar styraciflua).—This elegant tree retains its brilliant crimson foliage, unlike many other deciduous trees which are as bare as in the depth of winter. There is a specimen of it in the Royal Gardens, Kew, near the Cactus house, and it is most conspicuous by reason of the brilliant glowing crimson colour of the fading leaves. Such a graceful tree, that is not unlike a Maple in general outline, deserves to be planted, and it is one of the best of a comparatively small genus, the members of which are natives of North America, the Levant, and China. The flowers are greenish yellow, and they show an affinity to those of the Hamamelis, to which Order the Liquidambar belongs.

Chrysanthemum Cottage Pink.—This capital hardy sort is just now (Nov. 12) a great ornament in cottage gardens. I am always on the look-out for good hardy kinds for out-door bloom in November, but have never met with one that can equal this for good appearance and strength of constitution. No amount of rain spoils the flowers, and it does nearly as well in the open border as near or against a wall. The stems are strong and stiff, and the flowers (the nearest to a true pink of any I know), with their rosy centres, are held well up. The foliage also is strong and handsome, and turns a fine colour when the flowers are at their best. —G. Jekyll, *Munstead, Godalming.*

Sternbergias.—The past wet season seems to have had a very bad effect on these beautiful autumn flowers. The flowers on those bulbs received from sunny Italy are now almost past, while bulbs left in the ground all last summer show no signs of bloom, and, in some cases, not even of leaves. We are inclined to think that the Sternbergia must be lifted, dried, and baked if we are to expect flowers after such a damp summer. Indeed, there seems no other course open, and as our soil is very light and sandy the bulbs ought to have ripened here, if anywhere. We are told to have patience; that Sternbergias never flower until the bulbs have attained a large size; but large bulbs received from Italy two years ago flowered splendidly the first season, and now show no signs of bloom whatever. Have any of your readers had a similar experience?—K.

Primula prolifera.—Like P. floribunda and P. obconica, there seems to be no limit to the flowering time of this plant. It commenced with us early in summer, and from a batch of seedlings of about twenty or so we have had a succession of flowers ever since. There can be no question as to its being inferior to P. japonica or the other two mentioned above, but its flowers are pale or golden yellow. It is doubtless an acquisition, and may improve with cultivation. It seeds with the greatest freedom, the seeds readily germinating if sown as soon as gathered, but, I believe, if kept for any length of time they lose vitality. The name P. imperialis has been given to a synonym of the above, but this is considered by authorities in Primula lore to be erroneous. The last is a native of Java, and though a much more stately plant, I do not believe it will be half so useful for the garden. A plant being distributed in gardens at present under the latter name I consider to be nothing more than P. Jaeschkiana, a form of the well-known P. Stuarti, though it is easier to manage in every way. P. capitata is just now bursting into flower. It is a pity it does not select a more appropriate time to produce its charming flower heads. They are apt to damp off with us during this foggy weather.—K.

Rehmannia sinensis.—If planted at the base of a south wall, there can be no question about the above plant standing even the most severe winter. In Pekin or its neighbourhood we are told that it actually takes the place of our Wall Rue, Linaria Cymbalaria, &c., covering walls, waste places, &c. It was first collected by Dr. Burge, who accompanied the Ecclesiastical Commission to China, and who seemed to be much struck with its peculiar beauty. Its flowers under cultivation vary somewhat both in size and colour. They are moderately large, Gesnera-like, yellow-buff, deeply tinged at the mouth and upper part of the tube, and covered all over with dark purple hairs. It makes an excellent greenhouse or cool-house plant, and flowers nearly all the summer and autumn. The runners, by which it increases with great rapidity, can be readily detached.—K.

Zonal Pelargoniums at Langley Court.—It is not often that the zonal Pelargonium is grown in a private garden to such marked perfection as at Langley Court, Beckenham, the residence of Mr. J. L. Bucknall. The gardener, Mr. J. Kent, has cultivated the plants with considerable skill, as they are in the best health, and carrying from six to eight trusses of bloom each, the varieties being fifty in number. Everyone who knows anything respecting this flower will know that it makes a gay show during the autumn and winter under glass, especially when arranged in a span-roofed house some 50 feet long, as at Beckenham. The cuttings are struck in the spring, and the plants grown on in the usual way. The following kinds are amongst the best: Lady Frances Russell, pink; Lynette, crimson; Plutarch, brilliant scarlet; Zeno, crimson; Kate Greenaway, rich pink; Lady Chesterfield, salmon, beautiful shade; Lord Chesterfield, crimson; Raphael, scarlet; International, white; Countess of Derby, white, salmon centre; Edith Little, blush. These are all single varieties. Of the doubles, the most noteworthy are Duchesse de Carrs, white; Spade Guinea, scarlet; and La Cygne, white. We hope Mr. Kent will continue to grow a collection of zonal Pelargoniums, as there are very few better things for creating a great display in the greenhouse at this season of the year.

British Fruit Growers' Association.—This association recently met in the Royal Aquarium to consider the question of railway rates in fruit transit. Mr. T. Francis Rivers, who presided, in opening the proceedings congratulated the association on the very encouraging success which had attended its formation. They had succeeded in drawing public attention to the necessity of thoroughly examining the possible outcome of the decadence of industrial fruit-growing in this country, and arresting the serious loss which would undoubtedly occur if measures were not taken before the evil had gone too far. The association would not have been formed in vain if it could succeed in attracting the serious attention of cultivators to the best means and methods by which the country could hold its own in the competition with which it was threatened. There was good ground for believing that the cost of the transport of fruit was much greater than it need be, and that this cost pressed heavily on one of our native industries. Mr. Albert Bath, Sevenoaks, gave a series of examples of inequality in railway rates from towns in Kent at an equal distance from London, instancing Reigate and Gravesend, with a difference of 5s. per ton, and Halstead and Dartford, 3s. per ton. From Maidstone the charge was 20s. per ton, and from Canterbury 30s., both of which rates he considered excessive. Ultimately it was agreed to request the executive committee to collect all available information on the subject of railway rates in fruit transit and fruit distribution, and to enter into communication with this object with the Railway and Canal Traders' Association, and report to a future meeting.

FLOWER GARDEN.

LARGE-FLOWERED CLEMATIS.

THE value of these for decorating wall spaces is well known, but pretty examples are worth recording. The engraving shows one of the large white ones of the lanuginosa section trained up a wooden window-mullion, while a densely-flowered mass of C. Jackmanni clothes the other angle of the window, the two forming a brilliant and agreeable contrast. For nearly six months



Window garnished with large-flowered Clematis.

in the year the Clematis family are conspicuously beautiful in our gardens; besides these large-flowered summer-blooming kinds, the smaller-flowered C. montana gives its wealth of white blossoms in May; the wild Traveller's Joy (a plant by no means to be excluded from gardens) flowers in August, and the lovely and sweet C. flammula in September and October.

Late-planted auratum Lilies. — Like your correspondent "W. W.," at p. 407, I have had a remarkably fine display of Lilium auratum from bulbs that were not potted till May; indeed, I have followed this practice now for some years, in order to have a few in flower as late in the season as possible. I do not mean to say that the bulk of my Lilies are kept till then, for many years' observation has convinced me that when it is intended to repot or move Lilies in any way, by far the best time for the purpose is during the autumn months. Such being the case, the treatment given here to most of the imported bulbs of Lilium auratum is as follows: When they are received they are placed on a bed of Cocoanut fibre in a cold frame, and just covered with the same material. The fibre should be slightly moist, and an occasional watering given to prevent it becoming too dry. Thus treated, after two or three weeks the young roots will commence to push out from the base of the bulb, and as soon as they make their appearance is the time to pot them. One great advantage of laying them in for two or three weeks before potting, is that an opportunity is given to remove any signs of decay that make their appearance, for imported bulbs are often bruised a little on the outside, and this is a source of danger. After they have been laid in the fibre for a little while, and then lifted, any decaying spots being removed at the same time, if potted at once it is seldom that the disease appears again. One thing I have particularly noticed with bulbs of L. auratum that were not potted or planted till late in the spring is that, generally speaking, the mortality among them is much greater than in the case of those that were put in the ground, at all events before the end of the year. On turning out a number that had flowered in pots, consisting of both early and late potted plants, I found considerable difference between the conditions of the two; for while the bulbs of those potted early in the season turned out at least fairly well, the bulbs of the late ones had in many cases almost disappeared. The reason of this is, I think, to be found in the fact that whereas the autumn potted ones are well rooted before they start into growth, the others push up their flower-stems when there are but few roots at the base of the bulb, and, consequently, the flowers are borne at the expense of the bulb itself, the principal roots being those around the bottom part of the flower-stem, while a quantity of roots at the base of an established bulb enable it to recoup its exhausted energies.—H. P.

AUTUMN FLOWERS.

I THINK I never saw hardy flowers in better condition than this autumn. The Indian Pink, Drummond's Phlox, Stocks, and double-flowered Zinnias have been very effective. Hollyhocks, Dahlias, Sunflowers, a legion of Poppies, Japanese Anemones, and the Starworts, or Michaelmas Daisies, have worthily filled in the blank left by the dulness and want of effect of the ordinary bedders. Among the bulbous plants which cannot be dispensed with are the Gladioli, which are later than usual, but none the less effective. Another bulbous plant which is becoming more common, and deserves its increasing popularity, is the Hyacinthus (Galtonia) candicans. It is now cheap enough to plant in a good sized mass. One of the most effective beds I have seen this season was composed of a groundwork of the old Peruvian Heliotrope, with this Galtonia dotted thickly about it. The Colchicums are now making pleasant little dots of colour on the rockery and in the borders, and by-and-by the yellow Amaryllis, or Sternbergia, will be very attractive. This has a pretty effect in pots. The bulbs will not require repotting till the plants require more room. They may either be shifted into a larger pot or divided. A well-flowered little mass on the drawing-room table in November will attract more attention than the plants usually found there. Everybody with a bit of naked wall should plant Veitch's Virginian Creeper, 3 feet or so apart, and get the bottom of the wall covered first before permitting it to grow upwards.

Now that the planting season has arrived I may say that there is plenty of work for the tasteful planter all over the country in breaking up the severe formalism which is too prevalent in most gardens, and substituting choice bits of natural growth. Something more might be done with the water, both as a source of ornament and as a reservoir for future need. The water supply and its distribution are weak points in very many gardens, the hand-to-mouth principle being the one chiefly adopted, even by those who have the means to do things well. There is economy in providing in some permanent fashion all things absolutely necessary. E. H.

Cannas.—I was pleased to read Mr. Douglas's notes on Cannas in THE GARDEN, as this popular genus is still increasing in value in France since the Lyons florists, and especially M. Crozy, have produced quite a new strain of varieties, particularly ornamental for the beauty of their flowers. During a visit to England a few weeks ago I saw Messrs. Veitch's collection of these, which Mr. Douglas has described. They certainly were fine, but being grown indoors they looked somewhat different from those we grow outside here. The flowers are softer and more delicate, but the plants less vigorous and the spikes less robust. Such varieties as lutea splendens and Léon de St. Just have developed

with us fine branched spikes as long as a man's arm, and that on small plants divided early in spring. The exceptionally bad weather we had this summer has not affected them so much as we feared, and the bright days of September induced them to flower sufficiently to bear comparison with Gladioli when seen in the distance. If taken inside at the beginning of October, they keep blooming and also ripening their Pea-like seeds. From our thirty-five different varieties, the best ones are Antonin Crozy, Epi d'Or, Geoffroy St. Hilaire, Jeanne Charton, Lutea splendens, Mme. Bernard, Mme. Just, Ulrich Brunner, Felix Crousse, Francisque Morel, Louise Thibaut, Victor Hugo. Years ago, and even now, the Parisian florists supply the markets with common sorts of Cannas, in the pots of which two or three spikes of Gladioli are inserted. These give all the more satisfaction, as, when the plants are sufficiently watered at the roots, these flowers remain fresh for a week or more.—J. SALLIER, *St. Germain en-Laye.*

LILIUM SPECIOSUM ALBUM NOVUM.

"H. P." (p. 406) would appear to have made out a good case with regard to his selection of the above Lily, at least from his own stock, though I can assure him were he trusting to the same frail rules for guidance in selecting from those in my charge, he would be very wide of the mark when flowering time came round. When I wrote (p. 358) that I did not regard this leaf character to which "H. P." referred as constant, I had the best possible proof for making the assertion, and have even now opportunities left of substantiating what I have already stated to be facts. At the present moment I have a solitary instance of a bulb of Krætzeri which has produced two flower-stems; one of these has the foliage disposed as is customary with Krætzeri, while the other has the foliage in two lines for nearly its full length of stem, a state of things which would no doubt trouble "H. P." in arriving at his conclusions. I should have been pleased to have sent it to the editor had a flower remained upon each; still, the fact remains. With a view of illustrating my case I send you herewith a stem or two of these Lilies wherein the leaf characters are exactly reversed. In No. 1 the leaves are arranged in two lines for nearly one-half the length of the stem; a glance at the flower will at once prove this to be Krætzeri. In No. 2 the leaves are disposed just as they are usually found in speciosum roseum, *i e*, indiscriminately upon the stem for its entire length, and by its flowers and yellow anthers this will be seen to be album novum, thus showing how changeable they are in this respect. Indeed, I regard such frivolous changes of leaf as purely accidental, such as may not appear again in similar form next year, and unless of known constancy should not be set forth as typical or characteristic of anything likely to confuse or mislead in the future. If this leaf character were fixed in one variety only it would form a valuable means of identity, but it is not so, as amply shown in the flower-stems I enclose, and therefore valueless. I am pleased to see that in the main the experience of "H. P." with regard to the relative value of these two Lilies, and also their flowering, as well as the manner in which they were introduced into this country, is a counterpart of my own. E. JENKINS.

SHORT NOTES.—FLOWER.

Gladiolus Ville de Paris.—I wonder why this variety is not found everywhere; it was raised and sent out a few years ago by M. Pelletier, a good and experienced grower. It is of quite a new strain, and I am told that some new varieties of it will soon be sent out. The spike is quite a double one, as flowers are to be found on the two sides of it. It has certainly been a great surprise to everyone who saw it for the first time.—J. SALLIER, *St. Germain en-Laye.*

Echeveria secunda glauca.—Plants of this useful summer bedding plant that have formed the margins of beds should be lifted without delay, and planted in a cool frame for the winter. To ensure safe wintering, the plants should be kept dry; it is wet, not so much frost, that kills. If the plants that are removed from the beds are carefully planted out in fairly moist soil no water will be required until spring. When thoroughly dry the plants will bear 12° of frost. I have known hundreds of plants of the hardy Sempervivum californicum perish during the winter through sharp frost following heavy rain, and setting in when the plants were thoroughly saturated with moisture. Many things are lost in winter through this cause. —R. D.

SELECTIONS OF NAMED CARNATIONS AND PICOTEES.

THE autumn is the season of the year in which a selection of plants should be obtained; they can then be had from the pots in which they were layered, and they will be in the right condition for potting for the winter. When received, if they are purchased in pairs, as is the usual method of selling them, they should be potted in 4-inch pots, placing the two plants of any one variety in the same pot, one on either side, and pressing the soil firmly about them. I may state that when I receive plants that are only a little rooted—for some layers are longer in becoming rooted than others—I invariably put a little sand or fine Cocoa fibre about the roots, which proves very helpful in inducing growth. The plants can then be stood upon an ash bottom in a cold frame, any amount of air being given, but with the lights so tilted that heavy rains can be warded off. A good compost is made of a fertile yellow loam, some well decomposed leaf manure and silver sand. A larger or a smaller pot can be used according to the size of the plants and the extent to which they are rooted.

In making a selection I am content to take a few good standard sorts that I know to be good and worthy of being grown. Of scarlet bizarres, a section to which the exhibitor attaches the highest value, there should be Admiral Curzon, Arthur Medhurst, Robert Lord, George, Edward Adams, and Master Stanley. Mr. S. Barlow's fine new variety Robert Houlgrave deserves a place in the selection, but its price is high at present. Of crimson bizarres, Harrison Weir, J. D. Hextall, John Hasland, Master Fred, E. S. Dodwell, and William Bacon. Of pink and purple bizarres, Sarah Payne, Squire Llewelyn, Squire Penson, William Skirving, Sir Garnet Wolseley, and Thomas Anstiss. Of purple flakes, Mayor of Nottingham, James Douglas, Squire Whitbourn, Florence Nightingale, Martin Rowan, and George Melville. Of scarlet flakes, Clipper, Annihilator, Sportsman, Scarlet Keet, Henry Cannell, and Matador. Of rose flakes, James Merryweather, Crista-galli, Sybil, John Keet, Mrs. Bridgewater, and Mr. Erskine Wemyss.

Of Picotees, red edges, J. B. Bryant, Thomas William, Violet Douglas, Brunette, Mrs. Gorton, and Dr. Abercrombie. Of purple-edged, Mary, Zerlina, Mrs. Niven, Nymph, Ann Lord, Clara Penson, Muriel, and Baroness Burdett Coutts. Of rose and scarlet edges, Mrs. Aldcroft, Mrs. Lord, Fanny Helen, Miss Wood, Favourite, Nellie, Edith D'Ombrain, and Mr. Sharp.

Opinions will differ as to the wisdom of this selection. I have rather sought to give good varieties that are on the whole sturdy growers, and I think such varieties will be found in the foregoing lists. Not a few of them are among the best that can be placed upon the exhibition table.

When one comes to deal with the large class of self-coloured flowers the difficulty is greater, because every raiser of Carnations is found sending out new varieties. The best thing I can do is to give my impressions of what I saw during the past season, and the varieties to be named can be procured at a moderate cost. They are Cleopatra, carmine-purple; Florizel, rich ruby-maroon; Gladys, delicate fleshy pink; Imperator, bright mauve-purple; Joe Willett, rich deep scarlet; Malvolio, ruby-crimson; Mrs. Alfred, bright pink; Mrs. George, rosy pink; Mrs. Holliday, rich rose, shaded with pink; Mrs. Markham Hill, white; Purity, white; Ruby May, rich velvet ruby-red; The Mayoress, dark velvety maroon; The Maestro, rich dark maroon; and Tyrian Queen, rich purple. Of the yellow selfs, Chromatella, Edith, Germania, Florence, Pride of Penshurst, and Will Threlfall.

Then of the fancy class, which comprises flowers of two or more colours, and among them some very beautiful things, I would select Countess of Bective, pink, flaked with maroon; Eurydice, crimson and purple; Huson Morris, crimson and maroon; Mrs. Lockhart, white ground, flaked with delicate rose; Mrs. Mostyn Owen, crimson and dark purple; Peter Simple, scarlet, flaked with maroon; Sir Toby Balch, scarlet and dark maroon; The Maestro, scarlet, flaked with dark maroon; and the Rev. R. Markham Hill, carnation, flaked and pencilled with maroon.

Anyone purposing buying in a collection of Carnations and Picotees should get them at once and pot up with all dispatch. There is nothing like getting the plants established in pots before the winter sets in. They do better and flower more finely in consequence. It is doing what Mr. E. S. Dodwell terms "laying a good foundation," and that is a matter of the first importance to the Carnation grower. R. D.

NOTES FROM SHIREHAMPTON.

ONCE in the month of May I spent several hours digging up bulbs on a farm near Blöemfontein, South Africa. I believe they were Massonias, though they did not quite answer the description I have since read of this race of bulbs. They were about the size of those of a Snowdrop, and had two leaves which lie flat on the ground, the blooms being pure white, sometimes turning violet or pink when nearly over, the seed being hard and black. As I obtained blooms from seed in twelve months and brought bulbs to England, I should be glad to hear if anyone has flowered them in this country. My bulbs I sent to Mr. Ware, but they were mislaid. I mention these bulbs to ask for some information about planting bulbs in pots. These Massonias, like Brunsvigias and Crinums, in their own country are found at some distance down in the soil; if they were not deep down, the Grass fires and prolonged droughts would soon cause their disappearance. On the hillsides one sees Brunsvigia bulbs as big as one's head. It is said that the deer dislodge them to eat them. At any rate, I have only seen them in bloom on flat ground or where there is some depth of earth, and then they are always buried rather deep. Now, in England, where the ripening of a bulb by the heat of the sun is necessary, it seems to me that every bulb planted in a pot should be planted on the surface absolutely. I have seen the problem of blooming Lilium auratum three years running in the same pot solved by treating the bulbs in this way, and the blooms were very fine. The same gardener, a neighbour of mine, treats pot-grown Gladiolus The Bride precisely in the same way, and most successfully. I bloomed a great many Lilium Harrisi this year, and only half covered them when I planted them. Cocoa-nut fibre was laid over the top of the bulbs till the shoots appeared, and the bulbs look in good condition. Do we not lose a very large number of bulbs by deep planting in pots? I do not know what to say about bulbs out of doors, but I am inclined to believe in shallow planting, provided a thorough protection of ashes be given in winter if the bulb is a delicate one. The Massonia alluded to above is a winter bloomer. It has a delightful perfume, but an ugly, thick head of blossom, not an inch above the soil and about 2 inches across. C. MILES.

Sunny Hill.

Helianthus multiflorus fl.-pl.—"Soleil d'Or," in THE GARDEN, Nov. 3 (p. 406), replying about Helianthus, says he does not know the variety alluded to by me (p. 358), and which I stated I had been acquainted with for about ten years. Yet he says: "No doubt the London plant did exhibit one or two blooms this season in character and in shape similar to those of a malformed Victoria Aster and devoid of the characteristic outer florets, the blooms then becoming very ugly, ill-shaped monstrosities." This I take to be the one of ten years' acquaintance, and which, according to "Soleil d'Or's" twelve month's experience, seems to bear out my remark at p. 358 as regards the variable character of Helianthus multiflorus fl.-pl.; but which, although as stated (p. 358) I do not admire so much as the normal double form, nevertheless deserves more

praise than "Soleil d'Or" gives to it at p. 406. If this is not the one I meant, then "Soleil d'Or" is making out that there are four double forms of H. multiflorus (Linn.). This I do not believe, and still adhere to what I said (p. 358), that H. multiflorus may be said "in commerce" to consist of three forms. I did not say that "in commerce" it only consists of three forms, but such I believe to be the case, and certainly by note in THE GARDEN, Sept. 24, 1887 (p. 283), which note I drew attention to, as what was then designated H. multiflorus grandiplenus being a welcome addition to gardens as a plant not in commerce. Taking that as correct, how is it that a form so remarkably distinct as to possess, as "Soleil d'Or" now says, quilled petals was not in commerce? "Soleil d'Or" also says that he has been in possession of such a plant for twenty years. It seems a remarkable thing if he has been in possession of it for that length of time that such a form is still so little known. In my previous note (p. 358) I, moreover, did not say that a quilled variety would be impossible, but I have now, as then, to be convinced that there is in commerce such a form meriting the name of "quilled petalled" or differing from the form mentioned (p. 358). I think from the many plants I obtained from all parts of the country under the name of H. multiflorus grandiplenus I should have found it. However, if "Soleil d'Or" can convince me in any way, or by sending me a plant, I will admit, through your columns, what I find it to be; but without such, and knowing that for trade purposes names of plants are much twisted, I shall adhere to what I stated (p. 358). "Soleil d'Or," writing of the normal double form as the London plant (p. 294), says he would like to designate it anemonæflora. Why create surplus names, and why speak of it as the London plant?—a plant which is as generally and as plentifully grown in provincial nurseries as in those about London.—S. APPLETON, *St. John's, Worcester.*

NOTES ON HARDY PLANTS.

Primula frondosa.—What are the points of difference between the plants now being cultivated under this name and P. nivalis (Pall.)? It seems that P. turkestanica is already recognised as identical with P. nivalis.

Double yellow Rocket (Barbarea vulgaris plena).—I find the present a good time to propagate this much sought for plant, and what is more, it is all the better for division and a fresh soil every year, though its duration is that of a consistent perennial. Almost before the spikes of blossom fade every leaf turns sere, and for a week or two in late summer with me it seems dead, but in October and November the fresh leaves appear, and the plant remains green until summer again. To lift now and cut through the old stools would be the proper thing to do, placing such as have plenty of good long roots in the open borders at once. Spare-rooted divisions I would pot and place in a cold frame until spring, because if set out before winter the frost will probably disturb them.

Parochætus communis.—Among the flowers which continue to the last to make a show this is one. Unfortunately, it does not live through the winter in some gardens, but even in such cases it is worthy of being either protected or replaced annually. If at this time the creeping stems were thickly mulched with leaf-mould or covered with ashes, most likely they would survive the winter. It may be described as a creeper with small Clover-like foliage, but bearing sky-blue Pea-flower-like blossoms.

Colchicums.—When the flowers are just past seems both a fitting and convenient time to transplant the crowded clumps, and even when not crowded it is a good plan to divide them and change their quarters somewhat frequently, each time bringing them nearer the surface. It is well known that all the bulbs of this genus work their way deeper every year. I know that many prefer to transplant before the flowers are borne, and no doubt they have good reasons, but for the later lifting at least the advantage of the current season's normal flowers may be claimed, and if the new roots are carefully examined it will be seen that there is really not much difference in their condition before and after flowering. In both cases they are just bursting forth. The most important point is to replant without delay, when even the more delicate sorts will flower the following year as well as or better than if they had not been disturbed.

Woodville, Kirkstall. J. WOOD.

FLOWER GARDEN NOTES.

HARDY PERENNIALS.—The heavy rainfall of the past fortnight has quite spoilt the flowers of every species, and the whole garden now wears such an aspect of untidiness, that as soon as the weather gets a little more settled we mean to set about lifting and rearranging the border generally. I often wish that all the plants would do the better for annual lifting, because it would then be so much easier to apply manure and fresh soil that very many of the plants need every year; but as this is not practicable, the next best plan to adopt is to lift all that are the better for removal and deeply dig and manure the ground, working the fresh material well round the plants that it is deemed desirable not to lift, and at once replant the remainder, of course having previously taken off any portions of roots that may be required for increase of stock. The species that are best left untouched for a series of years are not many, but the difference in those plants that are lifted and those that are not lifted is so great, that it is worthy of some pains to learn which plants are benefited by lifting. I name those I myself have noted: Acanthus latifolius, Anemone japonica, Arundo Donax, Ferula communis, all the Funkias, Galega officinalis, all the Hellebores (Christmas Roses), Iris, Pæonies, Spiræas, Tritoma Uvaria, and others, of which my experience has not yet been sufficient to enable me to speak with confidence. Of course by far the best portion of perennials will bear annual lifting, and are, in fact, the better for it. Besides the fact that flowers are over for the season, there is another strong reason why such borders should be put in order at once, and that is the planting of spring-flowering bulbs, such as Hyacinths, Tulips, and Narcissi. It is quite time these were planted, and a few clumps dispersed about such borders add greatly to its beauty at a time when there are but few herbaceous plants in bloom. With regard to arrangement of plants in such borders, it is a vexed question, and withal a very difficult one, and I do not claim to have solved it further than to have satisfied myself that grouping of the plants in preference to "dotting" or planting in single file is by far the most effective way of arranging the plants. This plan we follow, of course, in a general way, keeping the tallest growers at back and the dwarfer to the front, but not after so strict a fashion as to the obtaining of an even height of growth in either a line or a series of groups of plants.

TUFTED PANSIES.—Cuttings of these inserted in hand-lights about the middle of September have rooted so rapidly that already the plants are overcrowded, and must either be thinned out now, or we must be content to have long straggling plants to put out in spring. The former is not to be thought of, and, therefore, transplanting has been decided on, and having neither space in frames nor handlights to put them in, a border immediately at the foot of a south wall is being prepared for their reception, by adding about 3 inches depth of light loam and leaf soil. The width of border from wall does not exceed a yard, so that in case of severe frost it will be an easy matter to protect the plants with hurdles placed, in a slanting position, against the wall, or failing these, with mats tied to stout stakes, also resting against the wall. They are worthy of all the care requisite to preserve them, there being few other hardy plants so valuable either for spring and summer bedding, or for planting in mixed hardy flower borders. Some of the old plants that were left in the beds when clearing them for planting shrubs, &c., for the winter are still in flower, the varieties Blue Bell, Hardwick Yellow, and elegans being worthy of special mention.

PROPAGATION OF HARDY CARPET BEDDING PLANTS.—Hardy carpeting plants will do duty—without being replanted—more than one year, but having once left them to serve for two seasons, I would never repeat it, having very vivid recollections of the tendency to flower the plants manifested and their shabby appearance after blooming, as well as of the efforts made to get the plots to look at all like those that had been freshly planted. Our rule is to plant afresh each spring, and the plants are prepared at leisure any time between September and December. We have now the work in hand. A border in the kitchen garden is made ready for the plants by digging, finely sifted vegetable soil being worked in near the surface, which is made smooth and firm, and it is then ready for the plants—or, to be more correct, particles—which are dibbled in with a small stick almost thick enough to touch each other. This finished, a heavy hand-roller is passed two or three times over the border and the operation is complete. This pressure is of the greatest service in fastening the offsets in the soil, and birds are not nearly so troublesome; but it is always desirable to guard against their mischievous acts by netting over the entire border. The species of plants that can be propagated in this way are all the dwarf Sedums; Sedum glaucum, Lydium, and corsicum are the only varieties we grow; all the Stonecrops, and our varieties are acre elegans and a. elegans variegatum, and Herniaria glabra and hirsuta, Veronica repens and prostrata, Thymus hirsutus, lanuginosus, and serpyllum.

PLANTING EARLY SPRING FLOWERS AMONGST HARDY FERNS.—So many of these are deciduous and do not begin to push growth until late in spring, that a display of spring flowers is possible before the Ferns fill out the space. For some years now we have done a little in this way, and would do more if space and means permitted. Primroses, Wallflowers, Forget-me-nots, Snowdrops, and Daffodils are about all the flowers we have hitherto been able to spare for the purpose, but this season we are adding a few clumps of Hyacinths, Tulips, Narcissi, Crocuses, and Scillas. The work has necessitated the taking away of the dead Fern fronds here and there, and this we never like to do, for there is no doubt but that Nature intended that they should be left as protectors of the plants. There is one serious drawback to the practice of planting bulbs in such positions, and that is that Ferns and rockwork generally afford a harbour for rats and mice, and the safety of the plants can only be assured by putting down near the runs of such vermin occasional supplies of phosphorus paste—a sure antidote.

W. W.

CHRYSANTHEMUMS.

E. MOLYNEUX.

WHAT CONSTITUTES A GOOD BLOOM.

GROWERS of Chrysanthemums not having had experience in exhibiting cut blooms, and who wish to enter the lists during the coming season, will be puzzling themselves as to what the qualities of a good bloom are. I find there is a misconception amongst beginners as to what constitutes a good bloom both in the incurved and Japanese sections. Persons without experience often regard their blooms good enough to take prizes when seen daily at home, but when staged beside others they are often found wanting, thus ending in much disappointment to the grower. This generally occurs to those persons who have not visited a show where typical blooms are exhibited. Much better for such persons, and for the exhibitors also, if some advice could be given whereby a better idea could be formed of the characteristics of a good bloom in the several sections of Chrysanthemums. The incurved section, on account of the importance in which it is held, claims first attention. I will give what, in my opinion, are the qualities required in an incurved bloom. It is a fault amongst young growers to imagine that mere size is the only desideratum. Size, I grant, is the first object a cultivator has in view, but it must be accompanied by other good points. The qualities as I place them are size, depth, solidity, breadth of petal, colour, freshness, form, and finish. The colour of the

flowers varies according to atmospherical conditions, being much deeper and richer where the air is dry and pure and the soil strong than it is in other districts where the light is less intense (as in the vicinity of large towns), the situation low and damp, and the soil light and sandy. All blooms after being dressed are smaller, especially in depth, than before any manipulation of the petals had taken place. I prefer to measure them when dressed and arranged on the boards, as when growing on the plants or before being dressed they are deceptive. They are always reduced somewhat by cupping in the depth, notably those that are not solid. The diameter of a dressed representative bloom of The Queen type should not be less than 5 inches, nor its depth less than 3 inches; the blooms are often larger, but the size mentioned indicates a good average specimen. I place The Queen type first as being the most important in the incurved section, numbering as they do seven distinct kinds, all partaking of the same form and size, and representing various shades of colour; and being perhaps the most difficult to obtain in good condition, they are deserving of the premier position, and generally carry the most weight with good judges. Hero of Stoke Newington is a typical medium-shaped bloom; this should not be less than 4 inches to 4½ inches in diameter and 2½ inches to 2¾ inches deep. This variety produces some of the deepest flowers we have in proportion to the diameter of each. A smaller type is represented by Princess Teck, which is one of our best varieties, possessing much solidity of petal when in good condition; 4 inches in diameter is a good size for this, and 2½ inches deep. Another type of bloom is represented by Prince Alfred and Lord Wolseley, two popular varieties with exhibitors. The largest and best blooms of these sorts are generally too early for southern shows, but generally in right condition for midland and northern counties. Blooms of the larger size should measure 5 inches in diameter and 3½ inches deep, while in the case of the second, or terminal, blooms, generally depended upon by southern exhibitors, the size should be 4 inches by 3 inches deep. Solidity is an essential point of merit. An experienced judge knows at once when he sees flowers which are not solid, as the florets do not lie evenly over each other. Solid blooms should bear squeezing between the finger and thumb without being injured or indented. Blooms of any particular variety which are not very broad in the petals are often more solid than those which have florets of greater breadth. Breadth of petal without coarseness is an acquisition, the breadth being due more to the nature of the soil used in growing the plants, and also to a low and damp atmosphere at the time of expansion and while the buds are swelling, than to skill in culture. Good growers try their utmost to produce blooms with broad florets, but owing, perhaps, to the absence of the conditions named, fail to achieve their object. Form is depth consistent with the diameter in proportion to the sizes named. Finish is the manner in which the flowers are dressed, whether smooth in outline or rough in appearance. Freshness is a point which carries more weight than, perhaps, almost any other with judges. Blooms devoid of freshness lose points at all times in competition, for adjudicators have only regard to the present condition of the blooms, taking no account of their state a week previously. A want of freshness can be detected at once, showing, as it does, around the bottom petals by discoloration and softness of the texture. This defect can be detected in any light by feeling the lower petals; if fresh, they are stiff and crisp to the touch; if old and "past," they feel limp. Flowers should be chosen which possess good colour, as blooms vary much, even on the same plant, owing to age; therefore much importance attaches to the best colours in all cases. The colour in the yellow-flowered varieties should be clear, as, for instance, orange shades of yellow are easily seen if they are not up to the standard; primrose, too, is sometimes pale, being nearer dirty white; the lilac flowers show more than any others want of colour, and lose their colour quickly.

Japanese varieties being much in excess of the incurved in point of numbers, and as the types vary so much, rather more instances will be required to define the quality of some of each type of Japanese kinds. Taking the incurved form first, Mme. C. Audiguier first claims attention, as nearly all good stands of blooms contain this variety. Seven inches in diameter and 5 inches and sometimes 6 inches deep is good for this variety. Comte de Germiny, 6 inches by 4 inches; Boule d'Or, 8 inches by 5 inches; Thunberg, 7 inches by 4½ inches; Edwin Molyneux, 7½ inches by 4½ inches, will suffice to show what sizes the incurved section of Japanese ought to command. The loose-petalled or tasselled sorts should measure, say, for Belle Paule, 7 inches to 8 inches; Meg Merrilies, 9 inches; Fair Maid of Guernsey, 8 inches; Baronne de Prailly, 8 inches; Jeanne Délaux, 7 inches; Mlle. Lacroix, 7½ inches; Triomphe de la rue des Chalets, 7 inches; Val d'Andorre, 8 inches; Avalanche, 7 inches; and Margaret Marrouch, 6 inches. Japanese reflexed varieties are now made a class by themselves, of which Elaine is a type. This variety should measure from 5 inches to 6 inches in diameter and be 4 inches deep. Maiden's Blush should be the same. Dr. Macary, 6 inches; L'Africaine, 5½ inches; Père Délaux, 5 inches; and La Nymphe, 5 inches also.

Reflexed varieties should be deep and solid as well as large in diameter; the deeper these sorts are the higher the quality they combine. King of Crimsons, 5½ inches by 4 inches; Golden Christine, 5 inches by 3 inches; Cloth of Gold, 5 inches by 3 inches; Dr. Sharp, 5 inches by 3 inches; Mrs. Forsyth, 4¾ inches by 3¼ inches. Anemone Japanese Mme. Cabrol, 8 inches; Sœur Dorothée Souille, 6 inches; Fabian de Mediana, 8 inches; Mme. Clos, 6½ inches. These few sorts will suffice to give an idea what blooms of this section should be in diameter. At the same time the disc on the centre of each is the all-important point in their quality, and is entitled to the first consideration. This should be full of even quilled florets, rounded from the guard florets to the opposite side. The guard florets should have a continuous fringe all round, be even in length, and on an average all should have a slight drooping habit. Anemone-flowered varieties find favour with many persons. In this section the centre florets should be full and even in length, without any imperfections, such as deformed petals. The ray florets should be quite round and of even thickness, showing no gaps or other imperfections. Sizes should range somewhat like the following: Acquisition, 5 inches; Fleur de Marie, 5 inches; Mrs. Pethers, 5 inches; Glück, 4½ inches; and Grand d'Alveole, 5 inches.

Pompon and Pompon Anemone-flowered varieties should have full, rounded flowers, not too large, but compact and of good colour; the guard florets in the Anemone Pompon should be particularly even in width and length. The foliage, with which they should be cut along with the stem to the length of 7 inches for the back row, and so on in proportion to the height required of the middle and front rows, should be deep green in colour, as this so much improves the appearance of a stand of cut blooms. The best way to measure the blooms when on the plant is to place the left hand under the florets and gently raise them to a horizontal position, then with a rule passed under, the size can be determined. In the case of irregular petalled kinds, it is not well to take the extreme outside size, but take a fair average measurement consistent with the depth of the flower. Sometimes one or two florets will have advanced a long way beyond the general quantity, and to measure such would be misleading, as all flowers of the same kind do not have these extra long florets. In considering the depth, allowance must be made for reduction in that part which is made when incurved blooms are cupped ready for show to allow of the petals being arranged in proper form, and which much reduces the flowers in depth, because the weight of the petals without support has a tendency to deepen the blooms, and when measured in this manner disappointment often occurs when prepared for exhibition and allowances have not previously been made. When measured on the stands the correct sizes are more easily obtained.

SHELTERING CHRYSANTHEMUMS.

Of late years a new departure has been made in Chrysanthemums. Some varieties bloom during the summer, and these of course require no shelter. The blooming season of others extends a long way into the winter. A few, such as Boule de Neige, may be had in good condition in February, and I have no doubt that in the near future, if it should be necessary, Chrysanthemums will be had in bloom all through the year. But to have the Chrysanthemum in perfection in autumn, the flowers must be sheltered from the early frosts. The best protection, of course, is glass, and Chrysanthemums may be conveniently and profitably worked in connection with the orchard-house system of growing fruit trees in pots. When the fruits of Peaches and Nectarines, or at least the bulk of them, are gathered, the trees may be set out to ripen the wood and the house made exceedingly interesting with Chrysanthemums. The pot system of culture, which is doubtless the best when it can be carried out, is necessary if the beauty of the plants is to be utilised to the fullest extent, but it involves a good deal of labour for a long period of the year. But for the production of a large quantity of cut flowers, growing the plants through the summer in pots is by no means necessary. The cuttings should be rooted early in the year, potted off, and kept moving steadily along under the shelter of a cold frame till the middle of May, and then planted out in a piece of rich, well-worked land in an open situation, but somewhat sheltered from fierce winds. The surface of the land between the plants must be stirred occasionally, either with fork or hoe, for the double purpose of keeping down weeds and maintaining a sweet, buoyant atmosphere around. There will be no watering required. The growth will need stopping, to cause a sturdy, bushy habit, three or four times during the summer, and if this work is judiciously done, the plants will require no stakes. As the summer begins to wane, or about the first or second week in September, run a bright, sharp spade round the plants, about 8 inches away from the stem, to cut the roots, and about a fortnight after lift the plants carefully with good balls, and set them nearly close together on the borders of the orchard or any other house which may be at liberty. Fill in between the balls with rich soil, and give all a soaking of water. By a judicious use of the watering-pot and the syringe I have lifted them without the loss of a leaf, and they have flowered abundantly. Another way of sheltering them, if glass cannot be had, is to set them at the foot of a wall or hedge, preference being given to a westerly aspect. Fill in the interstices between the balls with very rich material, settle all down with a good watering, and erect a slight temporary framework with builder's laths. Make a canvas blind to let down at night and roll up in the morning after the frost has disdisappeared. On mild nights the plants will be better exposed. In some districts the early frosts this autumn have been severe. It is true we escaped all serious difficulty in the district from which I am writing till October came in, but the Dahlias and most of the other tender plants lost their effectiveness early in October. In some gardens in the midlands I have been in lately, the leaves of the Grape Vines on the walls look brown and seared, as if scorched. Even the Chrysanthemums that were exposed have suffered, the points of the shoots in some instances being injured.—E. H., in *Field*.

SHORT NOTES.—CHRYSANTHEMUMS.

Pasterisque is a type of flower we do not care for. It is a Japanese variety, but the bloom is striped and spotted with rose, giving it a weak, dappled appearance. It is one of Lacroix's seedlings. Striped flowers should not be encouraged; Pride of Reigate Rose is an instance of what we mean.

Chrysanthemum blooms damping off.—Many growers in the west of England are having the same experience as Mr. Clibborn in The Garden, Nov. 10 (p. 432). So serious have been the losses in some cases where large blooms were required for exhibition, that many growers have been unable to put in an appearance at shows at

which they had intended to compete. In one instance more than 100 flowers were lost just at the time they should have been at their best. I have carefully examined several rather large collections of plants, and, except in one instance where there was present in the soil a number of small whitish worms, there was nothing in the condition of the plants to indicate the cause. So far as I have seen, both the Japanese and incurved varieties have been hurt alike, but the thin-petalled sorts have suffered the most. The Japanese varieties that have stout, wide petals like Edwin Molyneux are in the most satisfactory condition. It is very evident that this unusual state of things must be attributed to the long spell of cold, damp weather that prevailed in the middle of the summer, and which prevented the wood from ripening as it should do.—J. C. C.

FERNS.

W. H. GOWER.

CHOICE PELLÆAS OF THE WESTERN HEMISPHERE.

PELLÆA INTRAMARGINALIS, the plant represented in the accompanying illustration, will at once be recognised as belonging either to the Pterideæ or the Cheilantheæ, to both of which the genus has been assigned by different authorities. I agree with those who adopt the latter view of the matter, and here wish to draw attention to a few of the most beautiful of the kinds from the Western Hemisphere as being peculiarly suitable to those having but small space at their command. Amongst Pellæas may be found subjects suitable for the warm and the cool house, for pot culture, or for hanging baskets, and some which form beautiful ornaments for a Wardian case. The latest system of Fern culture has to a great extent fallen into disfavour, and yet I am aware of one or two very creditable collections of small-growing Ferns which are cultivated in this way. In one instance the possessor is a confirmed invalid almost entirely confined to the house, and in another case a fine collection is maintained by a mill operative, and is very highly prized; and I may also remark that the very finest example of the Killarney Fern I have ever seen was in a Wardian case in the house of Mr. Bewley, of Blackrock, near Dublin, in whose garden Ferns were a great speciality. The Pellæas here enumerated are plants of great beauty, but they are not of delicate constitution. They cannot withstand great heat without becoming affected with hosts of black thrips, which will speedily work destruction if not eradicated, and this is best effected by laying the plant upon its side and syringing it carefully and thoroughly with warm water in which some soft soap has been mixed. After the syringing rinse the plant with clean water and remove it to a situation where it gets less artificial heat, for over-heating is sure to bring about this pest, and its presence is a sure indication that the plant requires a cooler temperature. Peat and loam for soil with a little sand added is all that will be necessary, together with drainage and plenty of water.

P. INTRAMARGINALIS is also found in collections under the various names of Pteris, Cassebeera, Allosorus, and Platyloma. It is a Fern from Mexico, and deserves all possible care. It is an evergreen greenhouse species, and forms one of the prettiest objects in a Wardian case. The fronds seldom exceed 1 foot or 18 inches in height, and their general appearance may be readily defined from a glance at our cut. It was introduced about fifty ago from the Botanic Garden collection in Berlin, yet it has never become a common plant with us.

P. TERNIFOLIA is another evergreen Mexican plant with a beauty peculiarly its own. It is of pendent habit, and is seen at its best when grown in this way in a large warm Wardian case. The fronds are some 18 inches long. When the plant is strong the pinnæ are opposite, each bearing three leaflets of equal length, which spread out, forming a six-angled star. The rachis is purple, and the upper side of the pinnæ is of a bluish green; beneath they are of a clear light green. It does not require much soil, but plenty of water, which must, however, pass quickly away, must be given it.

P. SAGITTATA is an erect-growing plant from Peru, and a charming object for a temperate fernery



Pellæa intramarginalis. Engraved for THE GARDEN.

The fronds are somewhat triangular in outline, twice divided (bipinnate); the pinnules, from the peculiar manner in which the edges are rolled over, become sagittate (arrow-shaped); they are smooth, glaucous, and soft in texture. The fronds usually grow from 1 foot to 2 feet in height, the rachis being pale brown and the fronds of a glaucous green.

P. FLEXUOSA.—This is a charming climbing Fern. It produces fronds some 6 feet or more in length and three times divided (tripinnate), the colour of the pinnules being of a delicate soft green, while the sori, which change from black to reddish brown, are very conspicuous; on the whole, indeed, it may be reckoned one of the most ornamental and charming foliaged plants in cultivation. If grown in too warm a temperature or too dry an atmosphere it is extremely liable to attacks from its worst enemy—thrips. It is a native of the Andes of Peru and of Columbia.

P. ATROPURPUREA.—This is another beautiful species of a peculiar blue-green colour, somewhat resembling that of P. ternifolia. It is a native of North America and British Columbia, but is not sufficiently hardy to withstand unharmed the severity of our winters; neither is it of sufficient size to render it conspicuous if it was hardy. For a cold house, however, it is a charming subject. It requires abundance of drainage, and should not have much soil about its roots. The fronds, which are nearly a foot long when the plant is strong, but more frequently about half that length, are ovate-lanceolate in outline and twice divided, the terminal pinnule much the largest. The colour is a deep blue-green. This plant, although it has been in cultivation in this country upwards of 100 years, has always remained rare.

P. GERANIIFOLIA.—This species is widely distributed in the Eastern as well as the Western Hemispheres, and its beauty demands for it a place in every fernery or Wardian case collection. It is a dwarf, compact plant; the fronds, somewhat palmate in shape, are supported upon slender black polished stems, and seldom exceed 10 inches in height, and frequently not so much. On the upper side the colour is rich deep green, lighter beneath; the sori are red, continuous round the margin of all the segments, and are very ornamental.

"A LOVER OF FERNS" says, "Can you tell me anything of the plants, of which I enclose specimens, received recently from Chili, and of which I have living roots?" Your Ferns appear to be various, and they come from a country which has furnished us with many good greenhouse kinds. No. 1 is Hymenophyllum cruentum; the bright scarlet colour in its fronds is put on when dried, when growing they are green; it should be fastened upon a lump of sandstone and covered with a glass. 2, Hymenophyllum pectinatum, one of the very prettiest of the genus and very rare, should be treated in the same manner as No. 1. 3, Trichomanes exsectum, another handsome form of Filmy Fern, which may be grown cool. 4, Hymenophyllum fuciforme, succeeds well in a cool house. We believe the Messrs. Backhouse, of York, and Kew Gardens now possess the finest collections of these lovely plants.

Dictyogramma japonica (*Japan*).—The plant, of which you send me a nice specimen, is a handsome Fern, introduced some few years ago by the Messrs. Veitch, of Chelsea, and, if I mistake not, was sent to this country in a living state by the late Mr. J. G. Veitch. I believe the plant is hardy, but if not sufficiently robust to withstand our winters, it is a handsome addition to cool house Ferns. I have read that this is not different to a plant named Coniogramma javanica, an Indian species, from which, however, the Japanese plant differs widely. In the specimen you send from Nagasaki, the pinnæ vary from 6 inches to 9 inches in length, the veins being beautifully reticulated, and this is rendered peculiarly visible by all being covered with sori. The Japanese plant is similar in size, but its pinnæ, which have the veins close together, are simple, or only once forked, not netted at all. This is quite sufficient to mark the difference in the two plants. Do not plant any of them outdoors now, but keep them under a north wall outside, plunge the pots in ashes, and protect the crowns if hard weather sets in, and plant them in the outdoor fernery in the spring before the young fronds begin to push up. It is one of the many things which have been put into the genus Gymnogramma by some authors.—W. H. G.

Adiantum Veitchi.—Of Adiantums which produce brightly-tinted fronds, this is one of the prettiest. It grows about 1 foot high, and has rather narrow fronds with broad pinnules. If grown in a stove temperature and well exposed to the light the

young fronds have a bright, almost crimson tint, and these change gradually to deep green, the older fronds showing off the younger growths to great advantage. I do not know if this beautiful Adiantum can be obtained true from spores. Although I have frequently sown what appeared to be good spores I have never succeeded in raising a batch; it can be increased by division, but this is rather a slow process. It should be done while the plants are in active growth, and with care they will soon start into growth again.—A.

KITCHEN GARDEN.

VEGETABLES NEEDING PROTECTION.

A RETURN of mild weather will most probably cause a late growth of many vegetables, and in some instances this will not be at all conducive to hardiness. In any case, there are a few kinds that absolutely need protecting from severe frosts, and others that are partially hardy, these requiring temporary protection only. Very often it is the early part of the winter that proves most trying to some kinds, and occasionally there are very destructive frosts in November. By this it will be seen that protective measures ought to be taken soon, either doing what is necessary now or have everything in readiness in the event of a severe frost being imminent. Taken somewhat in an alphabetical order, the first to be noticed are Globe Artichokes. These are more appreciated than many are disposed to admit, and if the bulk or the whole of the plants are lost, owing to their being unprotected, some unpleasantness may result to those responsible. It is not much protection these Artichokes need, but what is necessary ought to be given at once. The first proceeding should be to cleanly cut out all the old flower-stems prior to banking up the plants either with strawy manure, litter, soil, spent tan, or ashes. Whatever is used ought to be put on not less than one foot in thickness round the crowns, and of sufficient breadth to well cover the principal roots. Frosts will most probably cut down the strongest of the leaves, but will not damage the hearts of the suckers. Jerusalem Artichokes require no protection, but a portion of the bed may well be covered with litter, or otherwise there may be a time when frosts will prevent a supply of tubers being lifted when most needed. Asparagus is quite hardy, and is more liable to be killed by too much moisture than by severe frosts. A heavy dressing of manure may therefore do more harm than good, unless it is so constituted and arranged as to be capable of warding off rains. Narrow raised beds in cold and wet localities might well be banked over with leaves, these being firmly packed and kept in place with a good thatching of straw. It is only in extreme cases, however, that this extra trouble is needed. Where Asparagus is forced on an extensive scale so as to maintain a constant supply, it is advisable, before a long spell of frosty weather is experienced, to cover a portion of the bed to be broken up with litter 6 inches deep to ward off severe frosts.

If Beet is left in the ground some kind of protection must be afforded. It may be either banked up with soil or the roots well covered with strawy litter. Borecole is quite hardy, but Broccoli is not. Much depends upon the way the latter is grown, sturdy, short-stemmed plants being the last to succumb to frosts. It is the long naked stem that is the most vital part of the plant, and such are not easily protected. In some districts nothing short of heeling over the strongly grown plants will save the bulk of the crop during a severe winter, and a few cultivators go to the length of lifting their Broccoli and bedding them in where they can be protected without much further trouble. Both practices are certain to cause the plants to form rather small hearts, but these are better than none at all. If only partially lifted and heeled over, this should be done towards the end of November. Commence by opening a rather deep and sloping trench on the north side of a row, then insert the spade on the other side of the plants and gently prise them over to a position leaning to the north, cover up the roots and much of the stems with soil, and treat the next row in a similar manner. In this way the whole of the breadth of Broccoli plants will be brought near the ground with their stems covered by leaves and soil, and seeing that all are leaning away from morning sunshine, the thaw after a severe frost will be gradual and safe. When the plants are completely removed, they ought to be moved carefully, each with a good ball of soil about the roots, and be bedded in rather closely facing northwards, plenty of good solid manure being placed about the roots or mixed with the soil. This need not be done till late in November, and either mats, Bracken, or straw may be used for protecting the plants. Walcheren and Cape Broccoli are very tender, and the valuable Veitch's Autumn Protecting also requires protection. These are now in season, and if there is a good breadth of the last named grown it is possible to keep up a supply of useful heads till February. It is not advisable to lift all the plants indiscriminately, but none that have commenced to heart may be said to be safe from the present time onwards. Any that are nearly or quite fully grown may be lifted with a small ball of soil and roots and bedded in closely in an open shed or other position where they can be further lightly protected if need be. Thus treated the hearts of the plants will keep fresh and good in every way for three weeks or longer. Those with the hearts nearly the size of a tennis ball ought to be transplanted to where they will further develop. Deep pits or beds in vineries that are not started early are all suitable for the purpose. The plants should be lifted with a good ball of soil about the roots, replanted moderately close together in rich soil, and watered in. Fresh root fibres are soon formed, and good hearts may be had if the plants are lifted in batches in close succession at a time when green vegetables perhaps are very scarce. Brussels Sprouts are very rarely much injured or killed by frosts, especially if given good room at the outset. Lifting checks and quite spoils the crop, but plants well furnished with close sprouts may be kept under cover for some time, and a mulching of strawy manure about undisturbed plants is to a certain extent a protective measure.

Carrots are hardier than many are aware of, and we leave the bulk of early and late raised Horn varieties growing where they were sown, pulling the roots for use as required. A frame set over the latest sown materially forwards these, and a part of the older beds may be lightly covered with litter to prevent the ground from becoming unduly hard in frosty weather.

Cauliflowers, notably Veitch's Autumn Giant, are still very plentiful, and if late plantations were made, nothing but frosts will prevent a long succession of serviceable hearts being formed. Much that has been advised in the case of early Broccoli is also applicable to late Cauliflowers, the more advanced having some of the larger leaves removed prior to bedding them in under cover of a shed, and the most backward given the benefit of rich soil and house, pit, or frame protection.

Cabbage, if much blanched, is liable to be spoilt by frosts, and the same remark applies to Chou de Burghley. These also may well be lifted and replanted just clear of each other in good soil, either in rough frames or where they can be lightly protected when necessary, the largest or oldest leaves to be removed when the plants are first lifted, as they are of no further service and are liable to decay rapidly. Late beds of Chou de Burghley ought not to be disturbed, as they will withstand a severe frost and heart in early next spring.

Celery is by no means hardy, but if well moulded up and provision made for carrying off heavy rainfall, the stalks are rarely injured, but if the exposed tops or leaves are unprotected during a severe frost, these are liable to be much damaged, and the decay consequent soon travels downwards. Single rows may be effectually protected with the aid of two wide boards nailed together in a V-shaped fashion, these being inverted over the rows whenever severe frosts are threatened. Bracken and straw, with the shorter litter shaken out of it, loosely heaped over the rows or beds of Celery, afford good protection, and this material should be kept under cover or in large heaps, as it ought to be in a dry state when used. Branches of Evergreens are also of service in breaking the severity of frosts, and the partial shade afforded favours a more gradual thaw. In America it is necessary to lift Celery and store for immediate use in cellars or in protected heaps, and for keeping in frames. In the former case it is packed upright and closely together in deep barrels, the roots only being firmly surrounded by moist soil. Where large quantities are required the Celery is carefully lifted, set closely together in rows four plants wide, the roots being bedded in good soil and the sides banked up with soil level with the tops of the leaves. When severe frosts are anticipated, the whole of the ridge is covered over with a good thickness of strawy litter or leaves, and thus treated the Celery is available at all times, and keeps crisp and good for several weeks. The later supplies are obtained from frames, the Celery being bedded in closely, the roots only being surrounded with moist soil, and the tops protected with lights and mats or litter. In but few instances is there any necessity to adopt either plan in this country, but modifications of it are not unknown, and might be more often practised with advantage.

Small plants of both Lettuce and Endive are nearly or quite hardy in most districts, but any that have attained a serviceable size require protection. Frames, handlights, cool vineries, Peach houses, open and closed sheds are all, more or less, utilised for storing either of these useful salad vegetables, anything being better than leaving them unprotected. Leeks are exceptionally hardy, but prior to severe frost intervening, a portion of the crop required for immediate use might all be lifted and stored in a manner similar to that alluded to in the case of Celery. Parsley is far from hardy, and the more extra finely curled it is the greater the need for protection. A few strong roots lifted and packed rather thickly in 10-inch or larger pots and fairly rich soil may be wintered in various positions under glass, and will afford sufficient leaves probably to meet the demands of all but the largest establishments. Deep boxes will hold a good number of plants, and we find long span-roofed frames of great service for protecting Parsley. Strong roots may be lifted, cleared of their largest or worst-

keeping leaves, and be then bedded, about 4 inches apart each way, in frames of any kind set on a sheltered border. It is only those who have for several weeks together been without Parsley that can thoroughly appreciate the value of, and the necessity for, taking timely precautions for maintaining a supply when outside plants fail. We find Spinach perfectly hardy, and never interfere with Savoy Cabbage, this seldom being injured by frosts. Parsnips, Salsafy, and Scorzonera are also quite hardy, but it may save much labour and inconvenience if some portion of the crop is either lifted out and stored in moist soil, or else protected with litter to prevent the ground becoming very hard during frosty weather. The earlier varieties of Turnips are not very hardy, but Veitch's Red Globe and the yellow-fleshed varieties will withstand a severe frost if the roots are moulded over. Chirk Castle Blackstone is exceptionally hardy, this surviving when all others have been killed by frost. W. IGGULDEN.

AN EXPERIMENT WITH POTATOES.

A SUCCESSFUL experiment with Potatoes recorded in THE GARDEN in the early part of the year induced me to test it on my own ground, and I now send you the result. From a small tuber a little over 2 inches in length I obtained eighty-two tubers, five of which only were not larger than the parent tuber, and the weight of the whole was 18¾ lbs. If the season had been more favourable and I had begun my experiment three weeks earlier the result would probably have been even more satisfactory. My method of proceeding was this. At the bottom of a wide and shallow pot I placed a piece of glass, and on it a layer of finely sifted soil with plenty of sand in it. On this I laid the tuber, and filled in with the mould to the depth of about 2 inches over the top of the tuber. The pot was placed over a gentle heat, watered, and covered with a bell-glass, which as soon as the surface of the mould began to crack was removed. When the shoots (four in number) that appeared through the soil were about 4 inches high I reversed the pot, and, taking the plant in my hand, I removed each shoot with a sharp knife just above its junction with the tuber, and placed them in small well-drained pots, covering each with a bell-glass, and treating it as an ordinary cutting. Then the plant was replaced in its pot and submitted to the same treatment that it had before. This was done four times, the plant on one occasion having only one shoot fit for removal. Most of the shoots were repotted before their removal to the open ground. I think it must have been about the latter end of June when I removed the old plant to its destination, leaving on it its best shoot and taking off three others of very slender growth to be placed in small pots like the rest. The plants now stood in a row, twelve in number, to be followed in due time by the other three, making fifteen plants in all. On the 13th of September each plant was carefully taken up, and the following table will show the number of tubers produced by each :—

No.	Number of tubers.	No.	Number of tubers.
1	9	9	5
2	8	10	6
3	6	11	1
4	8	12 (the original tuber)	11
5	6		
6	3	13	1
7	6	14	2
8	7	15	3

It will be observed that the greatest number of tubers was produced by the old plant after it had been lifted four times.

The success of the experiment I attribute in some measure to the careful treatment of the parent plant when removed from its pot for the purpose of cutting off the shoots. The piece of glass at the bottom of the pot prevents the adherence of the fibres that come in contact with it, and very little injury need be done to the plant during the operation. As might have been anticipated, the earlier set plants were the most productive, and that repeated removal had done no injury to the plant seemed proved by its having produced the largest number of tubers.

Two inferences, I think, may be drawn from this experiment. One is that a Potato is able to produce many more shoots than it is usually allowed to do; the other, that no advantage is gained by setting whole tubers instead of dividing them in the usual way. B. S.

LIFTING AND STORING ROOTS.

THE season has now arrived when the growth of most root crops has ceased, and it is not safe any longer to leave such as Beet and Carrots in the ground, as though early frost may not do them any apparent injury, it is, if at all severe, sure to damage them in such a way as to affect their flavour and keeping. This being so, it is better to dig them up at once than to run any risk. A dry day should be chosen, and advantage taken to get the work done when the land is in good order, as otherwise the soil will adhere to the roots, and not only spoil their appearance, but it is difficult to remove from them afterwards. In taking up Beet much care is required, as it is important that the roots be not broken or bruised. To prevent this they should be lifted by thrusting a spade down by their side so as to act as a lever, and at the time the handle is pressed down the top of the Beet must be pulled by taking hold of the leaves with the left hand, when it will come out at once, and may then be laid on its side, and the same process continued with the others till the rows are all up. The proper way to denude the bulbs of their foliage is to wring it off, by doing which there is no fear of spoiling the crowns, which bleed if cut. This bleeding not only takes out the colour of the Beet when cooked, but causes decay of the part and often the loss of a great many roots. To keep Beet-roots plump and sound, the best way is to stack them in a ceiled shed or cellar, filling in between them with dry sifted soil, and leaving the crowns standing out from the pile that the air may play on them and stop any rot.

Carrots require precisely the same treatment, or if room be scarce indoors they may be pitted, but when this is done they should only be put into small heaps, as they generate heat and decay wholesale in a very short time. A good plan of preventing this, and also with Potatoes, is to insert a drain tile or a wisp of straw in the ridge of the pit to act as a ventilator, but besides this the roots must be kept quite dry by having plenty of covering and being on high ground, that any rain may run off the pit and pass quickly away. Although Potatoes keep fairly well in pits, and many are obliged to store their stock in that way, they are never so good for eating and especially if left in long, as they taste strong and earthy, but, fortunately, this unpleasant flavour goes off if they are taken out and laid for a time in a dry shed or cellar, which is, by far, the best place for all kinds of Potatoes, as besides being affected in the way referred to, they soon grow in pits, which weakens the tubers for seed, and takes out the quality of others for cooking. Those for the latter purpose when stored in sheds or cellars should be in perfect darkness, as light turns them green, or allows them to become so. This is in favour of any that may be wanted for seed, and so long as frost does not get at them, the more air and light they have the better and stronger will their growth be. The thing is to lay them thinly and have no covering over them, as they should be kept as cool as possible. The kidney kinds ought only to be stored singly on end in boxes, so as to preserve their first shoots, as when Ashleafs lose these, if they break at all, they only start feebly again. The way to store Onions and preserve them till others come on in the spring is to tie them in small bunches or rope them, and then hang them up in an open shed where there is a dry air always passing through, as frost does not hurt them, and it is only under such conditions that they remain sound all the winter. Parsnips are never so good as when touched by frost, which seems to sweeten them and make them mellow and rich, and therefore they should not be lifted, or if dug, left on the ground for a time, or laid in and partly covered, as then they do not shrivel and are subjected to the action of frost all the same, besides which they are easily got when wanted for use. Turnips should be lifted and be buried in rows, as frost deteriorates them by making them spongy. Dahlias will keep well under the same conditions as Potatoes, and all that is necessary is to cut the tops off, dig up the roots, and lay them as they are till the time comes for planting again. Gladioli and tuberous-rooted Begonias may be stored in a similar way, but with these it is as well to cover with a little dry soil or sand, or they are apt to shrivel and lose some of their strength. Hardy bulbs of all descriptions should be left in the ground, as they are far better there than taken up, and if it is necessary to move them it is wise to plant again as quickly as possible. S. D.

White Turnips.—In spite of the remarkable abundance of green stuff of all kinds, white Turnips have been selling wonderfully well in the market. That cannot well be placed to the credit of want of Potatoes, because these, although very indifferent in quality, have been cheap and plentiful. Possibly it may be due to the lack of quality, for a good Turnip is at any time better than a bad Potato. We have had and seem likely to have an abundance of Autumn Giant Cauliflowers, also selling cheaply, whilst as to Cabbages, Coleworts, Brussels Sprouts and Spinach, they are very abundant; indeed, rarely during any preceding autumn have they been more so. Turnips again are exceedingly good, having grown rapidly and kept growing. We get the market breadths pretty clear by Christmas, as it hardly pays to allow them to remain too late on the ground, except in the case of a late sowing, which, not bulbing well serves to give a fairly profitable crop of Turnip-tops in the spring. That, however, does not pay when ground is high rented and is required early for some summer crop. Drilling in of white Turnips has found special favour this year, because of the greater difficulty experienced, through the rains, in keeping the breadths clean. It has further been noted that drilling not only greatly facilitates thinning, but the bulbs are found to be more even-sized, so that there is less necessity to seek all over a field for a pulling, and none of the plants are left finally useless. Drills are now so cheap and offer such facilities for sowing in lines, and cleaning and thinning are so much better, that they may well be used even in small gardens. The temptation to sow seed broad-cast at the moment is always great, but drilling, if occupying a little longer, always brings its reward.—A. D.

Winter ridging and its effects.—I was much interested in "A. D.'s" remarks on the treatment of soil during the winter (p. 386), having at one time assisted myself in making an experiment on the heavy clay soil of the Weald of Sussex with the view of ascertaining as nearly as possible the effect produced by ridging during the winter months. We were led to make this experiment by finding that although the outer part of the ridges was friable enough the inner was practically unworkable, while ground that had been left till the spring was much more easily worked. Experiments were made on four different pieces of ground. No. 1 was ridged up early in October while the ground was still in a dry condition; No. 2 was operated on in November, soon after some heavy rains; No. 3 in January; No. 4 was dug in the ordinary way just before it was wanted in March. No. 1 was found to be the best, being open, friable, and in good working condition; No. 2 was very wet, close, and retentive; No. 3 was very similar; No. 4 was in capital order, and we agreed that there was not much advantage in ridging unless the operation could be performed before the heavy autumnal rains. One circumstance that has a strong influence on ground thus ridged is the amount of treading that necessarily occurs in the operation of digging; soil thus compressed in wet weather becomes pasty, and when turned in the spring does not yield readily to the action of sun and air. But there is another side to this question. Does ridging in the winter make any practical

difference as to the amount of food liberated for the use of the future crop? I once saw a plot of Brussels Sprouts, and although the whole had received an equal share of manure, one half was decidedly finer than the other, and on making inquiry I was informed that the finest portion was growing on ground ridged the previous winter, while the other was only dug just before the crop was planted. —HORTICULTURIST.

KITCHEN GARDEN NOTES.

EARLY PEAS.

EARLY dishes of Peas are always appreciated, and for that reason most gardeners strive to forward their crops to the best of their ability. The bulk of the seed is sown about the middle of February or as early in the month as the state of the ground and the weather permit. Earlier crops by about a week or ten days can, however, be had from rows of plants obtained either by sowing in the open ground towards the middle of November or under glass early in March, the seedlings in this case being transplanted to sheltered positions when sufficiently hardened. Since the more general adoption of the latter plan, fewer seeds are sown in November, and with good reason. Late autumn-sown Peas are liable to be eaten by mice, and if they escape this danger, there yet remain slugs, birds, and frosts to contend with. On the whole, therefore, the plan of sowing under glass is most to be commended, but those who cling to or wish to make a trial of the older practice ought now to commence operations. When the seed is sown very early in the month the plants are apt to grow too large to be sufficiently hardy, while any sown late in November are more liable to perish in the ground, and those plants which do come up are seldom strong enough to withstand the various dangers they are subject to. Where the soil is naturally cold and heavy, such also being most infested by slugs, the greatest difficulty will be experienced in saving autumn-raised Peas. It is on lighter soils and sheltered borders that they succeed best. None but the round-seeded varieties should be sown, the most reliable of these being William I., Ringleader, Sangster's No. 1, First Crop, and Earliest of All. The seeds of American Wonder, Chelsea Gem, and Little Gem being wrinkled are most liable to decay in the ground, but that is the only reason why they should not be sown, as they are quite as hardy as the others. In many gardens there is only a limited extent of sheltered sunny borders, thus necessitating cropping with much the same class of vegetables every season. Trenching cannot be resorted to without injury to the roots of the fruit trees growing against the walls, and in order to restore many of the mineral or inorganic constituents of the soil that have been slowly, but surely, absorbed by the crops growing on it, something in addition to ordinary solid manure ought to be mixed with it. Where the early Peas fail to grow strongly, many of the plants turning to a sickly yellow, a few bushels of quicklime, or say one bushel to every twenty yards of border, duly slaked and forked in, may effect an improvement. In some cases this will fail to restore fertility, and it will be found that potash is most needed. A good surfacing of wood ashes, this being stirred into the intended site of the rows, should prove beneficial, and, failing this, either kainit or, better still, a mixture of this and superphosphate of lime ought to be freely used. Some of either of these manures may be sown with the seed, and more stirred in between the rows early next spring. Supposing the borders are in good working order, the drills may be drawn 42 inches apart, about 5 inches wide and 2 inches deep, the seeds being then sown rather thickly and covered with some of the finest soil, or fine dry mould obtained by sifting over a heap of old potting soil. If mice are troublesome, the seed prior to being sown ought to be moistened and rolled in powdered red lead, this proving distasteful and poisonous to the mice without injuring the seed. Wire guards are the best protection against small birds and pigeons, and frequent dustings of soot and lime will usually keep off the slugs.

BROAD BEANS.

There is less demand for these very early in the year, but where they are wanted as early in the season as they can be had, they may also be sown now, or the plants may be raised under glass and eventually put out on sheltered borders. Early Mazagan is the variety most generally sown at this time of year, but we have done equally as well with Early Longpod and the finer Veitch's Improved Longpod. Beck's Dwarf Green Gem is a favourite with some growers, this being of a dwarf spreading habit and very prolific. Beans are very similarly constituted to Peas and require the same class of manures. The seed may be sown in double rows, these being not less than 30 inches apart, the double lines being 4 inches apart and the seed dibbled in 2 inches deep and 4 inches apart in the rows. It is sometimes necessary to red-lead the seed, and birds and slugs will prey on the young plants unless kept off, as advised in the case of Peas. When the young plants of both Peas and Beans are well above ground, they ought to be lightly moulded up, a higher ridge of soil being formed on the coldest side of the rows.

OPEN-AIR MUSHROOM BEDS.

It is of the greatest importance that these be well protected from heavy rains. When the covering of hay or strawy litter becomes badly saturated the casing of soil and eventually the beds soon get much too wet and cold, the destruction of the Mushroom spores being the sure consequence. More fail from this than any other cause, and those at all inexperienced in the practice of growing Mushrooms in the open air ought to look closely after the coverings. In this neighbourhood there are two Mushroom growers on a large scale, not less than 1 acre of ground being now covered with ridge-shaped beds at the present time. The whole of the beds are covered with litter, which is kept dry and in position by the aid of tarpaulin covers, duly fastened down with small cords and pegs. These tarpaulin covers, though desirable, may be dispensed with where only a few comparatively small beds are formed, but substitutes in the shape of strips of old carpet, sacking or mats may well be used. On no account should the thick coverings of dry litter be discontinued, these both preventing the loss of heat and also serving to keep the soil more uniformly moist, yet not too wet. When about 4 inches of dry soft litter or hay is put on, this in its turn being covered by a thickness of about 6 inches of dry strawy covering, neatly finished off, it will be some time before this gets saturated, and with such ample protection the beds retain their heat much longer than they usually do in Mushroom houses. When it is found necessary to moisten the soil of the beds, much of the covering should be taken off and warm water be gently applied to that which is left on the bed. In this way the moisture is gradually communicated to the bed, and when this is sufficiently damp the inner covering should be replaced with more that is dry and well closed in as before. Newly spawned beds must not be too rigidly covered till it is found there is no danger of the heat being unduly raised by it. The tarpaulin covers are especially liable to enclose the heat to a dangerous extent, and ought not to be put on without first ascertaining the risks that may be run. Beds formed in September ought now to be producing freely, and those spawned early in October to be showing numerous tiny clusters. In gathering, the Mushrooms ought to be twisted out of the beds, no portion of the stem being left behind. When cut off with the idea that this will best favour the growth of the later ones, the cluster soon becomes a mass of decay, from which is produced a fungus which poisons the soil, and renders it unfit for the future growth of Mushrooms. Experts go the length of digging out the clusters of large and small Mushrooms with their roots, this causing a greater rather than a decreased productiveness of the beds. Beds ought not to be uncovered oftener than is absolutely necessary, especially in cold windy weather, and after the produce is pulled the covering should again be carefully returned and secured. It is by attending closely to such apparently trivial details that the beds are kept productive for many weeks together. W. I. M.

Stachys tuberifera.—I send you two stems of this new vegetable. We have now cultivated it about six years on various soils and situations, and on all the roots are tender and proof against frost. It only requires the most ordinary cultivation. Plant the tubers about 1 foot each way in any exposure, except shade. It requires no earthing up, and must be lightly hoed between the drills as the tubers are near the surface. We commence using the tubers in October. As soon as the stems ripen we store up the tubers in dry sand or earth, keep them dry and cool and they remain excellent until March, when we plant on stiff soil. Sifted ashes and leaf-mould or sand will help it, keeping the dressing near the surface. It is now one of the most esteemed of our winter vegetables, and is as profitable and palatable an esculent as can be grown, and will very soon find a place in the market. We have grown it extensively this year, and I can confidently say to your querist that it is "worth planting, growing, and storing" as a substantial article of food for breakfast and dinner.—P. MIDDLETON, *Wynnstay Gardens, Ruabon.*

GARDEN FLORA.

PLATE 675.

PÆONIES.

(WITH A COLOURED PLATE OF THE VARIETY VENUS.*)

IF there were no other Pæony but the old double crimson variety of cottage gardens, we should still have a strikingly handsome and gaudy hardy plant; but we have now a wide range of varieties to select from, and not the least beautiful of the many recent additions is the one represented in the accompanying coloured plate. This is a flower of massive character, delightful pink colour, and delicate fragrance, a quality that is not always recognised as belonging to the Pæony, but many of them are as much endowed in this respect as the Rose. It is one of the many new varieties raised in the Langport nurseries of Messrs. Kelway about fifteen years ago. This will appear a long period, but to obtain a stock of any variety sufficient for commerce, the cultivator must be content to wait from twelve to fifteen years; the raising of Pæonies, therefore, needs as much patient waiting as Orchids, which are also frequently twelve or more years before they bloom. Many grow Pæonies well, but the great credit of having brought this flower to its present perfection is due in no small measure to Messrs. Kelway and Sons, of Langport. About twenty-five years ago this firm first turned their attention to the cultivation of the herbaceous and Tree Pæonies, which at that time were very rarely seen except hidden away in a border in some old-fashioned garden. This grand flower had been neglected, as so many others were at that period of formality in the garden, but with the return of a better taste it has grown in favour. By collecting about one hundred of the choicest known varieties from the Continent, Messrs. Kelway have annually propagated large numbers, both by grafting, division of the roots, and seed. Some idea of the great love many now have for the Pæony may be gained by mentioning that this firm have at the present time a stock consisting of upwards of 2000 named kinds and 3000 seedlings under number. The demand has been so great of late years, that 3 acres of ground is insufficient to meet the in-

* Drawn for THE GARDEN by H. G. Moon, July 6, 1888, from flowers sent by Messrs. Kelway and Sons, The Nurseries, Langport. Lithographed and printed by Guillaume Severeyns.



PÆONY "VENUS."

creasing trade. As the seedlings come into bloom, those that show no advance on existing kinds are discarded, and those thought fit to be retained are grown on for future tests. It is, of course, only by such thorough eradication of all indifferent seedlings that a marked standard of excellence can be maintained. We wish that such a course were followed in every case.

The English climate is very favourable to the growth of the Pæony. At Langport it flowers in great perfection and seeds freely. Even during the past summer the Pæonies were good, though the continuous rains shortened the season.

In order to obtain a good harvest of seed, it is essential to use artificial means, and nothing is better for the purpose than a camel's-hair brush. The seed is gathered as soon as the capsules commence to burst, and sown in the open ground, frames being placed over the beds, as no artificial heat whatever is necessary. After the first year's growth and when the plants are sufficiently strong, which will probably be about the month of May, the frames are removed, and in the October following the young seedlings are planted out in the open ground about 6 inches apart, being at all times kept free from weeds. There is one comfort in cultivating the Pæony, and that is no special ground is needed, as any ordinary garden soil if it is well enriched will grow the plants to perfection. The soil at Langport is heavy loam on gravel, but the plants will do equally well in red sand and in heavy clay on lias. The Pæonies remain for two years in the seedling bed, and in the month of October, the third year after the young plants appear above ground, they are removed and planted out to flower. Messrs. Kelway and Sons put them 12 inches apart one way, and 18 inches the other, so plenty of space is allowed for the development of the plants. In the case of some seedlings a flower or two may be produced during the second year after they were planted out, that is in the fifth year from the germination of the seed. The promising varieties, when tested, are taken up with a view to propagation, the best month for which is October, although it may be done at any time between September and March. When lifted the plants are divided, making as many of each variety as the plant has crowns, and they are then placed in rows 18 inches apart, and 2 feet between each specimen.

The double-flowered form of the herbaceous Pæony is still in the greatest favour, and the single varieties were discarded until recently, but this has been the fortune of the single Dahlia. Taste or fashion, however, changes, and the single Pæony is now sought for, as its beauty is undeniably great, though, of course, the flowers have not the striking appearance of the double kinds. The latter vary considerably in character. Some are simply of a self colour, or of various shades of one distinct hue, but in others we have a blush guard petal, or a white row or rows of inner petals, and the centre is sometimes bright gold colour, the florets being thread-like, while again we have flowers distinguished by a distinct tuft of rose petals, and the centre lemon-yellow or pure white.

The beauty of the single Pæonies is enhanced by the fact that many of them have twisted stamens, the colour of which varies, appearing occasionally as if it were a gold and crimson fringe. So much for the herbaceous Pæony, a flower that everyone who cares for his or her garden should plant in good bold clumps, not in small bits here, there, and everywhere, as they never give the same brilliant display of colour or beauty as the large masses. We have yet much to learn in the grouping of plants properly, and the Pæony is one of the things that is usually badly treated.

Tree Pæonies are largely cultivated by the same firm, and to propagate the plants, grafting is resorted to, as well as division of the roots and the raising by seed. The process of raising seedlings does not differ materially from that described in the case of the herbaceous section.

The following is a list of some of the admirable herbaceous varieties that have been exhibited by Messrs. Kelway during the past two seasons. In a choice selection like this we have the Pæony in its fullest splendour. Not only is there a delightful range of colour, but we have flowers of various characters, and some of the largest size and beauty.



White Pæony. Engraved for THE GARDEN.

The best of the single kinds are:—

ABOLANI.—A variety of excellent form, and of a purple-rose colour.

BRIDESMAID.—This is white, slightly tinged with flesh colour. It is of globular shape, and remarkably beautiful.

MILLAIS.—This has a bloom of large size, the colour deep maroon.

NABIS.—A beautiful variety of a bright purple colour and of large size.

The finest of the double varieties are:—

ACACUS.—This is of a bright rosy lilac colour.

AGENORIA.—A variety of the purest white, with the centre petals shaded with a sulphur tint.

AGNES MARY KELWAY.—This is a remarkable flower. The guard petals are large and of a flesh colour, but in the centre of the bloom is a bunch of golden thread-like segments, out of which arises a tuft of broad, deep, rose-coloured petals.

BIONI.—This has blush guard petals and thread-like segments. It is a novel flower of great beauty.

CAMERA.—This is of a light rose colour, very full, and of excellent form.

CYCLOPS.—One of the finest of the double Pæonies in its line of colour, which is of the darkest shade of red. It is large and full.

PHORMIS.—A variety of a dark purple tint, with the centre petals tipped with gold.

PRINCESS BEATRICE.—A very fine variety of a bright pink colour, the centre petals being tinged with yellow.

PRINCESS OF WALES.—A large, full flower of a delicate flesh tint.

GLORY OF SOMERSET.—A large, full flower of a delicate tint.

LADY CARRINGTON.—This has a flower of a beautiful blush colour.

LADY GWENDOLINE CECIL.—A large, finely-formed flower of a pale flesh tint.

LADY LEONORA BRAMWELL.—This is of a fine rose colour, and is very double.

LYDE.—A rose-coloured variety, having the centre petals tinted with pink.

MARIA KELWAY.—This has the central petals delicately touched with yellow.

MISS BRICE.—This is a flower of great beauty. The guard petals are brilliant rose-pink and the inner ones white. It also has large pink petals in the centre.

MISS SALWAY.—In this kind the outer petals are white, the inner ones being of a sulphur colour. It is of a full and excellent shape.

FRUIT GARDEN.

W. COLEMAN.

THE PEACH AS A MARKET FRUIT.

THE leading topic just now in and out of conference tents is the cultivation of the Apple and the Pear. A most laudable object it is, and for this reason. Our climate is specially adapted to the Apple; the demand has been created, and all we have to do is to produce the quantity and quality that will defy competition. Skilled growers will not, however, carry all their eggs in one basket; they will still grow Plums and Cherries, Strawberries and bush fruits, whilst those who have the convenience, that is, south and west walls, will try what can be done with Peaches. As compared with Apples, which are indigenous to our soil, and other hardy fruits, the Peach with us still forms a very small unit, and is looked upon as a well-to-do consumer's fruit obtainable from open walls from the end of July to the end of October. In Australia, America, and the south of Europe, standard trees produce thousands of tons of fruit annually, but none of it, I am assured, can touch our own for fine quality. This being so, we have nothing to fear from abroad, whilst, thanks to English hybridists and American friends, we now have a new break of early and late varieties, which should add another three weeks to our season. I do not assert that they are equal to a Royal George, but those who have grown them say they pay, and this I can readily believe, as we know that bright, big, showy fruit, although minus quality, always takes precedence with the uneducated public. Some day I shall hope to hear of a Peach conference, a much needed,

but ticklish business; meantime my advice to hybridists is this; rest on your laurels until you can give us something better than a Grosse Mignonne or a variety that will cheat spring frosts by flowering later than the old Late Admirable. To nurserymen who now form such perfect living pictures in the form of trees I would say, be careful in your selection of stocks, and, if possible, improve your nomenclature. To growers having good walls 10 feet to 14 feet in height facing south, a point east or any aspect round to south-west, I would say plant Peaches, but do not build new ones, unless they be of wood, as the money can be better expended in plain glass houses. Avoid valleys, as trees in these situations do not ripen their wood well; moreover, they are apt to get too forward in February and are caught by spring frosts in April. Choose rather high rolling ground above the line of fog, well sheltered from north and east, and improve the climate by thorough draining.

Concrete.—In days gone by borders were made immensely deep, and concrete was put in to prevent the roots, innocent of lifting or pruning, from going down; but all this is changed; well-drained shallow borders now prevail, and the roots of properly managed trees are coaxed upward to the surface. In my experience I have found many people putting in concrete simply because it was the custom, when really a bed of this material on a dry subsoil makes the border colder, as rain and snow-water are obliged to lodge at the bottom of the drainage. Would-be growers, again, who put in concrete with the view to preventing the descent of the roots, misinterpret its proper use, and often incur great expense by checking water in its downward course, when really and truly it is only an absolute necessity where cold water rises out of bad subsoils. Modern culture keeps the roots in their proper place; concrete cuts off an unseen, but insidious enemy in low, wet situations.

Drainage, on the other hand, unless the base of the border is rock, gravel, or chalk, is imperative, for, in the first place, it prevents water from stagnating about the roots, and, in the second, it forms a store chamber for warm air and invigorating gases; 9 inches of rubble is sufficient, and broken brick or sandstone is preferable to cold, condensing limestone. The superficial area, again, of borders years ago was much greater than it is now, a width equal to the height of the wall being considered orthodox, and then, strange anomaly, the expensive compost was cropped with ordinary vegetables to within 2 feet or 3 feet of the foot of the wall. To a wall 12 feet in height I would give a border 2 feet in depth, resting on sods grass side downwards, 4 feet in width at first, and gradually extend it to 8 feet. The last 4 feet should be made piecemeal, but before adding the first moiety at the end of the first or second year, each tree should be lifted and replanted with all its roots lying in a horizontal position from 6 inches to 9 inches beneath the surface.

Compost.—Upon ample drainage the Peach will grow in almost any good garden soil, but that which suits it best and swells the finest fruit is a sweet calcareous loam, heavy enough to grow fine Roses or Strawberries. The top spit from an old pasture, cut, carted, and used in a dry state, will form the best of all staples, then, as correctives, old lime rubble, hair-plaster, road scrapings, or burnt clay, one, or all, in the proportions of one to six, may be added. Manure being an injurious superfluity in this compost, it may be used as a mulch only, whilst in poorer loams lacking sustaining power, to each cubic yard half a bushel of crushed bones may be added. I do not, however, use them, and when we consider that a moderate growth of short-jointed, well-ripened wood gives the best result, it is questionable if the loam and lime rubble made very firm, for the roots of all stone fruits enjoy a resisting medium, is not quite sufficient. As all stone fruit trees must have lime, but not in a caustic state, light igneous loams may be improved by the addition of well-dried pulverised marl, clay, or pounded chalk, in lieu of the road scrapings, or burnt earth, if of a light or sandy nature. In making the border, the first moiety should be wheeled in when dry, and have time to settle before the trees are planted. In low, cold situations I should incline to a poorish compost raised well up above the surrounding level. On warm, dry sites I would keep the top of the drainage 2 feet below the surface, and in each case trust to summer mulching for feeding and drawing the roots upward. Next, as to

Planting.—The cultivator who has looked a year ahead will have his trees upon the premises ready for moving on the first fine dry day after the end of September. He will tip the points of the roots, plant on the surface, water home and mulch lightly; but he will not nail the shoots to the walls, as the soundest borders will settle and hang the roots if the tops cannot follow. If trees must be brought in and planted direct from the nursery, he will select them with bright clean stocks, perfect at the union, with evenly-balanced heads stout in the shoot, but not too strong, the best proof that annual lifting has not been neglected. The question of dwarfs, quarter standards, or full standards is entirely a matter of taste or fancy, which must be governed to a certain extent by the height of the wall. For my own use I always give preference to trees that have been worked not less than 18 inches from the ground, as I find them hardier, less subject to gumming, and very fertile. Then again with regard to distance, a very important matter, taking the wall at 12 feet in height, permanent trees may be 18 feet to 24 feet apart with or without a rider equidistant; but being myself an extensionist, I have found 30 feet quite close enough, and then I have avoided full standards as riders.

Management the first year.—The wood of a well-ripened tree being capable of withstanding 25° to 30° of frost, they may be left to take care of themselves until March, when strong shoots must be shortened just enough to maintain an even balance; washing with soap water and nailing or tying in must then follow. In due course they will require disbudding down to a given number of breaks, which must be closely trained, but not pinched unless any of them are robbing their weaker neighbours. If kept clean by dipping or washing, and crowding is avoided, they will make fruit-bearing trees 6 feet to 9 feet across the breast by the end of the first summer, when superfluous shoots (if any) must be cut out to let in sun and air. In the selection of shoots for forming the framework of the future tree, those emanating from the upper sides should be preferred, and each shoot should have a space of 6 inches to 8 inches to allow for the full development of its foliage. As growth proceeds it may be necessary to pinch a gross shoot to maintain the balance or to increase the number, and great care must be directed to shreds, nails and ties, as many fine branches owe their first attack of gangrene to undue pressure against a nail or stud. When growth towards the end of August slackens, a rapid thickening of the shoots will set in, but being thoroughly set and as straight as arrows, a large percentage of the ligatures may be cut to prevent the mischief to which I have just drawn attention. When the foliage shows signs of ripening the strongest trees must be lifted, the roots tipped and relaid as I have suggested, whilst others which have not made a vigorous growth may stand over till the second year. If the autumn is dry an occasional dash with the engine may be necessary to the destruction of spider, and the trees will again be left alone until January or the commencement of the

Second year.—Early in January each tree must be detached from the wall, well washed with soap and water, and secured to a few light stakes, 6 inches away from the face, to prevent the flower-buds from getting too forward should bright sun prevail through February. When flowering can be no longer delayed, nail in the shoots, protect at discretion, and fertilise the flowers on the strongest shoots. Do not commence

Disbudding until the fruit is set, but pinch any strong foreright shoots to two or three leaves, and pay particular attention to the slightest curl, as this is a sure sign of the advent of aphis. If taken in time, the weather being mild and not inclined to frost, a good syringing with soapsuds will very often leave the trees clean; but otherwise, to avoid injury from frost when the young fruit is wet, dipping the parts affected in weak tobacco water must be the substitute for syringing. As many trees are checked by early disbudding, this operation should be performed piecemeal when they are in free growth and the weather is decidedly mild, and the better to protect the fruit, shoots with a Peach nestling at the base should be pinched to two or three leaves, which may remain until the time arrives for thinning. The great secret of success in open wall culture is bound up in the prevention of a check either by insects or disbudding, for once the first growth is nipped the second rarely has time to ripen. When properly disbudded, each shoot retained should have plenty of room to extend any distance without crossing another, for when this happens the trainer may rest quite certain that he is overcrowding his trees and courting failure. As growth proceeds, the young shoots must be carefully trained quite close to the wall and divested of laterals; also after a bright day they may be well syringed with pure water to keep the fruit and foliage fresh and clean.

Mulching and watering.—I have said manure must not be mixed with the compost, but I have not said it can be dispensed with in wall Peach culture, as old, heavily cropped trees will digest any amount of the very best in the form of a mulch. Young ones of which I am now writing, on the contrary, will not require stimulating, but their roots must be kept close to the surface, and the way in which this can be accomplished is by spreading over the surface a good layer of old lime rubble prior to covering the wall path with fresh stable litter. Other materials, of course, would answer, but lime being so necessary to the fruit when stoning, and ammonia from the fresh litter antagonistic to insect life, while the straw gives a clean comfortable foothold, I recommend these because I always use them myself. Established trees get their first dressing of rubble in the autumn and another in the spring, but the litter is not put on until we commence untying in January, first for comfort, second to prevent the escape of moisture from the soil. Should the spring and summer be hot and dry the covering of straw may be increased, and then it will be necessary to ply the hose freely to the roots as well as the leaves, as it is during

periods of drought, especially in the border, that spider makes headway. Indeed so important is water to these large skeletonised trees perspiring against a south wall with roots resting on deep drainage, that I should as soon think of defoliating the shoots as keeping the roots without an abundance of this element.

AUTUMN MANAGEMENT.—When the fruit commences the last swelling all shoots retained for the sake of the crop may be shortened back to increase the size and let in light and air, and these, so soon as the Peaches are gathered, must be cut out altogether. Indeed, every shoot not likely to be wanted another year must now be cut away, whilst those retained will be the better for copious washing with soapsuds and clean water alternately once or twice a week in fine weather. When the foliage shows signs of ripening the face of the narrow border must be forked down, all roots with a downward tendency must be raised and shortened, and a foot or two of fresh compost added to the front will put this matter right for another year.

INSECTS are not numerous, but they are troublesome and injurious if allowed to gain headway. Green fly and red spider succumb to ordinary insecticides, such as soap, Gishurst compound, Tobacco water, and sulphur, but prevention being better than cure, the washing of the trees and walls in January should never be neglected. Brown scale often attacks neglected trees, but annual scrubbing with soap water puts it out of court altogether. A long chapter might be written upon

DISEASES, but this must stand over for another day, as I have only time to say a few words about gumming and blister. The first may be induced by injury to the bark with the hammer or the claws of the ladder, by rupture to the cells by bending to a sharp angle, but most frequently by allowing the roots to go down into cold wet borders whence they send up crude poison which prevents the wood from ripening. Root-lifting is the remedy for root-poisoning, and wounds can often be healed by paring away the parts injured by nail-pressure and the like, and binding them up in pure virgin loam of a calcareous nature. Blister is most troublesome in cold, wet seasons, especially through the spring. Hand-picking is generally resorted to, but here again prevention answers best, especially when the means to this end are favourable to the health and vigour of the trees and the protection of the crop in early spring. In borders drained, made, and managed as I have suggested, and liberally supplied with lime, blister receives its death blow, as the roots are always at work upon food which exactly suits the trees. Above ground the preventive should consist of a broad temporary coping wide enough to check cold currents of air and to keep the tender foliage dry in the spring. Glass copings 2 feet in width answer best, as they do not impede light, or, lacking these, broad boards will produce the desired effect, but they must be cleared away the moment danger from frost is over.

Varieties best adapted for open air.—If well managed there is hardly a Peach that will not ripen its fruit in the open air. The selections here, nevertheless, must be confined to a few of the best. I commenced by saying the market grower's season may be lengthened by planting the very early sorts, but I may as well say I do not think much of their quality. They are as follows with but little to choose between them: Amsden's June, Alexander, Waterloo, Early Louise, Early Beatrice.

Better sorts, also early.—Hale's Early, A Bec, Early Grosse Mignonne, Condor, Grosse Mignonne.

Midseason.—Stirling Castle, Bellegarde, Royal George, Alexandra Noblesse, Dymond, Violette Hâtive, Belle de Doué, Crimson Galande.

Late varieties.—Barrington, Raymaker's, Walburton Late Admirable, Sea Eagle, Prince of Wales, Lord Palmerston, Nectarine Peach.

Nectarines.—Advance, Lord Napier, Rivers' Early Orange, Stanwick Elruge, Violette Hâtive, Elruge, Pitmaston Orange, Pine-apple, Humboldt.

Twelve good Peaches for market.—A Bec, Barrington, Bellegarde, Crimson Galande, Doctor Hogg, Dymond, Hale's Early, Lord Palmerston, Royal George, Stirling Castle, Violette Hâtive, Walburton Late Admirable.

GOOD GRAPES RARELY MET WITH.

UNDER this heading Mr. Coleman makes some remarks about Grapes now rarely met with, and justly condemns the running after mere size and appearance, but however much such a thing may be deprecated, most people like a little, and some a good deal, of show, and gardeners and growers for market have to consider this and provide accordingly. This is why it is we see Gros Colman and Lord Palmerston Peaches, Pitmaston Duchess Pear, and such like big fruits in favour, and so long as they are countenanced and called for they must be produced; but it is to be hoped that they will not take the place of the better kinds, neither are they likely to only to a certain extent, as were it not for the lateness of Lord Palmerston, Sea Eagle, and such like Peaches, and Gros Colman, Gros Maroc, and even Alicante Grapes, they would not be half so much grown as they are, but, following as they do the choicer varieties, growers are glad to have them to prolong the supply, and I expect they are to be seen at Eastnor. As to cultivating Frontignan Grapes, they have been tried and found wanting, and never in my long experience, except when at Bowood and Longleat, have I seen Frontignans in anything like a satisfactory condition, and there they did not last so for any great length of time, and I question if a Vine of them could be found at either place now.

The great fault of the Frontignans is their liability, indeed I might say certainty, to shank, and Josling's St. Albans, which many years ago was so lauded, has the double drawback of cracking and shanking, and no matter how healthy the appearance of the Vines or the condition of the border, this failing was sure to show itself sooner or later. The fact is we have now more Grapes of equal or superior merit and of better appearance than Frontignans, as, for instance, Madresfield Court, and that is another reason why Frontignans are not now seen, and the Grizzly one never was in any favour, as its colour was against it, and it looks neither one thing nor the other, its skin being of that shade of stained white or faded red that made it objectionable in appearance. As to Mrs. Pearson, that Grape has too much of the Frontignan in it, or too much resemblance to it, to ever become popular, and it may with advantage be struck out of the lists. The one white Grape we have everything in—that is size, appearance, and exquisite flavour—is the Muscat of Alexandria. Any gardener wishing to show his skill as a Grape grower cannot possibly do better than take up with that kind and leave Frontignans and Mrs. Pearson alone, for I never met a connoisseur yet who found fault with a properly ripened bunch of Muscat of Alexandria.

Where many make mistakes in its cultivation is in trying to do it with others, but to succeed properly with it, it must have a compartment to itself and have special treatment, or be with others that require the same degree of heat and are as long in reaching maturity, for it takes quite two months to finish the Muscat of Alexandria over and above what most other sorts require. Another thing that militates against the perfect finish of this truly noble Grape is in having the Vines too close, as to colour the berries, and get them of that rich deep amber tinge of skin, they must have light and sun, and this cannot be afforded them to a sufficient extent if the foliage meets, although much may be done by pulling it aside, and thus giving them exposure. A fair distance to plant or run the rods is 5 feet, and it is essential that they be not too near the glass, as, without a free circulation of air above the foliage, the leaves are apt to burn, they being, compared with others, somewhat thin and more delicate in the tissue.

With regard to West's St. Peter's, I quite agree with Mr. Coleman that it is a good old Grape, but, take it all in all, I doubt if it is any better than the Alicante in quality, while the Alicante beats it out and out in hardiness and appearance. I had it long ago, and at Bowood, in Mr. Spencer's time, some thirty-seven years back, there was a house of it, as it was then depended on for the latest supply, but where is it now? J. SHEPPARD.

Woolverstone Park.

HARDY FRUITS.

IF fruit conferences and exhibitions of fruit go for anything, a general stock-taking, improvement of old and formation of new plantations will now be first and foremost in many men's minds. The renovation of old trees is a business rarely, if ever, out of season, for walk when and where we will amongst fruit plantations we always find useful work for busy hands to do. And yet, for all this the plodding grower marks the end of one season and the beginning of another somewhere; it may be at Christmas, certainly not at midsummer. Why not then draw the line at the gathering of the crop or the fall of the leaf? To me the end of harvest appears the best time, and for these reasons. The summer, or rather the autumn pruning, transplanting, root-lifting, root-pruning, feeding, and mulching, one and all are conducted upon principles most likely to result in fuller and finer crops the following year. The time for autumn pruning has passed away, and I hope all who pride themselves upon taking time by the forelock have nothing of a disturbing nature upon their minds. The time for root-lifting and root-pruning, too, is getting short, but so long as the weather continues open and mild the work may still be pushed on, as trees operated upon in November will stand a better chance than if allowed to stand over until the spring, when the bleeding of severed roots beneath the surface and exhaustion of the buds and foliage by parching winds set aside all prospects of fruit, if this pumping at each end of the season does not kill them outright. Success or failure again in planting hinges upon precisely the same lines, but the trees being much younger, comparative infants in fact, subject to nursery treatment, the shock to the system is not nearly so great; consequently spring planting just when the buds are moving often turns out well. Much, however, depends upon the succeeding season and the attention which can be given to mulching and watering should the spring prove hot and dry. In 1887 spring planting was followed by disastrous results, that of 1888 was more favourable; what the next may be no man can say; therefore, all things considered, my advice is this: never put off till spring work that can be properly performed in the autumn. Returning to

Root-pruning and root-lifting.—I was gratified the other day at Chiswick by hearing men of great experience corroborating my oft-repeated statements that the two operations are quite distinct. We root-prune a tree when it makes too much wood and leaf which it cannot ripen properly, when the loss of a crop of fruit by spring frosts or a paucity of flower-buds upsets the balance which should and must exist between root and branch, and the neglect of this wholesome operation confounds confusion. When root-pruning, we reduce the strong fibreless anchors in part or whole, as the case may suggest. If young and not too long neglected, we make a complete circuit; if old and long neglected, we divide the operation into two parts by cutting the

roots emanating from one side this year and the remainder the year following. Root-lifting, on the other hand, is frequently performed when the trees are not too strong to bear fruit, and space being equal to full extension, they might go on for years. But grossness in this country being the great bane to fertility, whilst the roots of all newly planted trees have a downward tendency away from solar heat and into crude subsoils, we lift, carefully preserving every root and fibre, tip the points and relay in a horizontal position within a few inches of the surface of the orchard or border. The end of the second or third year is generally selected for the performance of this work, and once the tap roots are cut and brought up and the others are trained in the way they should go, good management on the part of the manipulator and trainer almost invariably settles this matter for a great number of years. In nurseries this work is or should be performed every autumn; in gardens, re-arrangement and removal to permanent sites, often at the end of the first season, correct this downward runaway disposition, when annual root-pruning without disturbing the balls, whilst increasing the surface feeders, prevents the trees from becoming too strong or missing a crop of fruit. Our own wall Peach trees undergo this autumnal root shortening every year, and the full crops we invariably secure, although not entirely due to this, certainly would not be forthcoming were the roots allowed to run riot in rich vegetable borders. The wall paths, from 5 feet to 6 feet in width and resting on good drainage, are left intact for several consecutive years, but occasionally—this year, for instance—we fork off all the hard crust caused by mulching and treading in all weathers and replace it with fresh calcareous compost. This operation does not, however, justify our leaving the horizontal roots alone; but, on the contrary, we shorten all the bright brown fibres of the past summer back to within 6 inches of their origin, and ram in the best of the old compost with a taste of fresh near the surface. A thick coat of old lime rubble, for Peaches must have lime and plenty of it, is then spread over the wall path and the trees are dismissed until after Christmas.

Renovating is another operation which goes hand in hand with root-lifting and root-pruning, and, judging from the condition of the thousands of stunted fruit trees so frequently met with, there is room for very extensive practice in all districts too far away from the influence of town manure. Fruit trees in a general way may be greatly assisted by draining where the land is wet, and by manuring the surface where it is poor, but the most effective plan is breaking up the surface with steel forks, removal of a portion of the poorest soil, replacement with manure or fresh compost, followed by copious libations of liquid manure. In old gardens and Grass orchards where the surface is too hard to admit steady rain as it falls and the subsoil is dust-dry, old trees rarely set good crops of fruit, and if they do the sample is small, scabby, and deficient in flavour. Bunyard says "spare those trees" and give them plenty of manure, a plan we have adopted and recommended for years; but manure alone only half meets the difficulty. The hard water and air-resisting cake must be forked off quite down to the surface roots. A basin instead of a mound will thus be formed, with the tree standing in its centre, and into this the renovating material, solid and liquid, may be placed with the best chance of the speedy recovery of the tree. If good calcareous loam cannot be obtained, an excellent compost can be manufactured by cleaning the road-sides of scrapings and parings, so abundant in almost every parish, and adding thereto crushed bones, burnt earth, wood-ashes, and a little manure. When thoroughly mixed and placed over the surface, fruit trees of every kind will very soon fill it with feeders, but the work will not be complete until the deeply seated roots are thoroughly moistened with water, or, better still, good sewerage.

Pruning may now be commenced at any time and pushed forward with all speed before we get thoroughly overtaken by winter. Soft-leaved fruits, like Currants and Gooseberries, which shed early come first, then Plums and Cherries. Many people defer pruning Gooseberries until the spring, and then, after keeping their gardens unfinished all the winter, they find protection from small birds is absolutely necessary. This, at least, is my experience, and having tried limewash splashed over the bushes with varying success, I now prune early and net when the buds begin to swell in January. In pruning Gooseberries the heads should be well opened to let in light and air, as well as to admit the hand, and a few young shoots should be left where the removal of old branches is thought desirable. Currants require similar treatment, Red and White especially. Black varieties resent spur-pruning, but fruit best on young wood of the preceding year. They also give the finest berries and last longest when allowed to stool, and a few of the oldest branches are cut close to the ground annually. When these useful fruits are pruned, a good dressing of quicklime or lime and soot should be cast over the bushes as well as the ground to destroy Moss, Lichen and slugs, and any manure or top-dressing should be forked in at once. If caterpillar is a yearly pest, the removal of about 2 inches of the surface soil from beneath the bushes should precede the application of the lime, when replacement with any fresh soil, followed by occasional waterings with good soapsuds, will be found a safe and highly stimulating preventive. The same treatment applies to Apples also, but the work, it must be borne in mind, should be performed early in November, otherwise the wingless female moths will mount the trees and deposit their eggs in the buds. These remarks, of course, apply to trees in cultivated gardens or tillage land, where the application of lime and soapsuds containing soda will exactly satisfy the earth-hunger which Mr. Tonks assures us is the prime cause of canker. This treatment I have given to my garden trees for years, and, notwithstanding the fact that our subsoil is cold and heavy, the wood is bright and fertile, and perfectly free from canker. With this digression for the introduction of a seasonable hint, I will continue my remarks upon pruning and training. When bush fruits are finished, Raspberries may be taken in hand, well thinned, staked and tied, weeded, and heavily top-dressed, but on no account must spade or fork be admitted amongst them. Raspberries, of course, send a quantity of strong roots down to a great depth in well-prepared borders, but the most useful fruit feeders run close to the surface; digging or forking even destroys them, but a weed-smothering mulch of manure or any light rich fresh material, whilst protecting from frost, keeps in winter rain and restores the exhausted soil to fertility. When the pruning of wall trees, including all varieties, with the exception of Peaches and Figs, is commenced, and now is the time, nailing or tying in should be pushed forward with vigour. Work under glass must not be neglected, but a little forethought on the part of foremen, without allowing this department to fall behind, may spare their young men many a day's torpor and torture against fruit walls in bad weather. Bands of mercy are now springing up in our schools, and I hope they will extend to big garden boys who have left school, as I know what it is to have the feet and hands and liver chilled when frost and snow prevail at and after the dead of winter. All fruit trees, I must again repeat, should be well washed during the time they are detached, and not only will time be saved in the long run, but the crops of fruit from free expanding wood and spurs will more than pay for the labour. Cherries and Plums are often infested and half killed by black and green aphis. Pears are crippled and stunted by scale, and Apples make poor progress when attacked by woolly aphis. Meantime, home-made soapsuds, the best and safest of all stimulating insecticides, is running away, when a day spent in winter washing will save a week's labour in the spring-time. Painting with sticky smothering compounds is better than neglect, but it does not come up to good washing, especially when with garden engine or syringe every old joint and nail hole in the wall is well washed out with soap and soda. One winter or summer *douche*, it must be understood, does not cover my meaning,



A well-grown plant of the Maiden's Wreath (Francoa ramosa).

for soapsuds are forthcoming all the year round, and not a week passes in which some tree or trees may not be the better for a dressing.

STRAWBERRIES.

Where old beds were well top-dressed with rough, but rich heavy compost, as suggested, early in October, and this material has become thoroughly pulverised, now, on a dry day, is a good time to add a liberal sprinkling of old soot and break the two down together. Slugs about this time fix themselves in and about the stools and under the shelter of the leaves, which, by the way, should not be injured, neither need they, as the soot will destroy or cause the slugs to move on, whilst a dressing of this kind will wash in and feed the roots through the winter. If the surface of autumn-planted beds has become flat and hard and small weeds prevail, advantage should be taken of a dry, but not a frosty day for giving it a good covering with some rich manurial material, not only as a source of food, but also for giving the young roots and crowns shelter. Old Mushroom beds, containing a good percentage of rough turf, cast loosely over the surface or placed in ridges between the rows, cannot be better employed, especially in low, damp gardens, where tender varieties like The Queen and Doctor Hogg sometimes suffer.

FIGS.

Trees on open walls, also as standards, in the southern and maritime counties are quite capable of taking care of themselves through the winter months, and not unfrequently suffer when protection is placed about them. In many sheltered nooks far north of London they are equally safe. But, for all this, no one can say the Fig is perfectly hardy in Britain. The pitcher may go for years to the well, but it comes home cracked at last; and the Fig tree may run the gauntlet of non-protection for a quarter of a century, and get killed to the ground by a moderate frost after a cold, sunless summer. Whether or not protection will save an imperfectly ripened tree, no one, I believe, can determine; but, judging from the number of thatched and matted trees one meets with in the central part of England, it is reasonable to suppose that a strong minority, if not a majority, of growers believe in it. Having some houses devoted to Figs, I do not greatly depend upon trees on walls; but, for all this, I think the owner of a tree in a low, damp garden may do a great deal and yet not lay himself open to the charge of coddling. In the first place, he may protect the roots by a good covering of long stable litter, and he may shield the branches from rain and snow by the erection of a broad coping, from 1 foot to 2 feet in width, at the beginning of winter. Also, he may lightly feather the branches with sprigs of Spruce or Bracken; or, constantly on the watch, he may put off this last operation until the enemy is at the gate. The non-protector who has never suffered may hail a sharp frost with delight, as he knows he has nothing to fear; but his less fortunate neighbour who has been bitten may see with different eyes, and he will, as a matter of course, act accordingly. Packing and thatching and matting make a tree tender and unfit to face the spring; but a frost-proof mulch over the roots and a water-proof shelter over the shoots, with a few fronds of Bracken stuck in, not to prevent a circulation of air, but to shade from the sun, are very different, and this plan I strongly recommend to Fig growers who do not wish to lay themselves open to the charge of courting danger. W. C.

SHORT NOTES.—FRUIT.

Cornish Gilliflower Apple.—This richly aromatic and handsome Apple has been gradually dying out for years past in Cornwall, the specimens now and then met with being very small. The decadence is, I fancy, more due to the negligence to which orchards are submitted than to any other cause.—W. ROBERTS.

Apple Grand Sultan is a comparatively new variety, that never fails to bear when the trees are root-pruned. The fruit is highly coloured and of large size. I am sure that no one would regret planting this variety.—J. C. C.

Apple Golden Spire.—Although there is no scarcity of sorts of Apples, none is more suitable or reliable for growing in bush form than this. I believe it has been in cultivation for many years, but it does not appear to be largely distributed, as it is not often seen. It has been grown in a garden with which I am acquainted for several years past, and although a good selection of other sorts is also grown, no one is so highly valued as the Golden Spire. The tree, which is growing in the form of a low bush, bears regularly, and as many as fifty fine large fruits were gathered this season from a plant not more than 4 feet high. The fruit is, perhaps, more characterised for its distinct form than for its handsome appearance.—J. C. C.

STOVE AND GREENHOUSE.

MAIDEN'S WREATH.

(FRANCOA RAMOSA.)

WE present the beautiful Maiden's Wreath in two phases, as a reference to the accompanying illustrations will show. In the one the habit of the plant is shown, and in the other the value of the pure white sprays of bloom for decorations. A few stems grouped loosely in a vase together with a little Fern or some feathery material as Asparagus tenuissimus will produce such a delightful picture as here portrayed. All the Francoas are worth growing, as they are of thoroughly characteristic appearance, having great distinctness of leafage and flower. Such a specimen as that figured is not difficult to produce, but in very few gardens is much trouble taken with a flower that is exceptionally beautiful when given proper treatment. The Francoas number about three kinds, and were named in honour of a Valentian botanist of the name of Franco, who lived in the sixteenth century. They are allied to the Saxifrages, and are natives of Chili, requiring in severe weather protection of some kind. As in the case of many Chilian plants, Francoas are impatient of wet, needing, if they are grown in the open, a dry, sheltered position and a light loamy soil. We can occasionally see them in old cottage windows, where they often flourish amazingly. The best way is to raise the plants from seed, which can be sown at any time between the month of February and midsummer, but it is better to commence as early as possible, so that the plants will have a long season of growth before the winter. Sow the seed in a well drained pan, and use a peaty soil mixed with sufficient sand to make it fairly light, and before sowing give it a careful watering and place a sheet of glass over the pan, so as to promote quick germination. When the seedlings appear, remove the glass at once, and give water if necessary, placing the pan in a light position so as to keep the seedlings strong and healthy. After a time the seedlings may be pricked off into other pans filled with the same soil as recommended above, and be taken to the greenhouse or a cold frame. It is essential to give air freely to prevent the plants becoming drawn. When of sufficient strength transfer them to 5-inch pots, still keeping them in the greenhouse or frame. By the end of the summer some of the plants will commence to bloom if the seed was sown early, but if first-class specimens are wanted, it is better to pinch out the first spikes, so as to obtain an abundant display the second year, when the plants will be much stronger. When the plants require repotting, give them pots 1 inch or 2 inches larger, and in the second year when the flower spikes are commencing to appear a few applications of weak liquid manure will



The Maiden's Wreath (Francoa ramosa) with Fern in a vase.

be helpful. The seed may also be sown when it is ripe, which it will be at this season, and the young plants potted off in spring. We have given a somewhat detailed description of the culture, because it is not everyone who has grown the Francoa, and many consider it difficult to bring to perfection. There are many poor specimens in gardens, which often have the bottom leaves absent, but this is due in a great many instances to an over supply of water. If there is one thing that the Francoa detests it is a soil that is kept too moist. Francoa ramosa is the best of the three, and, as will be seen from the accompanying engraving, has spikes of great length, and the flowers are pure white. The leaves are something like those of a Turnip, and of a paler shade of green. F. appendiculata has the petals of a soft reddish colour, enriched near the base by a deep blotch. This is well worth growing, but the blooms are not so pure as those of F. ramosa. F. appendiculata is sometimes confused with F. sonchifolia, but this is different, its flowers being of a purple shade.

Although to obtain the finest specimens it is necessary to grow the plants in pots, the Francoas may sometimes be seen in splendid condition on the rockery. A well flowered plant of F. ramosa, with its distinct leafage and bold character, is remarkably beautiful, and we hope that the publishing of these two engravings will encourage the cultivation of this genus, as it has been undeservedly held in the background.

Is Schubertia a misnomer?—A few weeks since you gave in THE GARDEN a woodcut of a stove climber, named Schubertia grandiflora, a plant which produces large trusses of white flowers resembling those of the Stephanotis, but much larger, and belonging to the same natural order Asclepideæ. I know the plant, and saw it exhibited this year in a collection of stove plants at the Aberdare flower show, in splendid condition, by Mr. Jones, nurseryman, Maindee, Newport, Mon. No one seemed to know it, not even a well-known London nurseryman's son, who saw it some time previous to the show in question. The owner, Mr. Jones, could not tell its name nor anything about its history, nor how he came by it. I was pleased when I saw the plant figured in THE GARDEN, but surprised to find it had the same generic name (Schubertia) as a tall-growing coniferous tree, named in honour of M. Schubert, a Polish botanist. Loudon informs us that—

Schubertia disticha (deciduous Cypress) grows in extensive swamps and on the banks of large rivers, from Indian River, Delaware, to Florida and on the Mississippi; it is one of the largest trees of the New Continent, and one of the most valuable timber trees which that country produces. It grows to a considerable height in this country, though the extremities of the young shoots are almost every autumn destroyed by frost. The finest specimens are at Syon House and Blenheim.

—A. PETTIGREW, *Cardiff*.

*** According to "Nicholson's Dictionary of Gardening," there are two genera of plants that bear the name of Schubertia, viz, Schubertia (of Martius), a synonym of Physianthus, and Schubertia (of Mirbel), a synonym of Taxodium. This latter is the one referred to by you.—ED.

Begonia John Heal shows its value at this season by making a great show of colour in a warm house in the nursery of Messrs. Veitch at Chelsea. This race of flowers will be found of immense value to those who require something more than Chrysanthemums and the ordinary run of things in the autumn. The plant is of a vigorous growth, the leaves abundant, pale green, and forming a neat, compact, and handsome specimen. The flowers are brilliant crimson, and borne at the end of slender stalks, so that there is no stiffness or formality. Many treat it too much like the tuberous-rooted section, and start it too early, but July is quite soon enough for it to commence growing. It is in full beauty when the tuberous Begonias are at rest, and *vice versa*. After flowering keep the plants dry, and propagation can be easily done by striking cuttings, which can be obtained from the young side shoots. This Begonia requires a temperature of between 55° and 60°. Adonis is a coarser variety, quite distinct from the other, which is as refined in character as B. Weltoniensis and blooms later, the flower also being larger. It is well suited for the conservatory.

WINTER-FLOWERING PLANTS.

DURING the last few years the Chrysanthemum has undoubtedly been the most popular of all winter-flowering plants, and perhaps deservedly so, for in no other class is there such a variety of colours and such elegance of form to be found. The fact of its being of comparatively easy culture, requiring but little artificial heat, and the flowers lasting a considerable time after they are open, are recommendations which should always hold it in popular esteem. So much has been written on the culture of this popular favourite, that it is unnecessary for me to say anything on that point, but I will refer to a few other useful plants which fully merit as much attention as the above.

TREE CARNATIONS.—To flower these successfully during the winter, the plants must have been grown on with due regard to their producing their first flowering shoots at the proper time. Some sorts will require different treatment to others. Provided the plants have been propagated in February or March, such sorts as Miss Joliffe, A. Alegatière, Lucifer, Mlle. Carle, Andalusia, and other sorts of similar habit, if stopped about the second week in June, will show their first flowers in September. Another batch should be stopped a little later in the season, and these will succeed the first. For spring flowering a batch of plants should be propagated in June, and unless these show signs of throwing up bloom stems they will require no stopping. Any that show bloom in the autumn should have the flower-stems taken out. It is best to keep the plants in the open as late as possible in the autumn, and after they are taken indoors the main points are to give them an airy position, the full benefit of all the light and sunshine that can be obtained, and only sufficient artificial heat to keep out frost or dry the atmosphere in dull, damp weather.

BOUVARDIAS.—These must be grown on under similar treatment to that given to Carnations, so that they are full of vigour and well set with bloom by the end of September. It is a mistake to suppose that Bouvardias require ripening to induce them to flower. On the contrary, I have always found that the more vigorous the growth the better the plants flower, and also produce larger trusses. The main points in the culture of Bouvardias are to grow them in a position where they are fully exposed to the sun, and although they require little or no fire heat during the autumn, a good temperature should now be maintained, while at the same time air should be given freely during the day-time. If plants that are now just commencing to flower are treated liberally they will continue to flower for a considerable time through the winter.

CYCLAMENS.—A great point in the treatment of Cyclamens is to give the plants plenty of room and keep them perfectly free from insect pests. Plants which would otherwise flower freely often fail through being crowded up. Where this is the case the bloom-buds remain dormant, and eventually die off. Another important point is to prevent the soil becoming too dry, and in watering, the water must not be poured into the centre of the plants.

PRIMULAS.—Both the single and double-flowered varieties of Primula sinensis are invaluable for winter-flowering. The single varieties are the most desirable as pot plants, and the greatly improved varieties which may now be obtained cannot be excelled by any other class of plants either for brilliancy or variety in the shades of colour. They are, moreover, of easy culture; once get the seedlings well established, and they will give little trouble afterwards. I like to grow them on a moist, cool bottom, and in a house where plenty of top ventilation can be given. Although the foliage and flowers must be kept free from wet, they do not succeed so well in a dry, draughty position. The same remarks apply to the double varieties; these are generally supposed to require a very dry position to avoid damping, but I find that, provided the plants are kept properly cleaned, they do much better on a cool bottom. The old double white is still the most serviceable. For producing a continuous supply of bloom throughout the winter it has no equal; at the same time it is one of the most useful for cut blooms, as it can be used for almost any purpose.

ZONAL PELARGONIUMS.—To flower these well through the winter they require a higher temperature than is generally supposed. The finest flowered plants that I have ever seen were grown in a lean-to house with a south aspect. They were arranged on a stage at the same angle as the roof. Here they were flowering at Christmas as well as might be expected at midsummer. I should add that the temperature maintained was nearly equal to that of summer heat.

In the treatment of all winter-flowering plants it should be borne in mind that it is most essential that as much sunlight as possible be obtained; therefore the glass must be kept as clean as possible. Next to light is regulation of temperature. During the night and also dark, foggy days I like to keep a rather low temperature, for I find that in most cases to attempt to force plants into flower without daylight results in failure. With clear, bright weather a much higher temperature may be maintained. Another point worthy of careful consideration is ventilation; it is undoubtedly a great mistake to keep houses shut up close for the sake of economising fuel, for a free circulation of air is as necessary as warmth. I like to open the houses early in the morning, that is, before the temperature has risen much, and to close them before the sun is quite off. Watering should be attended to early in the day, and although it is a mistake to be too liberal with water during the winter, I believe an error is often made in the opposite direction. Plants standing on stages with pipes underneath often suffer through the soil becoming too dry at the bottom of the pots while the surface appears moist. The consequence is that the roots die off, and the mischief is not discovered until after the plants have been watered, the roots then being unable to take up the moisture. The natural conclusion is that overwatering has done the mischief, while the very opposite is the case. A.

Witsenia corymbosa.—At this season of the year there is generally little but Chrysanthemums to be met with in greenhouses, though it is by no means necessary to limit the display to that useful class of plants, for among other subjects now in bloom may be mentioned this Witsenia, whose beautiful bright blue flowers remain in perfection for a considerable time, that is, if the atmosphere of the structure is fairly dry. If, however, too moist, the blossoms quickly decay. It is one of those old-fashioned plants that are now so much neglected, though years ago it used to be largely

grown, together with Heaths, Epacris, Pimeleas, Leschenaultias, and similar subjects, which at that time occupied a place in popular favour. It is a peat-loving plant that needs rather more water than many hard-wooded subjects, and on this account thorough drainage must be especially ensured.—H. P.

Croton Warreni.—This variety stands in the very front rank of Crotons. It is a free-growing variety with very long, boldly arching leaves arranged in a special manner. The colour is deep green, mottled and blotched with orange-yellow and crimson, which latter tint becomes greatly intensified with age. It is a grand object for a large specimen, and is also equally beautiful when kept to a single stem and about 2 feet high. If given plenty of room when growing, the leaves are retained to the bottom, and on plants not more than 2 feet in height I have had leaves as much in length. Another beautiful kind often pushed out by reason of the rage for novelties is angustifolius, whose narrow drooping leaves when well coloured give to a specimen the appearance of a fountain of gold.—H. P.

Erica hyemalis alba.—To those who do not already possess this white variety of the winter Heath (Erica hyemalis) it can be recommended, for it is, except in the colour of its blossoms, an exact counterpart of the type, which is so valuable from the fact of its flowering during the dull days of winter. As pure white flowers are always in demand, this Heath will no doubt after a time be more grown than it is at present, for as yet it is quite a scarce plant, though exhibited in fine condition at the Royal Horticultural Society as long ago as the early part of 1883 by Mr. Kinghorn, of Richmond, who has since then put it into commerce. Being one of that section known as soft-wooded Heaths (which can be propagated much more readily than the hard-wooded class), this can be increased by cuttings of the young shoots put in during the summer months. The weaker shoots should be chosen for the purpose, as the stout succulent ones are so liable to decay, and those taken from plants that have been kept rather closer for two or three weeks previously strike root more readily than those that have not been so treated. Another couple of Heaths very useful at this season are Erica gracilis and caffra, both of which are largely grown by the few nurserymen who make a speciality of such things. They are among the least fastidious of their class, though of course they need careful treatment during their various stages. One very particular item in Heath culture is to attend to their wants in the matter of watering, for while an excess of moisture will often prove fatal, it is just as bad to allow them to become too dry. The length of time that most of the Heaths remain in flower is also a great point in their favour.—H. P.

Rogiera gratissima.—With but a few little bushes of this plant in pots 6 inches in diameter we have had a display of bloom for the last month, and where a cluster of blossoms has been cut off the secondary branches immediately below are already showing flower-buds. The Rogiera is a native of Mexico, and succeeds best in a good light airy structure, as where the atmosphere is close the plant soon becomes infested with insect pests, and cannot be induced to thrive. Under conditions such as Camellias, Heaths, and similar subjects require, the Rogiera will both grow and flower freely, as it also will if kept rather warmer than usual, provided there is plenty of light and air. Good open soil must be used and thorough drainage ensured, as if this is not done the plant will soon fall into an unhealthy state, from which it is difficult to restore it. A good compost for the Rogiera is equal parts of fibrous peat and turfy loam, with a liberal admixture of silver sand, and some nodules of charcoal mixed with the soil. Should the loam be at all of a heavy nature, additional peat must be used; indeed some cultivators dispense with the loam, but I prefer a certain portion in the potting compost. The advantage of a good light position is to be seen, among other things, in the colour of the flowers, which are, where much shaded, pale and washy in appearance compared with those opened under more favourable conditions. Propagation by cuttings, with which many people fail, is not at all difficult if the plants are kept in a warmer structure a month or so beforehand, so that the shoots are softer and weaker than is usually the case. The cuttings must be put into well drained pots of peat and sand and kept close until rooted.—H. P.

WORK IN PLANT HOUSES.

HARDY SHRUBS FOR FORCING.—It is better to pot the different kinds of hardy shrubs that are required for forcing in good time, as there is nothing gained by deferring the work until drenching rains or sharp frosts occur. Where there is a piece of ground set apart for the growth of the plants that are wanted for use in this manner, there is no difficulty in having the various things in right condition. The object is to produce as much bloom as possible from plants that are limited in size. With a view to attain this the plants should have been prepared by transplanting about every other year, the effect of which is to cause them to make comparatively little growth for the amount of bloom they give. Strong, free-growing subjects, such as Lilacs in particular, require to be treated in this way, otherwise, until they get too large to be conveniently managed, they make much rank growth that will not flower. Amongst the shrubs that are comparatively little known for forcing may be named

CHOISYA TERNATA AND ANDROMEDA JAPONICA.—The former bears large, white, distinct-looking flowers in loose bunches from the extremities of the shoots. It is a free bloomer, small plants flowering profusely. The Andromeda is an equally free bloomer, and is one of the most effective of all hardy subjects when forced. Both these plants are better adapted for using in this way than for growing out of doors, on account of the liability of the flowers to get injured by spring frosts. With nothing more than simple protection in a cold frame they will do well. The flowers of the Andromeda are more pure in colour under glass either when forced or allowed to come on slowly without heat in the way described.

AZALEAS.—The great variety that there now is in the colours of the Ghent variety of Azaleas is such as to make them almost as attractive as the greenhouse kinds, whilst the mollis varieties are found to be better adapted for pot culture than for blooming out of doors. In forcing both these sections of Azaleas the principal thing to mind is not to push them on rapidly, as the flowers will not last nearly so long as they should. For cutting the flowers of the mollis varieties have few equals. The salmon tint which many of them have meets the prevailing fashion.

RHODODENDRONS.—In selecting the varieties of Rhododendrons, especially such as are required for forcing, kinds that naturally bloom early should be chosen. The caucasicum hybrids are the best for the purpose, for they will open their flowers with little forcing; whereas some of the finest coloured varieties will stubbornly refuse to move early in the year, even when subjected to more heat than it is well to use. Rhododendrons in most places, owing to the wet sunless summer, have set fewer buds this season than usual. Plants that have been forced before, and have made two seasons' growth since, will generally be found to have set their buds better than those that have been subjected to the ordinary treatment.

ROSES.—Hybrid Perpetual and other Roses that are to be potted with a view to their coming on slowly and flowering in spring should be taken up and put in the pots, using good holding loam with a liberal amount of rotten manure mixed with it. In taking up Roses and other plants that are to be forced, it is necessary to secure as many of the roots as possible without their being broken, as the more they suffer in this way the more will the flowering be interfered with. This applies to both deciduous and evergreen subjects.

DEUTZIA GRACILIS.—It is much the best way when once this plant has been used for forcing to grow it on in pots. But when plants that have been grown out of doors have to be depended on, such as have been planted in good soil and have made free growth should be selected.

DEUTZIA CANDIDISSIMA FL.-PL.—This is a fine forcing shrub that not only produces its blossoms freely, but, like other double flowers, it lasts longer in bloom than the single variety. When potted the plants should be kept in a house or pit, where they will be out of the reach of frost and secure from heavy rains that saturate the soil when the plants are left in the open air.

LILY OF THE VALLEY.—A sufficient stock of this fragrant flower should be got in. Strong crowns that have been selected from plants that have been grown especially for forcing are the best and most reliable. Though they cost more than the ordinary clumps that are sold for forcing, they produce finer spikes of bloom, and as all the crowns may be depended on to flower they take up less room than if clumps, some of the crowns of which will not bloom, are used. Room in a propagating frame or elsewhere where a high temperature can be kept up is usually limited, on which account it is better to force this plant in boxes than in pots, as the crowns can be potted when the flowers are beginning to open. This can be done without its interfering with the blooming in any way.

STOVE. — POINSETTIAS. — Where these plants were struck early and have been grown on with stove heat they will be now in full flower. A somewhat lower temperature with a drier condition of the atmosphere than that in which they have been kept whilst coming into bloom will make them last longer. But whilst in cooler quarters than the plants like they must not be exposed to currents of cold air, and the soil should have less water. Where a portion of the stock is required to come in later, those that were propagated later in summer, and consequently are not so forward, should be used, as after their bracts have attained a fair size they do not well bear the lower temperature it is necessary to give them with a view to their blooming later. In retarding the plants they must not be kept too cold, or the bracts will perish before they attain any size. A temperature of 60°, or 2° or 3° lower, is as low as it is safe to subject them to, and no more water must be given than is requisite to keep the leaves from flagging. Poinsettias which are kept back in this way will not produce bracts much more than half the size that they do when pushed on in a brisk heat, but they last much longer, and when they are required for cutting they come in better than when they are large.

EUPHORBIA JACQUINIÆFLORA. — Where the plants are strong and well grown and have been kept through the autumn in a brisk heat, they will be showing flower. During the time they are coming on the plants should be kept with their heads as near the roof of the house as possible without their touching the glass. In most cases the flowers of this Euphorbia are principally required for cutting, and when, as is necessary to have them early, they are subjected to a high temperature, they do not stand well unless kept close to the glass during the time they are coming on; in addition to which when so treated the colour is much more vivid. To secure a succession, a portion of the stock should now be kept in an intermediate temperature. When the plants are thus to be kept as cool as they will bear, they should be stood together in the body of the house or pit they occupy away from where air is admitted, and less exposed to the fluctuations of temperature that occur near the glass. No more water must be given than necessary to keep the soil from getting drier than the leaves will bear. Managed in this way the flowers come on slowly, so that they can be had up to the end of March.

EUPHORBIA SPLENDENS.—The flowers of this species, produced as they are in pairs, are individually less conspicuous than those of some plants, and, like many others of a refined character, are apt to be lost sight of in the fashion for more showy things. Yet for small arrangements, such as buttonholes and sprays, there are few high-colcured flowers so well adapted. Another matter in its favour is

that when well managed the plant is continuously in bloom. To have flowers through the winter the plants must be kept in a moderately high temperature with plenty of light. In the absence of this the blooms do not attain the distinct shade of colour for which they are so remarkable. Large specimens are the best for giving a constant succession of bloom. Keep small plants during the winter in a warm stove, where they will go on growing. There is no danger of this Euphorbia making weak growth by being kept growing through the season when most things are at rest.

STEPHANOTIS.—The flowers of this favourite plant are so much in demand for bouquets, that it is well to have them over as long a period as possible. With two or three good sized specimens, by varying the time of their resting, a succession of bloom may be had for a considerable portion of the year. Plants that flowered early in spring and that afterwards were pushed on in heat so as to get their growth completed early in summer, and have since been kept cool and partially dry at the roots, will soon be in a condition for starting. Previous to this the soil should be well soaked with water so as to get it moistened through. A temperature of 65° in the night with a proportionate rise in the daytime will make the growth at once begin to move. Large specimens grown in pots can be best dealt with for early blooming, as they can be moved about at will into any house that will afford the requisite amount of heat. The shoots must not be trained in ordinary formal specimen style, but should be supported by wires or strings under the glass. A space over a path where they will not exclude the light from other things is a suitable position for Stephanotis to occupy. Plants that are required to bloom later should be kept in a temperature of 50° or 55°, giving them no more water than will suffice to preserve the leaves fresh and plump. To induce Stephanotis to flower freely the plants should not have so much heat during the growing season as some stove subjects like, neither should they be shaded more than is necessary to keep the leaves from getting scorched. The atmosphere should likewise be kept drier by the admission of more air than is required by such things as Ixoras, Dipladenias, and Allamandas. Subjected to conditions the reverse of these named, the plants usually make too much growth before they show flower, and they do not bloom so freely. T. B.

TREES AND SHRUBS.

HOLLY HEDGES.

A GOOD Holly hedge is the finest of fences not only as regards utility, but also appearance. The objections to the employment of Holly for this purpose are that it is more expensive than Quick, and that it grows slowly. A good Holly hedge, however, is worth waiting for, but the reason why Holly hedges are often so long in reaching a good size is, that the soil is imperfectly prepared for the plants. Even a Thorn hedge will take some few years to attain perfection if the soil is not well made at planting. Holly roots deeply, and the ground should therefore be trenched and well broken to a depth of 3 feet. Plenty of manure should be added to the top 18 inches, so that as soon as the roots begin to work they can find an abundance of nourishment. This gives the plants a start into free growth; whereas if they, through poverty or any other cause, become knotted, years are required to get them to grow away freely. A striking instance of what a free root-run in good ground will do for Holly presented itself to my notice a short time since.

In an old hedgerow which formed the boundary to a garden grew some Hollies. They were healthy, but looked stunted, making but little growth yearly. Some alterations being made, a deep ditch outside was filled in with road scrapings and similar material. In the course of two or three years the Hollies started, made a strong growth, and they are now handsome, well filled out trees. I have no doubt that in the course of time they will make exceptionally handsome specimens. In another instance a ditch, forming the boundary to a piece of land, was filled in and Holly planted, and a good hedge was formed in less than half the time that it often takes to get one. This shows that when Holly is generously treated it grows very quickly. It is during the first year or two that so little headway is made; once let the roots get good hold of rich soil and progress is just as rapid as it was slow in the early stage of growth. I have seen Holly planted in well-prepared ground make shoots 18 inches long. At this rate of growth a good hedge is soon formed.

If expense is an object the cost may be minimised by planting Quick and Holly together, two of the former to one of the latter, making in time an evergreen screen, as the Holly is sure to smother the Quick when it begins to grow freely. A wonderfully fine effect can be obtained by letting the Holly go up at intervals to a height of 3 feet or so and budding the terminal shoots with variegated kinds. The right time to do this is at Rose-budding time. If the work is well done not five buds in a hundred will miss. An excellent effect may also be had by inserting buds here and there of the variegated kinds on lateral shoots. In one of the large Surrey nurseries there are some fine old hedges that have been treated in this way, and they have a fine appearance, especially in the winter season. Opinions vary as to the best time for planting Holly, some preferring autumn, whilst others consider spring to be the best time for doing the work. My own experience leads me to prefer September to any other month in the year. The ground is warmer then than in spring, so that new roots are quickly formed, and the plants get hold of the soil by winter. It then little matters what the spring is like, the plants are sure to do well without much care; whereas spring with its hot sun and drying winds often brings much work in the way of watering. A good mulch of manure put on in winter is helpful in keeping the roots moist and in increasing the amount of food at the disposal of the roots. The less Holly is pruned in its earlier stages of growth the better. If the shoots are allowed to extend until the desired width is attained, root formation will be proportionately great. J. C. B.

Prunus Pissardi.—Amongst the many fine trees and shrubs of recent introduction this must, when better known, take a leading place. It should be planted by everyone who grows shrubs, let it be on ever so small a scale. When looking over a large tree nursery in Kent recently the manager showed me some shoots of it that had grown from the bud the first year, and on measuring them they were found to be from 7 feet to 9 feet long. These were growing in a most exposed situation. Other examples that had been planted out two and three seasons had made fine growth, proving how hardy this Prunus is. Its adaptability to various positions is a point in its favour. In the same nursery I observed numbers of plants of it grown as standards, which were equally as good and quite as effective. When in flower it is very pretty, the white blooms being showy and abundant. When better known I think it will prove to be a good plant for town gardens and parks, &c. When placed against a background of foliage the effect is very good. It is also valuable as a plant for forcing. One often sees the white variegated Maple used in this way with good effect, and as a companion plant this Prunus would be equally as good.—J. C. F.

The double white Chinese Plum.—As a plant for the front of beds of shrubs and borders this Prunus deserves to be largely grown. It is often seen in a half-dead condition, which brings the plant into bad repute. Having had to deal with this Plum during the last ten or twelve years in various positions, I have found the following treatment suit it: Having several plants which had attained to a large size and which began to look shabby, many of the shoots having died halfway down, I decided to treat them as I did the plants used for forcing, namely, as soon as the plants had gone out of bloom, to cut them down to within a few inches of where they had been cut to the season previously. The pot plants were treated in this way every year, and never failed to give a grand crop of bloom in January and February. I treated all the plants in the open borders in this way, giving them a good top-dressing of soil and manure. The next season the plants improved in a marked degree. This treatment was followed every season without the top-dressing, this being only needed occasionally, and every season the plants flowered magnificently. Many of the shoots were from 3 feet to 4 feet long, and covered their whole length with flowers. I know of no plant more beautiful than this Prunus when seen in full bloom. It is very hardy; it stands in an open, exposed situation facing north-east, and is never injured by frost or cold. I need not say anything here of its value as a shrub for forcing, as most cultivators are acquainted with it in this state. Beautiful as this Chinese Plum is, it is out-distanced by the lovely double pink Plum (Prunus triloba fl.-pl.). When this is seen in full bloom it is lovely. I have planted it several times as a bush in the open border, but after the plants had made good growth and bloomed well, they refused to grow in a satisfactory condition during the following season, although I have tried the pruning as for the double white. I am inclined to think it is somewhat tender. I shall be glad to hear how it behaves in other parts of the country.—J. C. F.

FORECOURT GARDENS.

OF the many thousands of villa residences round London, how few have their forecourt gardens embellished with shrubs as they might be. In hot summer weather, when the granite-made roads are white with dust, the asphalt footways softened with the sun heat, and the houses refracting the rays of the sun with painful intensity, how few forecourt gardens comparatively afford by the pleasant shades of green of Grass and shrubs any relief from the glare that heats the atmosphere to an almost unbearable degree. The paved footway and steps leading to the main entrance are kept white as milk; the remainder is a square of gravel with a flower bed in the centre, in which are often attempted to be grown things altogether unsuited to the position. Flowers seem out of place in such an association. What seems to be required is some green leafy mixture or sward upon which the eye can pleasantly rest and find agreeable relief. When flowers are employed it should be sparingly so; a tastefully arranged window box of flowering plants will be found sufficient, and the forecourt garden should be given up to Evergreens. Flowers in a bed, even if the position be ever so good, are short-lived, and those that are best adapted for the summer display are useless for winter effect. Therefore it is that I strongly advocate the planting of forecourt gardens with Evergreens, the advantages being that it can be done at the outset at a comparatively small cost.

One of the prettiest forecourt gardens I think I ever saw, pleasant alike at midsummer and Christmas, was planted with the Irish Ivy, Aucuba japonica, and Euonymus radicans variegatus. It was always well furnished and but little keeping was required, and that mainly in the way of picking up dead leaves and any weeds that might put in an appearance on the gravelled paths. The Ivy will do well in damp and shady positions, and the Aucuba is one of the best town shrubs ever introduced into this country, and it is not at all fastidious as to position and soil. It will do well in pots also, provided it is kept well watered when necessary.

Even where things cannot always be conveniently planted out, certain subjects can be grown in pots and stood about, and be placed also at the sides of steps and at entrances. In all cases of this kind the pots during summer should be stood in large earthenware pans, so that the water which runs from the pots when it is applied may not disfigure the steps, &c. If the plants are well rooted, they will be benefited by the presence of the water in the pans. In my own case, I grow several subjects in pots for the embellishment of my forecourt garden, and I generally keep the pans in which the

pots are standing full of water, not caring about supplying any on the surface. This method prevents anything like an overflow, and there is no disfigurement of the white stone or steps.

I find nurserymen are becoming alive to the desirability of growing plants especially suited for potting, window boxes, and planting out in small gardens, and some go the length of making up collections and selling them for a lump sum, as in the case of seeds. Among the subjects grown and suitable for the purpose I may mention of coniferous plants Cupressus Lawsoniana and its variety erecta viridis, Juniperus communis and J. hibernica, the American Arbor-vitæ, Retinospora pilifera, pisifera, plumosa, plumosa aurea, and squarrosa, Thuja elegantissima, Elwangeriana, and semper aurea, and the common Yew; also the ever useful Aucuba japonica, Berberis Aquifolium, the green and Handsworth Box, Euonymus radicans variegatus, and Veronica Traversi. This is merely intended as a suggestive, and by no means as an exhaustive list. As a matter of course, when the foregoing subjects are in pots they soon fill them with roots, and then what is required is to water freely and give an occasional top-dressing of some fertiliser.

Prunus Pissardi, Lavatera arborea variegata, Yucca recurva, and Aralia Sieboldi are plants that can be grown in pots for this purpose, and in the way of flowering subjects we have Pyrus japonica alba, Agapanthus umbellatus, some of the large-leaved Saxifrages, and the common Hydrangea hortensis. This also is a list that can be largely extended, indeed there are many other things affording a large selection from which the forecourt gardener can draw as it best pleases him. R. D.

AUTUMN-FLOWERING HEATHS.

A GREAT many of our hardy Heaths that commence to flower in the summer maintain a succession of bloom till stopped by the autumn frosts, which this year set in with unexpected severity during the first few days of October. But in sheltered spots there is still a goodly display of blossom, and had it not been for the two or three early frosts some of the plants would be still flowering profusely. One of the most free-blooming at this season is the Cornish Moor Heath (Erica or Gypsocallis vagans), a free, vigorous-growing plant reaching a height of 2 feet, and bearing densely packed spikes of pale purplish red blossoms. From the profusion in which the flowers are borne, this Heath is very showy when in bloom, more especially a deep-coloured form occasionally met with under the name of rubra. There is also a white-flowered variety (alba), but it is at present uncommon. The Ling or Heather contributes its share to the autumn-flowering Heaths; indeed, there are a couple of varieties—Searlei and Alporti—which in mild seasons will bear flowers until Christmas. Besides the two above mentioned, Hammondi is another late-flowered form, and in this the blossoms are pure white. The habit of the plant is somewhat close and upright, while in Searlei, which has flowers of the same hue, the growth is of a far more diffuse character. The third late flowerer—Alporti—is a bold, bushy-growing kind with dark, purple-coloured blossoms. As pretty in the autumn as the flowering varieties are a couple of golden-leaved forms of the Heather, one of which has the leaves of a bronzy orange tint, and the other of a rich golden hue. One of the most continuous flowering of all hardy Heaths is Daboœia polifolia, the comparatively large blossoms of which open during the early days of summer, and a succession is maintained till late in the autumn. There are three distinct forms of this—one, the type with purplish blossoms; another, in which they are pure white; while in the case of a third both colours are borne not only on one plant, but also on the same spike. Erica stricta is of a very dense, rather upright habit, reaching a height of a yard or more, and bearing late in the summer and during the autumn months a great profusion of its bright purplish blossoms. They are individually rather small, but being borne in such numbers, they yield a goodly show. Erica multiflora is another of the late-flowering class, while the extremely pretty little E. tetralix, which commences to flower in the summer, will be often laden with blossoms till late in the autumn. In the case of a well-assorted collection, a display of bloom may be kept up nearly throughout the year, for soon after Christmas the earliest blossoms of the bright little Erica carnea or herbacea make their appearance and yield a profusion of blooms till the earliest flowers of some of the others commence to expand. The white-flowered form of this Heath is very distinct and beautiful, but it is more liable to be disfigured by the bad weather of the early part of the year than its commoner relative. These different hardy Heaths are available for many purposes, and nearly the whole of them may be depended upon to thrive with but little care and trouble. There is no reason why they should not be more often planted in the form of beds or masses, as when once established they are bright and cheerful at all seasons, while their flowering period is long, and no coddling during the winter is required. Some of the varieties of the common Heather are of a dense, Moss-like growth, so that they could well be employed as an edging to the larger and bolder-growing kinds. Perhaps, however, the most successful way to deal with hardy Heaths is to employ them for carpeting exposed places, that is, to form a groundwork from whence might be allowed to spring at intervals specimens of any choice trees or shrubs that would not be in any way interfered with by the surface-rooting Heaths. Where a space is set aside for the larger growing Ericaceous plants these smaller kinds can well be employed as ground shrubs, for the same soil is favourable to both. By this means the spaces between, say, large single specimens of Rhododendrons could be made as interesting and attractive later in the season as the Rhododendrons themselves were when in flower. One of the hardy class, viz, E. carnea, or herbacea, I have seen used for flowering in pots under glass during the winter months, and it is well adapted to this treatment, as the flowers opened freely and remained in beauty a considerable time. The plants intended for flowering in this way should be lifted carefully and potted early in the autumn, when the protection of a cold frame is all that is required. The propagation of most Heaths is an easy matter, as their habit is such that it is often possible to lift an established plant and split it up into half-a-dozen or more pieces, each with a good proportion of roots attached to them. Besides this, cuttings of the young growing shoots may be put in under bell-glasses during the summer, but they need careful attention in order to ensure success. T.

Laurustinus hedges and clumps are in great favour in this part of the south coast. The Laurustinus is one of the shrubs that appears to have a special liking for the sea-coast, and at the present time it is splendidly in flower; in fact, quite as full of bloom as it was last year quite three months later. The season having caused a luxuriant growth in all kinds of shrubs, the fine sunny weather of the last few weeks has forced the Laurustinus into full bloom, which goes far to compensate for the destruction of all tender flowers by frost during the first few nights of October. One of the reasons why the Laurustinus is so free-flowering here is the fact of the soil being light and warm and the growth made during the summer getting well ripened. The Laurustinus when used for hedges is generally cut early in spring, as soon as the flowers fade, so that it has plenty of time to push out a new growth and get the shoots well matured; every one is then crowned with a fine head of bloom. Hedges of flowering shrubs are a great addition to a garden, and when they are of an evergreen character like the Laurustinus they are ornamental and useful. Where the gales of wind are violent and frequent a thick hedge is one of the best things that can be had for a screen, as it breaks the force of the wind far better than a wall. Those who have not yet tried Laurustinus for the purpose should not let another season pass without giving it a trial. Although naturally of a spreading habit of growth, few plants make a hedge more quickly than the Laurustinus.—J. G., *Hants.*

Autumn leaves.—May I be permitted to ask whether any of your correspondents have found leisure and inclination in the past to study the variation in the colouring of the leaves of deciduous trees in autumn, and what is their opinion of the cause of the autumn colouring varying in individuals of the same species? I am prompted to put this question through spending a few hours' ramble in a plantation of considerable size with a view to its improvement. There were Oak, Beech, Hazel, Birch, Lime, Poplar, Bramble, Bracken, &c., &c. The scarlet Oaks varied in colour from brown to scarlet, the English Oaks were masses of various shades of brown, some few yellowish, and some still green; the Beech varied considerably from dull brown to almost scarlet and yellow; the Hazel was principally yellow, but some were a mixture of crimson and yellow; the Lime and Poplar were yellow; the Bramble yellow and scarlet, and some still green; the Bracken, some yellow and some brown. Now, why do individuals of the same species differ in their colouring? Further, does the same colouring attach to the same individual from year to year? Or, in other words, is the variation a fixed property of the individual, or due to the degree of moisture in the soil or any other cause? If a fixed property of individuals, this might be turned to good account in ornamental planting where it was wished to vary or intensify the autumnal tints.—WILLIAM PAUL, *Paul's Nurseries, Waltham Cross, Herts.*

Autumnal tints.—Seldom has the rich colouring of the foliage of all kinds of deciduous trees been more beautiful than during the past month, and fruit trees of all kinds were especially rich in their varied tints of red, brown, or golden. All lovers of the beautiful can admire the rich effects produced by these transient colours, but to the fruit cultivator they are of a more lasting effect, for he knows that when the trees put on these rich tints that they have well-ripened wood and plump buds in plenty that will, in due course, yield him a rich harvest of fruit. Although the summer was so sunless, the trees and bushes of all kinds in fruit gardens made splendid growth, the foliage being large and clean, and with a fine spell of autumn weather the trees have ripened their growth in a far more satisfactory way than they have done for several years past. That fruit trees need far more moisture at the roots than they generally get needs no better illustration than the way they have recovered their health and luxuriance during the past drenching July, for in the early part of the season, owing to cold and the incessant attacks of insect pests, fruit trees both in gardens and orchards were in anything but a thriving condition. Owing, however, to a favourable season and a good spell of dry weather in autumn, there is now one of the most hopeful outlooks for the fruit cultivator that I can remember. Seldom do we get such a calm October as the past one, for during the first three weeks, in place of the ordinary gales, we had almost a dead calm, and those who grow fruit trees for ornamental effect had a rich display.—J. G. H.

Forsythias.—How beautiful these look in the spring sunshine, and how finely they contrast with Evergreens, trees, and shrubs when in full bloom. I know of a garden in which a shrubbery is composed mainly of them, the Laurustinus, and the pink-flowered Ribes. It would be difficult to find anything more cheerful than this shrubbery in the spring—very different from the usual assortment of Limes, common Laurels, Firs, &c, that form shrubberies in a general way. As the owner said, "What is the use of having shrubberies if they do not look gay at some time of the year? I can get plenty of bloom in summer all over the place, but I look to my shrubbery to give me a considerable amount of enjoyment before this time arrives." It is a pity that the owners of gardens generally do not bear this in mind. Forsythias are so accommodating that they thrive in any soil, but they must get plenty of light and sun, or they will not bloom with that profusion that renders them so delightful. They are also useful for forcing in pots, the fine

golden yellow of the flowers being rather scarce among plants grown under glass at that period of the year. Plants intended for this purpose should be put into good ground in autumn, cutting them well back. Pot them at the end of October, and put them in gentle warmth in December. In a light house where they get plenty of air they will come quickly into bloom. The Forsythias look well on walls and trained to trellis-work, but there are more tender things that are the better for such protection; whereas the great merit of the Forsythias is that they will do well in the most exposed situations.—J. C. B.

PROPAGATING.

SENECIO PULCHER.—Few subjects are more readily increased by cuttings of the roots than this pretty autumn-flowering perennial, for by this means if a few established plants are at hand a considerable stock can soon be worked up. All that is needed is to lift the plants carefully, cut up the stout roots into pieces 1 inch to 2 inches long, and dibble them into compost prepared for the purpose. Pans or boxes are very suitable for these root cuttings, and a good plan is to fill them rather lightly with fine sandy soil, into which the cuttings can be easily pushed without using a dibble or any substitute. The cutting should be pushed in perpendicularly, and at such a depth that the upper portion is just below the surface of the soil. All that is then necessary is to place the cuttings in a cold frame, or, better still, where they will get a gentle heat, and keep the soil in an equal state as regards moisture till the young plants make their appearance, and when two or three leaves are developed the young plants should be potted previous to being planted out in the spring. The present time is a very suitable one for putting in cuttings of this Senecio, and there are also many other plants amenable to the same mode of treatment. Among these may be included the many beautiful varieties of Primula Sieboldi, all of which grow very readily from cuttings of the roots.

ARALIA SIEBOLDI.—The Ivy-like berries of this plant very seldom ripen when it is in the open ground (its season of blooming being so late), but in the case of a large flowering specimen under glass the fruits often come to maturity, and besides this most seedsmen offer what is presumably continental grown seed. The seed should be sown as soon as possible after ripening. In the case of seeds just gathered they should before sowing be thoroughly cleansed from all husks or any pulpy matter that may be adhering to them. This Aralia may be sown even in the depth of winter, as should the young plants make their appearance before the return of spring they are not at all liable to damp off. Whether pots or pans are used for sowing the seeds, they must be well drained and filled to within half an inch of the rim with fine sandy soil, on which the seeds should be thinly scattered and just covered with the same compost. The temperature of an intermediate house or the cool end of the stove is very suitable for the seeds of the Aralia, as under such conditions they quickly germinate, and just as the first leaf makes its appearance should be pricked off. After a little they will need potting singly into small pots, a very suitable soil for that purpose being equal parts of loam and well-decayed leaf-mould, with a liberal admixture of silver sand. This Aralia can also, of course, be propagated by means of cuttings; indeed, this is the only course open for the increase of the variegated-leaved variety. The best cuttings are furnished by the weak shoots that are occasionally pushed out from near the base of the plant, and must be taken off with a heel, inserted in sandy soil and kept close, as with cuttings of all other subjects. In the case of a plant that has run up naked, the top can be removed and inserted as a cutting, while other shoots will after a time be pushed out from the stem, and when sufficiently advanced may be taken off and struck in the same way.

HARDY AZALEAS.—The beautiful hardy Azalea sinensis, better known under the name of A. mollis, ripens seed in great profusion, from which young plants can be readily raised, and though this method is not available for the increase of any particular variety, the raising of seedlings is very interesting. In raising this Azalea from seed, a very good plan is to put a few inches of fine sandy peat in an ordinary garden frame and sow the seed thereon, as this does away with the need of pans or pots, though, of course, in sowing but a few seeds it is better to use pans for the purpose. In any case after the seed is sown a little dry sand should be sprinkled over, when all that is necessary is to keep the soil fairly moist, and the young plants will soon make their appearance. When large enough they must be pricked off, and will make more rapid progress if protected by a frame for some time after this. When first planted in the open ground, soil of a vegetable nature is necessary, and the spot should if possible be sheltered from the full rays of the sun and also from drying winds. T.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE.

NOVEMBER 7 AND 8.

As usual, there was an excellent display of Chrysanthemums at the Crystal Palace on the occasion of the annual exhibition. There was a certain want of freshness in some of the classes, but the flowers, on the whole, were of average quality, the Japanese Anemones appearing in perhaps the best character.

The great class was for forty-eight varieties, twenty-four incurved and twenty-four Japanese, and contained the finest blooms exhibited. The first prize went to Messrs. W. and G. Drover, Fareham, who were conspicuously successful throughout. The incurved flowers were neat, well formed, and fresh, especially of such varieties as Lord Alcester, Empress of India, James Salter, Golden Queen of England, Mrs. Heal, Prince Alfred, Jeanne d'Arc, Queen of England, Mrs. W. Shipman, and Barbara. The Japanese kinds comprised, amongst others, good flowers of Edwin Molyneux, Mme. Baco (a beautiful shade of lilac), Mrs. J. Wright, Belle Paule, Avalanche, Ralph Brocklebank, Comte de Germiny, and Boule d'Or. Mr. J. Horsfield, gardener to Lord Heytesbury, was second; in the incurved section there were splendid blooms of the Queen family, and in the Japanese, such varieties as Golden Dragon, Fair Maid of Guernsey, and Maiden's Blush were well shown.

The Japanese flowers were, as at the Royal Aquarium on the previous Wednesday, exceptionally fine for the season, and in the class for eighteen Mr. W. Packman, Foot's Cray, Kent, showed beautiful blooms of Florence Percy, Avalanche, Maiden's Blush, and Marsa, a very close bright cherry-rose flower, with the reverse of the petals silvery colour. Mr. T. Glen, gardener to Mrs. Montefiore, Worth Park, Crawley, Sussex, was not far behind in point of merit, the stand containing a bloom of the variety A. C. de Montcabrier, which is very full, blush, and has long florets. Mr. T. Skinner, gardener to Mr. J. Aird, East Sutton Park, showed the best twelve flowers, and we noticed a good bloom of the old, but beautiful Baronne de Prailly, a variety that it will be difficult to beat. In this class there were no less than seventeen competitors, and fourteen competed in that for six flowers of one variety, and here Messrs. W. and G. Drover were the most successful, showing the richly coloured Boule d'Or in magnificent condition. The blooms of Belle Paule put up by Mr. Doughty, Angley Park Gardens, Cranbrook, who was second, were amongst the finest we have seen this season of this beautiful lilac-coloured Chrysanthemum. In other stands, such varieties as Elaine, Maiden's Blush, and Mme. C. Audiguier were worth a note for their freshness and colour.

The incurved blooms were somewhat rough, as they generally are this year; but there was a strong competition, so quantity made up for quality. Mr. Sullivan, gardener to Mr. D. B. Chapman, Roehampton, had fresh, even, and well-coloured flowers in the class for eighteen. The blooms that deserve notice were those of Mrs. Heale, John Salter, Empress of India, Alfred Salter, Jeanne d'Arc, Mr. Brunlees, and Lady Hardinge. Mr. A. G. Hookings, gardener to Sir H. Thompson, Hurstside, West Moulsey, was second, and he had Golden Empress of India, Alfred Salter, Jardin des Plantes, Prince Alfred, Mrs. W. Shipman, and John Salter in the best condition. Mr. T. Skinner exhibited the best twelve, having The Queen family of excellent finish. Mr. Doughty showed, in the class for six incurved, one variety, Golden Empress, the flowers being of splendid finish and colour; but the examples of the now popular Lord Alcester, from Mr. J. Hewett, gardener to Mr. H. B. Mackeson, Hillside House, Hythe, were almost as fine. In this large class there were beautiful flowers of Nil Desperandum and Lord Wolseley.

The reflexed varieties were exceptionally fine, especially the blooms from Messrs. W. & G. Drover, who were first in the only class provided for this section. We give the names of the best as a guide to intending cultivators: Mme. M. Tezier, Cullingfordi, Amy Furze, King of the Crimsons, and Cloth of Gold. An excellent stand was that from Mr. A. G. Hookings, who showed Amy Furze, King of the Crimsons, and Chevalier Domage. There was a fair competition in the class for nine Anemone-flowered kinds, Messrs. W. & G. Drover showing the finest flowers, and these consisted amongst others of Lady Marguerite and Grand d'Alveole, which has blush-coloured guard florets and a pink-coloured disc. Mr. J. Snow, Wadhurst, Sussex, had in his collection a flower of Timbale d'Argent, which has white guard florets and a yellowish tinted disc. The Pompons were of more natural form than those shown at the Royal Aquarium, but, unfortunately, there is still a tendency to sacrifice intrinsic beauty to mere size. Mr. G. Duncan, Horsham, showed the pretty variety Elise Dordan, a flower of exquisite neatness, the colour delicate pink; Mlle. Marthe, white; and Comte de Morny, purple-magenta. A beautiful class is that called Pompon Anemone, and Mr. Duncan, who was the principal prize-winner, showed to perfection such kinds as Antonius, gold yellow, Marie Stuart, Calliope, fine shade of reddish brown. The singularly characteristic Japanese Anemones were amongst the best exhibited so far this year. Messrs. W. & G. Drover had the finest six kinds, comprising beautiful blooms of Fabias de Maderanaz, Jeanne Marty, and Margouline, purple. Mr. M. Sullivan had the pure white Mme. Cabrol in excellent character. The class for single kinds was comparatively well represented. Mr. E. Chadwick, gardener to Mr. E. M. Nelson, Hanger Hill House, Ealing, was first, exhibiting beautiful flowers of Snowflake, white; Miss Gordon, pink; Magenta King, rich magenta; and Mary Anderson, white, with just a shade of blush.

PLANTS were remarkably good, and there was more competition in the classes for trained specimens than we should have anticipated. The best group of incurved varieties came from Messrs. Davis and Jones, Camberwell; and in the corresponding class for Japanese the most successful were Messrs. Laing and Sons, Forest Hill. Both groups were good, and the individual flowers of marked quality. The six trained specimens from Mr. E. Cherry, Streatham, were worth noting, because they were trained as naturally as it is possible to train a plant. They were a mass of bloom, and included such kinds as Empress of India, Queen of England, Mrs. Dixon, and Mrs. G. Rundle. There were also classes for four plants of both Japanese and incurved varieties in which Mrs. W. Wesker showed well. The six specimens of Pompon kinds from Mr. E. Cherry were well flowered, and included Calliope, Cedo Nulli, La Vogue (yellowish brown), Rosinante, and Nellie Rainford. There were also classes for red and white-flowered Chinese Primulas.

There were special prizes offered for vegetables. Messrs. Sutton and Sons, of Reading, offered prizes for the best collection of Potatoes, and Mr. W. H. Smith, Horpit Warborough, Shrivenham, was first, and also in the class for the best dish of certain specified kinds. Mr. G. Goldsmith, Floore, Weedon, had the best twelve specimens of Onions, the prizes also being offered by Messrs. Sutton and Sons. Mr.

C. Fidler, Reading, offered prizes for the best six dishes of Potatoes, and Mr. Ridgewell was first.

FIRST-CLASS CERTIFICATES went to

AVALANCHE, a beautiful white Japanese variety, now well known. From Mr. W. Packman.

MARSA.—A very distinct Japanese Chrysanthemum, the flowers very compact and bright cherry-rose, with the reverse of the florets silvery grey. From Mr. W. Packman.

FLORENCE PERCY.—This Japanese kind improves on acquaintance. It is pure white and has crimpled florets.

VIOLET TOMLIN.—This new incurved variety is a grand addition. It is deep purple in colour.

MONS. BERNARD.—A Japanese flower of a cherry-rose tint. It is very full and handsome. From Messrs. Davis and Jones.

Miscellaneous collections were numerous. Messrs. Sutton and Sons, of Reading, showed a magnificent collection of Potatoes, and Mr. C. Fidler also had Potatoes. Messrs. Cannell and Sons had Chrysanthemums, Begonia Octavia and Pelargoniums. A collection of Apples grown on the Paradise stock came from Messrs. J. Laing and Sons, and a similar collection from Messrs. J. Cheal and Sons, Crawley. A very fine display was made by a large collection of Nova Scotian Apples from Messrs. Nothard and Lowe, Tooley Street. There were excellent fruits of Gravenstein, King of Tomkins County, Emperor Alexander, and Baldwin, and the colour was remarkably brilliant.

A list of prizes is given in our advertising columns.

ROYAL HORTICULTURAL.

NOVEMBER 13.

THERE was a very small meeting at the Drill Hall on Tuesday last, the principal things shown being enumerated below.

First-class certificates went to the following:—

LÆLIA VICTORIA.—A beautiful hybrid between L. crispa and L. Domini, the flowers showing the characters of both parents. The spike bore two blooms, both of high colouring, and about the size of those of the beautiful Lælia or Cattleya crispa, the wavy, frilled sepals being narrower than the petals, but both are of the same glowing lilac-magenta shade. The lip is of the most lustrous depth possible, mingled with purple, which runs into the throat, where it is intensified by a thin margin of gold colour, this giving way to pure white at the extreme margin. The side lobes are white and almost envelop the column. Besides its brilliant colour, this Orchid has a delicious fragrance like that of Cowslips. From Mr. Ballantine, gardener to Baron Schroeder, The Dell, Egham.

CHRYSANTHEMUM MR. GARNAR.—Sufficient is now known of this golden yellow Japanese Chrysanthemum to justify the award of a certificate. It belongs to the section with thread petals, and the bloom is of excellent substance. From Mr. G. Stevens, Putney.

CHRYSANTHEMUM AVALANCHE.—This needs no description. From Mr. G. Stevens.

STACHYS TUBERIFERA.—A basket of this new vegetable came from Messrs. J. Carter and Co., High Holborn, together with cooked tubers. The flavour is somewhat like that of the Potato, but it is not a vegetable that will come into general use, as the tubers are miserably small, wrinkled, and of no particular quality.

ONION SOUTHPORT RED GLOBE.—This, judging from appearance, is an excellent variety. It is of ovoid shape, solid, and deep crimson in colour. From Messrs. J. Veitch and Sons.

Besides the above there was very little of note. Mr. W. Warren, Isleworth, had a large group of well-grown Cyclamens, and was given a silver medal. We have not often, even in the palmy days of the Royal Horticultural Society, seen a better display of this winter flower. A stand of greenhouse Rhododendron flowers came from Messrs. J. Veitch and Sons, Chelsea. The varieties were Pink Perfection, pink; Duchess of Edinburgh, scarlet; Primrose, yellow; and Princess Christian, yellowish buff. Messrs. J. R. Pearson and Sons, Chilwell, Notts, showed a Japanese Chrysanthemum of a reddish-brown colour with golden reverse to the florets, but we have far better varieties already in cultivation. A Japanese Chrysanthemum, to worthily obtain a certificate, must be something out of the common. Mr. D. B. Knox, Caversham, Reading, sent a small plant of Oncidium cornigerum, the flowers yellow, with broad yellow bands; and from Mr. G. W. Cummins, gardener to Mr. A. H. Smee, The Grange, Wallington, came the blue-flowered Disa graminifolia, which is described in last week's GARDEN, p. 451. Mr. Herrin, The Gardens, Dropmore, had fine cones of Pinus Lambertiana.

The most interesting exhibit consisted of tropical Water Lily flowers from the Royal Gardens, Kew; there were blooms of the delightful rose-crimson Nymphæa Kewensis, the pearly white N. Lotus, the pink N. Ortgiesiana, the flesh-tinted N. Lotus pubescens, and the deep rose-carmine N. Lotus Devoniensis. We wish that a few more exhibits of this interesting character were brought to the meetings in place of the usual run of things that everyone knows.

Fifty varieties of Apples were put up by Mr. W. Roupell, Streatham, and comprised fine fruits of Cox's Orange Pippin, The Queen, Peasgood's Nonsuch, Lord Suffield, Ribston Pippin, and Cellini (bronze medal). A seedling Grape from Gros Colman named Mrs. Clarke was shown by Mr. E. H. Woodall, Scarborough. It ripens early and colours more freely than the parent, and the quality of the berries is richer. A seedling Apple came from Mr. W. Kent, Downham Market, Norfolk, and it had much of the character of Dumelow's Seedling. Apples also came from Mr. Thornton, gardener to Mr. A. Lane, Mileham, Streatham.

There were few vegetables. A large collection of Beet and Onions came from the Royal Horticultural Gardens at Chiswick. The Beets included Nutting's Dwarf Red, Dell's Crimson, and Covent Garden Red; and amongst the best of the Onions were James' Keeping, The Wroxton, Yellow Giant Zittau, White Globe, and Anglo White Spanish. A new vegetable called Asparagus Chicory was exhibited by Mr. J. Willard, The Gardens, Holly Lodge, Highgate. Its advantages over other vegetables were not very evident. It must be tried before an opinion can be given.

Meeting.

A meeting of Fellows of the Royal Horticultural Society was held on Tuesday last in the council room, the chair being taken by Sir Trevor Lawrence. The object of the special meeting was to determine where the quarters of the society shall be during the coming year, and several letters were read from gardeners and nurserymen as to the most likely place to suit exhibitors and the public. The tone of the letters was certainly against removing to Chiswick, but there was also evidently a feeling that the Drill Hall had not come up to expectations, although a central position was essential. Various objections were urged against the Chiswick Gardens. It was considered to be inconvenient and too far removed from London. After much desultory discussion it was moved and seconded, "That the council be requested to make arrangements to hold a certain number of meetings in the course of the summer and autumn at Chiswick." After this the chairman invited opinions as to the Drill Hall. Eventually it was proposed and seconded, "That the council be advised to continue the Drill Hall for twelve months."

Scientific Committee.

The Jensen system of moulding Potatoes.—During two successive seasons elaborate experiments and careful observations were made as to the effect of the Jensen system of moulding. The experiments were made at Chiswick, under the superintendence of the scientific committee. Although results of considerable practical interest were obtained, yet the primary object of the experiments was frustrated by the non-appearance, or, rather, by the scanty development, of the Potato-mould. Moreover, it became apparent that the cost of the experiments, as then carried out, would be such as to preclude their imitation on a large scale for practical purposes.

During the present season the Potate disease set in at Chiswick with virulence about July 29. Up to that time no attempt had been made to check its course or to note the conditions under which it occurred; but, at the suggestion of Mr. Plowright, two rows in juxtaposition were submitted to experiment on August 10.

The rows were 30 yards in length, the variety selected Schoolmaster, and the conditions as absolutely identical as possible, except that the one row was left moulded in the ordinary way, while the other was "high moulded"—that is to say, banked up on one side to form a ridge, while the haulm was slightly bent over to the other side. In the ordinary system of moulding, a furrow is left along the top of the ridge into which it is surmised that the spores fall, washed off by rain from the foliage. The high moulding, it is supposed, obviates this by securing the fall of the spores on the ground between the rows, and not on the rows themselves. As the disease appeared to be equally severe on both rows, and was, moreover, far advanced, but little expectation was indulged in that the results would be of any value.

Nevertheless, on September 29, the Potatoes in the two rows were lifted and examined, as dug, by Mr. Barron and Dr. Masters. It speedily became apparent there was a considerable difference between the two rows, and that the tubers from the high-moulded row afforded a much cleaner and more even sample. With a view to put this general impression to a numerical test, fifty tubers from each row were taken indiscriminately, twenty-five by one observer, the remainder by the other, so as to equalise as far as possible the "personal equation." These hundred Potatoes were then examined with a more careful scrutiny, each one being cut open to ascertain whether or no it was diseased. The result was as follows: Out of fifty taken from the row moulded in the ordinary way, thirteen were found diseased, or 26 per cent. Out of fifty taken from the high-moulded row five only were noted as diseased, or 10 per cent. No doubt a more careful examination by the microscope would have indicated a larger proportion of disease in each case, but it is not likely that it would have very materially altered the proportion either in one direction or the other. In order, however, to obtain further information upon this point, twenty-five tubers from each row were put aside for future examination. Fifty tubers, twenty-five from each row, were set aside at the time of lifting to see how many would show disease subsequently. Result, Nov. 12: ordinary moulding, thirteen tubers diseased, twelve sound; high moulding, twenty-five (all) sound.

The centenary of the Chrysanthemum.—Some of those more particularly interested in the cultivation of the Chrysanthemum having expressed a desire that some notice should be taken of the fact that the year 1889 will be the centenary of the introduction of the Chrysanthemum to Europe, a meeting took place in the Board room of the Crystal Palace on the 9th inst., Mr. E. Sanderson, President of the National Chrysanthemum Society, in the chair. After some discussion it was moved by Mr. John Laing, seconded by Mr. W. Earley, and carried unanimously, "That considering the year 1889 is the anniversary of the introduction of the Chinese Chrysanthemum to Europe, it is advisable that the National Chrysanthemum Society be requested to prepare a scheme for the proper celebration of the same." We understand that the committee of the National Chrysanthemum Society will take the matter into consideration at their next meeting.

Manures.—Will any readers of THE GARDEN give their experience as to the result of using for flower garden cow-house or slaughter-house manure where sawdust is used instead of straw?—X.

Names of plants.—*A Constant Reader.*—2, Saxifraga aspera; 3, Saxifraga Hosti; 4, Saxifraga hypnoides; 5, Sedum spurium pulchellum; 6, Phlox setacea.——*J. Fulding.*—Eryngium amethystinum.

Names of fruits.—*E. M. F. M.*—1, Apple Lord Suffield; Pears: 2, Catillac; 3, Beurré Diel; 4, Passe Colmar; 5, Beurré Bosc; 6, Flemish Beauty; 7, Duchesse d'Angouleme; 8, Nouveau Poiteau; 9, looks like Napoleon; 10, Seckle.——*T. R.*—16, Fondante d'Automne; 25, rotten; 41, Beurré Bosc; 60, Zephirin Gregoire; 13, Marie Louise.——*F. B.*—Pear Comte de Lamy.

WOODS & FORESTS.

THE LIME TREE.

(TILIA EUROPÆA.)

THIS is the principal tree belonging to the genus, and although not generally grown in this country for its timber, yet its merits as an ornamental tree, combined with the useful quality of its wood when clean grown and of average size, are of no mean order. It is indigenous to different parts of Europe, and is likewise considered by some writers to be a native of the south of England, but as the tree does not ripen its seeds with any certainty and reproduce itself even under the most favourable conditions, it is doubtful whether we can claim it as a native or not. But although it does not reproduce itself in a natural way, yet it is easily propagated by pegging down the young suckers which spring from the roots of old-established trees, and as these form roots quickly, the Lime can be increased rapidly. As the Lime is thoroughly hardy and capable of being transplanted with success after it attains a large size, it is one of the best trees for filling up blanks in old plantations and avenues where it is desirable to maintain and keep up a uniform appearance. It is equally well adapted for planting as a standard tree upon the lawn or elsewhere, and when well established, its shapely contour and soft, light green foliage make an agreeable contrast with trees of a more rigid outline of growth and sombre appearance. In July, when in full flower, it imparts an agreeable perfume, which renders it very attractive. It cannot be said to be fastidious in its choice of soil, as I have planted it with success upon all classes, from the sea-board up to about 1000 feet above sea level. In order, however, to attain a reasonable amount of success, it should be explained that soils are so different in their composition and texture, that much depends upon their thorough preparation previous to the planting of the trees.

Deep loamy soil is highly suitable for this tree, and requires little or no preparation further than thorough drainage where requisite. Clay land, on the other hand, not only requires thorough draining, but likewise trenching. To the want of these preliminary preparations many failures of the tree on such a soil can be clearly traced. Dry shingle and light sandy soils are always poor, and I have found a dressing of clay beneficial. It is likewise an advantage to allow the clay to lie exposed upon the surface of the ground for some time before mixing it with the staple. I have likewise grown some fine healthy trees of this species upon Moss ground in an advanced state of decomposition by mixing a portion of clay with the Moss in a similar way to that described for sandy soil. When the ground is thoroughly prepared in this way and the trees skilfully planted they soon become established, and attain a good size even on exposed situations.

Although the Lime is occasionally attacked by insects, yet such are never of a deadly nature. The bark of small branches of the tree are sometimes punctured by the Aphis tiliæ, by which means the branch is curved and bent round in a spiral form, on the hollow or concave side of which the insect rears her progeny, and as the contorted part has the effect of drawing the small twigs and leaves at that part of the branch pretty closely together, there is thus a canopy formed overhead for shade and protection. Sometimes the leaves and flower-buds are damaged by the formation of midge-galls, which assume the shape of an oval swelling about one-fourth of an inch long on the bract. They are smooth and fleshy, and contain several larvæ of the insect Cecidomyia floricola (Rudo.). Another form of galls is a tubular inrolling of the margins of the young leaves, and generally of a reddish colour and of a thick fleshy texture.

There are several varieties of the common Lime to be found in nurseries. All of these are attractive and very suitable for ornamental planting, but perhaps none more so than the small-leaved European Lime (T. e. microphylla), which never attains a large size, but which from its compact, neat habit of growth is remarkably well suited for planting on small lawns and other places where the grounds are of small extent. The American Lime (T. americana) is a large, robust, round-headed tree, and makes a grand specimen on an extensive lawn where it has space to grow and be seen to advantage. Its leaves are larger, more pointed, and of a darker green colour than those of the European species, and in winter when divested of its foliage the dark red colour of the branches and young twigs afford an agreeable contrast with those of other trees in its vicinity. The timber of the different species and varieties is of a soft, light texture, of a whitish colour, capable of taking on a fine polish, not apt to warp, and is used for different kinds of carving, moulds, and models of various sorts. The Lime is also largely used for making charcoal.

J. B. WEBSTER.

Planting.—Progress in planting has been very much facilitated by the fine weather of the past month. The month of October was most favourable to planting operations, especially in the northern division of the kingdom. Taking the month all through, it was the best October that has been experienced for some years, the weather on the whole having been fairly open and mild, with the exception of a few boisterous days at the beginning of the month. Owing to the long spell of good weather a large area of planting ought to have been accomplished during October, and should the present fine weather continue throughout November, there will be still a greater area planted. Genial weather is of the greatest moment to the well-being of the plants after they have been put into the ground. Plants put in during last month will be rooting freely, and those that are being put in now will soon take hold, so that before the bad weather comes the plants will be established in their permanent quarters. Undoubtedly the best results are always attained by autumn planting. Plant all the perfectly dry and warm ground now, and leave all the wet and cold ground unplanted until it has been thoroughly drained. Rather than put trees in wet ground, or in ground not sufficiently drained, it is better to leave such ground unplanted entirely. Planting can be done now-a-days much more cheaply than it was done a few years ago. I look forward to the conclusion of this autumn season's planting as being the most successful that has occurred for some time.—J. F.

The influence of sunlight on trees.—In the latest report of the head of the Forestry Department of the United States reference is made to the effect of light on the growth of various trees. It is well known, says Professor Fernow, that light is necessary for the development of chlorophyll, and therefore for the life of all green plants, and especially for that of trees. The heat alone which accompanies the light is not sufficient, although the relative influence of the light and the heat on the growth is still an open question, as well as the relative requirements in light of different species of trees. In the case of forest weeds, which in forestry serve as an indication of the amount of shade which the trees exert, and with that their capacity of impeding evaporation, some require full sunlight for their development, others are averse to a high degree of light. To this must be due the change in the plants of a district when its forests are removed. Then the amount of light or shade needed is modified by site. Where the sunlight is strong, in higher altitudes, drier climates, or where the growing season is longer, or there are more sunny days, some species will endure more shade. The flora of high altitudes in general requires light. Trees nearly always develop best—in other words, make most wood—in the full enjoyment of light, but their capacity of developing under shade varies greatly. The Yew will thrive in the densest shade, while a few years' overtopping kills the Larch; the Beech will grow with considerable energy under partial shade, where the Oak would only just keep alive and the Birch would die. When planted in moist places all species are less sensitive to the withdrawal of light. In the open, Maples, Elms, Sycamores, and others grow well and make good shade trees; in a dense forest they are thin and have but scanty foliage. Conifers, such as Spruces and Firs, which preserve the foliage of several years, have perhaps the greatest capacity of growing under shade and preserving their foliage in spite of the withdrawal of light. In America sufficient data to group the forest trees according to the amount of light required by them have not yet been collected, but rules based on experience have long been formed in Germany, where the behaviour of trees under different conditions of light has been carefully studied. It has been found, for instance, that on the same branch those leaves which are developed under the full influence of sunlight are not only larger and often tougher in texture and thicker, but that they have a larger number of stomata or breathing pores than those less exposed to light. The whole subject is one of the utmost importance in forestry, and observations and experiments are to be carried out in regard to it in the United States.

BARBED WIRE FENCING.

THE fence of the future, there is no doubt, will be barbed wire. As a fence for the protection of woods and plantations, and also as a fence for subdividing land for depasturing and cultural purposes it is the best. Horses and heavy cattle are very injurious to fences. This is the case, whether the fields are partly cropped with cereal and green crops, or whether they are solely given over to grazing use; hence there is no end to the repairing of fences, requiring, perhaps, the constant labour of two, three, or even more men on large estates to keep them in even a moderate state of repair. The fencing required on large landed estates entails an enormous outlay to the proprietors from year to year by the continuous tear and wear of all kinds of materials used in its construction. It is safe to say that a new era has been reached in fencing. Permanency and economy are what ought to be aimed at, and both of these qualities are contained in the barbed wire fence. Those who have hitherto used it only in a limited way will use it more freely now, having experienced its superiority as a fence and its harmlessness to cattle, &c. Therefore it is reasonable to suppose that those who have so far been timorous and prejudiced against using barbed wire as a fence will be less so as the steady use of it increases. Whatever is good or bad in anything is disseminated by approximation. Doubters will be brought to realise the advantage of barbed wire fencing, and, it may be, to use it, or at all events to inquire more about it. Barbed wire fencing is perfect, durable, economical, and harmless to cattle. In erecting fences of barbed wire, somewhat more time will be consumed, but their excellency and permanency will do far more than counterbalance any little extra labour required in erection. Fewer posts at first will be needed to put up the fence. It is no exaggeration to compute that the posts will last one half longer than they would do in the ordinary wire fence, seeing that the barbed wire will never be subjected to any pressure from animals leaning on it. This of itself will be a vast saving. Five lines of plain No. 8 steel wire, with one barbed wire on the top will be a sufficient fence for all kinds of cattle and sheep in fields or elsewhere. Around plantations a six-wire fence of alternating plain and barbed wire makes a fine protection for the trees, as well as tends to keep out dogs, &c. J. F.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE.'—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

PLANTING ROSES.

IN planting Roses there are several important points upon which too much stress cannot possibly be laid. Of these one of the most vital is to avoid planting when the ground is wet and sticky after rain. The heavier the soil, the greater the necessity that it should be dry when planted, and if Rose trees are ready to be put in or come to hand in rainy weather, it will be a saving of time eventually to heel them in carefully until the ground dries instead of planting them immediately, and so courting failure. Some trees were lately seen being planted in clay soil which was at the time too wet to break up at all when a clod was thrown down, but all stuck solidly together; nevertheless, the trees were being diligently trod firm by an industrious, but misguided son of toil, whose laboured movements were soon further impeded by the adhesion of about a ton of soil to his conspicuous boots, and the weariness and dissatisfaction of all concerned were as great as the inevitable failure of the operation.

Trees so treated might just as well be planted in plaster of paris, when a better plaster cast of the root-stock would probably be obtained, and the tree's chance of thriving would hardly be less than with the puddled clay excluding all air and warmth from the unhappy roots.

However heavy the soil, it should at the time of planting be dry enough to break up readily when turned up with a spade, and not to stick to the boots when the beds are walked upon. Planting cannot be done without a good deal of treading about on the ground, and when this is wet and sticky at the time, the after effects are most disastrous to the land itself quite apart from the fate of the trees. The soil gets caked down round the plants and all the advantages of additional warmth and dryness where the surface is left rough during the winter are lost, whilst it is almost impossible to get the land back into good working order without removing all the trees and leaving it unoccupied for some little time. It is very advantageous in planting on strong clay land to have a barrow-load of more friable loam or chopped rotted turves constantly at hand, and with two or three spadefuls of this more-easily-managed soil to cover the roots of each tree, as it is important that every root should be entirely in contact with the soil, and the stronger the land the greater the scarcity of "crumb" wherewith to effect this object, which cannot be ensured by filling in round the tree with soil in lumps.

Another point that should never be neglected in planting Roses is the careful placing and arranging of the roots. These should be spread out evenly, as far as possible, on all sides over the bottom of the hole, like the spokes of a wheel, radiating from the centre. If a root is too long to lie at length in the hole, either the hole must be extended or the root must be shortened; no root should ever be tucked in or coiled round the side of the hole. There need be no fear of shortening the roots of Roses, provided the operation be performed with a sharp knife and the trees planted immediately afterwards. A length of from 6 inches to 9 inches is amply sufficient for the roots of dwarf Roses at the time of planting, and a good supply of such roots when spread out as far as possible in a circle will obviously occupy a hole not less than 14 inches to 20 inches in diameter. It takes two people to plant Roses to the best advantage—one to dig the hole and shovel in the soil, and the other to place the plant, arrange the roots, and, if need be, hold them in position until covered with soil.

At what depth ought Roses to be planted? is a question that is often asked. As shallow as possible, is the general answer, which must be modified in particular instances according to the form of the plants and the nature of the stock they are worked upon.

If people for any exceptional reason, such as having a soil consisting entirely of or very rich in humus, or through being unable to obtain plants upon any other stock, are planting dwarf Roses on the Manetti, these must be planted with the junction of stock and scion just about 1 inch below the level of the soil, because as the roots of the Manetti have generally a tendency to perish after a year or two, it is important that the scion should be in a position to effect its self-preservation by being in contact with the soil, and so being able to throw out shoots of its own.

If the plants are upon Brier-cutting stocks, it is also, on the whole, desirable that the point of junction of stock and scion should be covered, although it is not essential, as in the case of Manetti.

Of course, this is assuming that the plants on either stock are budded so close down to the roots that it shall not be necessary to bury them at all deep, in order to ensure the point of insertion of the bud being covered with soil. If as is sometimes done by careless propagators, plants on Manetti are turned out with 3-inch or 4-inch stems, that is to say, plants in which the bud has been inserted 3 inches or 4 inches above the roots of the stock, they are simply not worth planting, as they will not thrive unless planted with the junction of stock and scion below the surface of the soil, and the depth to which, in order to effect this, the roots would have to be buried would be equally fatal to them.

Similar plants on Brier-cutting stocks, though undesirable, may be safely planted with the point of union well above ground, when, although the scion will be unable to throw out supplementary roots of its own, they will probably not be needed, and at any rate those of the scion will not be buried beyond the reach of sun and air.

Plants on the best of all stocks, the seedling Brier, appear to have comparatively little tendency to get on their own roots, even when planted with the junction of stock and scion well below the surface, and consequently it is generally found most advantageous to plant with the point of union just above the ground line, so as to keep the roots as near the surface as possible; for the root-stock of the seedling Brier going straight down into the soil, sometimes to an immense depth, is strangely different from that of the Brier cutting or Manetti, whose roots grow horizontally and keep naturally near the surface of the ground.

If planting is begun early, before the plants have shed all their leaves, these should be carefully removed, in order that the shoots may not shrivel; but if, for lack of this precaution or after a long journey, Rose trees come to hand at all shrivelled, they had better be buried for a couple of days, laying the plants at full length, covering them completely with soil, and giving them a good watering; then in two or three days they may be taken out, and the wood will be found to have quite plumped up again.

Standards should, of course, be staked as soon as planted, and where dwarf plants are very large and strong, staking will be a great help to them also, the stakes in their case to be removed at pruning time in March. No pruning should ever be done at the time of planting, March or quite the end of February being soon enough.

It goes without saying that the ground intended for Roses should be deeply trenched and well manured; if light, to be supplied with a liberal top-dressing of yellow loam or clay; if very heavy, to be well mixed with burnt earth at the time of trenching; then with good plants, carefully planted in dry weather, success is almost certain.

—— Roses may be and are planted from November till March, and the Teas are often planted later in the spring, especially when purchased in pots. But if a good bloom is required the first season, the Roses planted in November will always bear away the palm. The moment the roots of a Rose are placed in contact with the soil the plant begins to repair the damages sustained by its removal. If anyone will plant a Rose tree now and lift it again in a month's time, he will find the plant has already made considerable progress towards establishing itself in its new home, while roots will have started away in all directions and are rapidly occupying the soil within their reach. By the month of March the plants will feel at home in their new position. I need hardly say that such a plant will have an immense advantage over one that has been newly planted and has all its work to do just at the time the drying winds are setting in. I do not say February or March-planted Roses if well cared for will not do well enough, but those planted now will do better.

The preparation of the soil for Roses is a most important matter. Most of the ills to which the Rose is subject are aggravated by planting without giving the land the necessary preparation. It is cheaper and better to prevent the attacks of insects and fungoid pests than it is to combat them in summer. At the latter season the insects and the mildew often have the advantage, because the growth of the plants is weakened by the want of the thorough working and manuring of the land, which can only be done when it is vacant. It is impossible to work the land properly when the Roses are planted. This can only be effectually done beforehand when there are no roots to interfere with the free use of the spade. The manure, too, can be better blended and intermixed with the soil when done before planting. Top-dressing with rich compost must be an annual operation if the vigour of the plants is to be kept up, but this top-dressing, no matter how freely given or how assiduously attended to will not compensate for lack of depth. In nine cases out of every ten, when complaints are made of insects affecting the Roses, the fault lies with the grower in not giving the necessary cultivation to the soil before the roots of the plants were committed to it. A shallow, ill-worked bed or border is of no use for Roses, and it is a mockery to plant them in such a situation. Only the strong plants can survive in such a position, and even they will have a severe battle with their foes. When one looks at the matter from a common-sense point of view, it becomes exceedingly simple. We discount our summer's work at a time when there is more leisure, and, at the same time, prevent the plants having a fair start. To grow good Roses, there should at least be 2 feet in depth of good soil. Well-formed, full-petalled Roses never yet came from a badly worked, insufficiently nourished soil.

In the Rose nurseries the best plants are generally cleared off before Christmas, so the late planters have to take what is left, and generally

find some difficulty in getting all the varieties they order. Therefore, if anyone is thinking of planting at all, he had better purchase the plants now, have them home, trim up their roots a little, and lay them in till their proper position is ready to receive them.

In grouping Roses on the lawn for effect the plants should go in more thickly, whether they are Teas, Hybrid Perpetuals, or any of the old-fashioned Roses, such as the Moss or Provence. I do not dislike standard Roses if the plants grow and are healthy. There are plenty of positions where a standard Rose seems to fit in well. A large group on the lawn composed entirely of dwarf Roses has a dumpy effect without a few standards towards the centre to lift up and deepen the mass. But standard Roses are very likely to go out of cultivation. The Briers can be had in the country in many instances by taking the trouble to dig them out of the hedges, and many people bud their own Briers, so that the standard Rose in many country villages is an institution of the place, and not likely to die out. Those who are thinking of purchasing a few new Roses might at the same time look up a few Briers and plant them in rows 3 feet apart and 18 inches apart in the rows It will be necessary to stake them at the same time. Two or three stakes are driven at intervals along the rows, to the tops of which are tied pliable Hazel rods, or something that will hold the stems of the Briers steady. This is the best season to plant cuttings of Manetti or Brier to form stocks for budding dwarf Roses on.—E. H.

THE SELECTION AND GROWING OF ROSES.

I THINK that "T. W. G.'s" points (in your issue of the 17th inst.) are too numerous, and apparently he views the question more in the light of a Rose election than of a proposed discussion on Rose growing, methods of cultivation, pruning, &c. In "T. W. G.'s" essential points I perfectly agree that hardiness and vigour as well as a capacity to resist mildew are most desirable, and I think that the elimination of Her Majesty, Cheshunt Hybrid, and other mildew generators will be no disadvantage to any garden. In regard to the selection of the flowers, I think seven essentials too numerous; three would be ample:—

Form,
Colour,
Fragrance.

Surely, as a rule, freedom and continuity of production are usually associated with hardiness and vigour, and erectness would also come under the same heading.

Unsuitable and exposed situations in gardens account usually for disfigurement by sun or wet. Of course, a lengthy drought with a blazing sun or a dripping summer will baffle even the most experienced and best placed grower, so I hardly think "T. W. G.'s" essential No. 5 is of much moment in a Rose election.

In addition to the topics suggested by "T. W. G.," methods of pruning and general treatment of the plants in the early summer and late autumn should be discussed. Everyone interested knows how greatly opinions differ on these subjects. Authoritative expressions of opinion from men of such renown as Messrs. George Paul, Wm. Paul, the Dean of Rochester, Mr. Baker, Benjamin Cant, and others would be valuable, interesting, and instructive.

Why not at once define certain points to be discussed and certain rules to be adhered to? Call for lists from the readers of THE GARDEN of the best forty-eight Roses for exhibition, and best lists of from fifty to a hundred Roses for general purposes. Too large a list would be confusing, and I think fifty kinds enough for most people.

Now that the ball has been set rolling, the forthcoming numbers of THE GARDEN should be very interesting to the lovers of the Rose, and, as "R. B." says, the discussion should do more good than all the books that have been written on the queen of flowers. C. J. G.

SHORT NOTES.—ROSES.

A blue Rose.—I notice that Messrs Crews, Cox and Co., of Gloucester, England, advertise a blue Rose, even Nemophila blue, which, of course, stamps the colour beyond question. I do not believe that they have a blue Rose of the colour of a Nemophila, and that none such will ever have an existence, but I am exceedingly curious to learn on what plea such a bold claim is made.—PETER HENDERSON, *New York*.

China Roses.—I am not quite clear what China Rose "R. D." refers to, in his well-timed advocacy of these charming, but unduly neglected autumnals on page 428, as "the common white variety," of which I can find no mention in any catalogue. I see also that Ducher is again recommended—a variety that with me has long since proved quite worthless. It is hoped that Madame Jean Sisley (Dubreuil, 1884) will prove more valuable.

Fortune's Rose in Adelaide, Australia.—We have received from Mr. W. B. Weiger, Botanic Gardens, Adelaide, a photograph of what he describes as one of the finest specimens of Fortune's Rose in Australia. Mr. Weiger says:—

On the left-hand side of the main walk near the fountain in the Botanic Gardens there is, at the time of sending this note, in blossom the finest specimen of Fortune's Rose in Australia. It was planted twenty-six years ago by the late Mr. Francis, the first director. It has grown to such an extent that it has quite outgrown the space originally intended for it. At 12 inches from the ground the stem measures 36 inches in circumference, and there it breaks forth into several branches. The tree is about 12 feet in height and the same through, and no particular treatment is given to it. All it receives is a slight quantity of short manure and a mulch in summer, together with copious waterings.

There have been several notes on this lovely Rose in THE GARDEN this season, but we have never been able to record the existence of such a magnificent specimen as that referred to above. With the introduction of so many new varieties, older and frequently far more worthy kinds become quite overshadowed. Fortune's Rose ought to receive the cultivation its merits entitle it to, and after the praise that has been given it this season, we may hope to see more of it in the future.

Bouquets.—The ordinary exhibition bouquet still runs on about the old lines, although such bouquets as are made up by the best *artistes* are invariably beautiful arrangements. At the recent Kingston Chrysanthemum show very beautiful bouquets were set up by Messrs. Perkins, of Northampton, and Mr. W. Brown, of Richmond, both having bases, but rather dense and solid, of white flowers, with Orchids and some other elegant flowers standing out from them, with, of course, the customary dressings of Maiden-hair Fern. Neither bouquet was of exceptional dimensions. That from Messrs. Perkins owed its advantage in the competition largely to the fact that the base consisted chiefly of Eucharis and Tuberose flowers, whilst Mr. Brown's bouquet had a base mainly of white Chrysanthemums. There still remained the fact that, admirable bouquets, as both were, they were only stereotyped ones after all. A totally different bouquet *artiste* is Mrs. H. B. Smith, of Ealing. This lady has singularly varied and yet delightful taste, and rarely follows a beaten track. Mrs. Smith put up at the Ealing Chrysanthemum show the other day two bouquets of the widest dissimilarity. One had for flowers exclusively the white cornucopias of the Calla, set up rather in conical than in rotund form, the flowers standing out from a base of thinly arranged dark-hued leaves of Croton and Dracæna, with some fronds of Pteris aquilina. Not a particle of Moss or packing is employed in making up bouquets of this description. The other, more simple, consisted of Roman Hyacinths and white double Primulas set very naturally in a base of dark Bramble leaves, a few pointed Croton leaves and Maiden-hair Fern being used as dressing. Sometimes Mrs. Smith sets up bouquets of Chrysanthemums, only using two colours. A basket of Chrysanthemums, white, gold, and brown, was a most beautiful object at the same show.—A. D.

FERNS.

W. H. GOWER.

BLECHNUMS.

"H. G. T." says: "Whilst examining some Ferns at a local show recently, I observed two plants which pleased me very much. They were named Blechnum brasiliense and Blechnum occidentale. Can I use the first, which is a large growing kind, as a window plant in a warm room, and will the other small growing kind grow in my Wardian case? Are there any others of this beautiful family suitable for my requirements?"

The genus Blechnum is a somewhat large one, more so, I think, than most authorities admit, as some of the kinds which are considered as synonymous, I find as cultivated plants are very distinct; this, however, will not matter to "H. G. T." Of the many species and varieties in cultivation, many of which would thrive under Wardian case treatment, some are suitable for cool house culture, but I do not remember ever seeing in good condition a Blechnum treated as a window plant, and certainly B. brasiliense would not, as it likes strong heat and moisture, although it lives and grows fairly well in the greenhouse during the summer months, but then it presents rather a starved appearance compared with the growth made in a higher and moister atmosphere.

B. OCCIDENTALE will thrive well in a Wardian case, and if the plant you saw was in good health, there is little wonder that you should admire the intense vivid green of the fronds and the continuous broad lines of rich brown sori, which are both conspicuous and pleasing. When grown in heat and the plant is strong, the fronds will grow from 18 inches to 2 feet in length, but with you they will in all probability scarcely ever exceed a foot in length; this, however, will not detract in any way from the beauty of the plant. The fronds are simply pinnate, the pinnæ being broad, rich deep green in colour, with a broad central line of deep brown sori, or, to speak more correctly, there is a continuous line of sori on each side of the mid-rib, which becomes confluent with age and forms a single central broad stripe. It is widely distributed throughout South America and the West Indies.

B. OCCIDENTALE TRIFURCATUM, a form from Dominica, is similar in growth to occidentale, but the ends of the pinnæ have a flat, three-pointed crest. It is exceedingly handsome, but I believe somewhat rare in cultivation.

B. CAMPYLOTIS.—This is said to be the same as occidentale, but as a growing plant it is very distinct. The fronds are much narrower, more slender and graceful. When strong the fronds vary from 18 inches to 2 feet in length by about 2 inches in breadth. The lower 6 inches is naked saving a few large, scattered, chaffy scales, the lower pair of pinnæ being slightly reduced and recurved, whilst from about the middle the frond tapers gracefully to a point. Whether a species or a variety, it is extremely handsome and cannot fail to please.

B. HASTATUM is a pretty small kind from Chili. It is much misunderstood, for I have frequently met with a plant in collections under this name having no affinity with it. When grown in the stove I have seen the fronds 18 inches high and 2 inches wide, but it is prettiest when grown cool; it then forms pretty tufts, and would be a most desirable plant for your Wardian case. The fronds are of two forms, from 5 inches to 7 inches or 8 inches high, the barren ones being the shorter. The sori are medial and do not become confluent, so that there is a double row, one on each pinna. I shall, however, close these short notes on Blechnums suitable for a Wardian case with two very pretty kinds, totally distinct from the others and slightly more delicate in constitution.

B. LANCEOLA is a slender creeping plant with an erect stem; the fronds are usually simple and from 3 inches to 4 inches broad, tapering towards both ends; the colour is deep green, and on either side of the mid-rib there is a continuous line of sori of a rich brown, which seldom becomes confluent. For a long time this simple state of the plant only was known, but when grown in stove-heat it does sometimes develop a pair of small obtuse pinnæ just below the large medial one. It is a native of Brazil and Peru.

B. LONGIFOLIUM.—This is a somewhat similar plant to the previously named one, but is more robust, and the side pinnæ are more developed, but the middle or central one is always double the size of the lateral ones. The fronds, usually 6 inches to 1 foot high, with two or three pairs of side pinnæ, are rich deep green in colour, and bear a line of sori on either side of the mid-rib. It comes from Brazil and the West Indies.

Blechnums are usually of robust constitution and do not require much care in their cultivation, provided they have the drainage in good working order, as they like an abundant supply of water; nevertheless, drenching with water overhead does not conduce to their beauty or their health.

ORCHIDS.

W. H. GOWER.

GALEANDRAS.

THIS is a small and much neglected family of Orchids. Some of the species are exceedingly beautiful, and the genus really deserves more attention than it has received of late years. I have been induced to make these few remarks from seeing one species (G. Dives) nearly always in flower when I look in at the Messrs. Laing's establishment at Forest Hill. In my early days this species was not considered a good one, and was little grown. The fact, however, was that at that time it was not well grown, and I believe it was kept in too strong a heat. This is borne out by Mr. Laing's treatment, as he finds it grows freely and flowers profusely in an intermediate or Cattleya house, whilst in the old times it was usually kept in the hottest part of the East India house. Another species which is always admired when seen in bloom, and deservedly so, is G. Devoniana. It is by far the largest grower of any species I know, and its flowers are very beautiful. It is a native of Rio Negro, and was always treated to a hot temperature, although it was particularly well grown and flowered in the nurseries of the late Messrs. Rollisson and Sons, of Tooting, where it revelled in the company of the Cattleyas, so that I think anyone may expect to be successful with all the species and varieties under similar treatment. They are usually considered difficult to cultivate and are subject to the attacks of thrips and red spider, the presence of these latter pests indicating to me that the surroundings are too hot and dry. If sufficient moisture can be maintained in the atmosphere to satisfy the requirements of this species, I would grow the majority of the kinds upon blocks and hang them up near to the glass. G. Devoniana, from its size, is, however, best accommodated in a pot, but whether grown in pots or upon blocks, Galeandras should not be loaded about the roots with much soil. During the growing season they enjoy a liberal supply of water both to the roots and in the atmosphere. Galeandras flower upon the top of the bulbs just before growth is completed, and thus are furnished at the time of blooming with leaves, which, however, fall away after the bulb is mature, and the plant or plants then become dormant. During the resting period they should be subjected to a lower temperature, well exposed to the light, the water supply very much reduced, but not stopped entirely, or the bulbs will shrivel and the health of the plant will be considerably impaired. Before growth again commences repot them carefully, well draining the pots, and placing round the plants some new peat fibre and a little Sphagnum Moss. Then place them in the growing house and increase the water supply as roots and shoots make their appearance. Those upon blocks should have a fresh supply of Sphagnum Moss only, but wherever grown the plants should be made firm, in order to prevent injury to the young roots. If attention is paid to the above simple rules, I do not think anyone will find these plants difficult to grow or to flower. The following are the best kinds at present procurable in the country:—

G. DEVONIANA.—This is the largest and finest species hitherto discovered; it is said to be found growing upon trees and also upon the ground in Brazil, on the banks of the Rio Negro, and in many instances the growths are between 5 feet and 6 feet high, although under cultivation I have never seen the bulbs exceed 3 feet in height. The bulbs are erect and terete, and furnished with numerous dark green leaves. Spike terminal and many-flowered; sepals and petals purplish brown, bordered with greenish yellow; lip large, helmet-shaped, ground colour white, flaked and streaked with purple. Its usual time of flowering is about midsummer.

G. DIVES is a dwarf plant, which thrives best in a hanging basket or on a block, and the flowers are produced from midsummer to Christmas; the sepals and petals are yellowish brown and the lip is white, suffused with pink or rosy-pink, streaked with red. It comes from New Grenada.

G. BAUERI.—This used to be well grown in the old Orchid collections of the country, but until recently it had almost disappeared. It is a dwarf plant, and thrives well upon a block of wood. In some varieties the funnel-shaped flowers are very bright; the sepals and petals are bronzy-green, the lip white outside, the front portion being rich purple, yellow at the base. It blooms during the summer months, and is a native of Central America and Mexico. Other forms in cultivation are G. nivalis, which I have only seen in the rich collection of Sir Trevor Lawrence at Burford Lodge; G. Harveyana, named from a plant in the collection of Mr. Harvey, of Liverpool; and G. cristata, a native of French Guiana, and somewhat in the way of Devoniana, but altogether smaller.

Cattleya maxima.—Mr. B. D. Knox, Caversham, Reading, sends a bloom of Cattleya maxima, an Orchid that we might see more of with advantage. This is quite distinct, though it shows a similarity both to C. Mossiæ and C. labiata. It was first sent over by the intrepid traveller Hartweg, from Guayaquil, in the year 1844, and until recently was comparatively uncommon, but it is becoming more plentiful, as within recent times importations of it have been received. It is of tall erect growth and has richly coloured flowers, the lip being as intense as in Mossiæ itself, and netted with rich crimson-purple veins on a paler ground. A wide longitudinal band of yellow runs into the throat, where there are radiating lines of the same colour. The sepals are self pink, but the broader petals are delicately veined with a deeper tint. C. maxima is one of the best of its race, and flowering as it does during the dull winter months, it is indispensable if a first-class collection is required.

Disa graminifolia.—This charming species, which was originally found by the traveller Masson, so celebrated for the number of Cape plants he introduced in the early days of this colony, is still flowering with Mr. Smee in "My Garden" at Carshalton. This is the second time I have seen it this season. It, as also D. racemosa, flowered at Kew this year. I must differ from your correspondent in THE GARDEN, Nov. 3 (p. 451), who says "it will be found difficult to grow," as the same thing was said about Odontoglossums before we knew how to grow them, while the same thing has been said of Disa grandiflora, which as grown by Mr. Bedford, the gardener at Straffan House, Co. Kildare, and the Comte de Germiny in Normandy, does not appear difficult to grow. I hope the splendid azure-blue flowers of D. graminifolia will be produced in large masses, as this Orchid is a gem of the first water. Disas require to be kept cool and shaded.

Importing Orchids.—The following account of the way I imported Phalænopsis Schilleriana from Manilla may be interesting to your readers. I had two small Banyan trees growing in my garden, and which I had covered with Orchids. When leaving Manilla, I thought it would be a pity to leave them behind or disturb the plants, so the trees were cut down and the trunks sent home to friends. One friend had space to erect the trunk he obtained and the plants continued to grow vigorously; but in the other case the Orchids were removed from their natural position, the result being that they died.—C. H. C.

Lælia anceps Dawsoni.—A few plants are now flowering in the best collections about London, showing that it still remains a gem amongst the white-flowered forms. I always thought there was but one plant of this variety ever introduced to this country, and that was by the Messrs. Low, of Clapton. This being the case, I wish to point out that growers have no one to thank but themselves if their plants produce poor flowers; it is the result of bad cultivation. Again, a grower extolled his plant to me, saying it was the very finest variety in cultivation. That it was good I do not deny, but it was simply Dawsoni, and thus, as all the plants in cultivation having sprung from one plant, it is simply nonsense to praise one beyond another, unless the Messrs. Low imported several plants in one batch, which I do not think they did. I saw the original plant in the Meadowbank collection years ago, and I have never seen a better one. Can anyone really prove that there is more than one form of Dawsoni to be found in our gardens?—W. H. G

Cattleya exoniensis from Perth.—I am sending you a five-flowered spike of Cattleya exoniensis, which, I think, is very good for this season of the year. This plant has flowered regularly for the last seven years between the middle of November and Christmas. Another spike on the plant will be ready about the end of the month. I also enclose a few spikes of Cypripedium Spicerianum, from a plant that had fourteen spikes, all twin-flowered, some showing a third flower.—T. MACDONALD, *The Woodlands, Perth.*

*** A very fine spike of one of the most handsome of hybrid Cattleyas. It bore five flowers of the richest colouring, and intermediate in size between those of C. Mossiæ and Lælia purpurata, the two parents from which Mr. Dominy, of Messrs. J. Veitch and Sons, obtained C. exoniensis. The sepals are narrow, lightly touched with pink, which is of a deeper shade on the broader and more wavy petals. The lip is rich purple-crimson, edged with a thin margin of white, the throat being orange-yellow, relieved with deep crimson under the column. The fragrance is very sweet. In the flowers of Cypripedium Spicerianum received, there were in every case two on a spike. The more we see of this beautiful Lady's Slipper the more its thorough usefulness becomes apparent.—ED.

SHORT NOTES.—ORCHIDS.

Lycaste Skinneri alba.—A very fine form of this chaste variety is now flowering in Mr. Laing's nursery at Forest Hill.

Oncidium crispum.—This Brazilian species is very variable and usually very attractive; it does not require great heat. In Mr. Todman's establishment at Tooting I recently noted some very pretty forms, which appear to be flowering at a very unusual time.—W. H. G.

Acampe longifolia, perhaps better known as Vanda longifolia, is a plant which I have not seen for many years, but, curiously enough, I recently received flowers from Mr. Cowley, gardener to Mr. Tautz, of Shepherd's Bush, and from Mr. Osborne, gardener to Mr. Buchan, of Southampton. It is a fine growing plant with broad, dark green leaves; the

flowers cannot be called showy, being small and fleshy in texture; they are yellow, banded with red, and delicately fragrant.—W. H. G.

Cypripedium insigne Sanderæ.—This is the latest addition to the Slipper Orchids, and certainly one of the most chaste and sweet in the whole genus. It has sprung from an importation received by Mr. Sander, of St. Albans, and was offered for sale by Messrs. Protheroe and Morris last week, and bought by the Messrs. Veitch, of Chelsea, for seventy guineas. The flower is wholly of a soft creamy lemon colour, saving the upper part of the dorsal sepal, which is snow-white.

Cattleya Mastersoniæ.—This is a charming plant for flowering at this season, although it is inferior in size to many of the favourite Cattleyas. I believe it is one of Mr. Seden's early hybrids raised in Messrs. Veitch's nursery, and obtained by crossing C. Loddigesi with C. labiata; the sepals and petals are soft rose colour, the three-lobed lip being rich purple in front, the base being pale yellow; the side lobes which cover the column are white. It is a rare form which just now may be seen flowering with Mr. Williams at Holloway.—W. H. G.

Odontoglossum grande.—A fine gathering of flowers of this beautiful old species comes from Mr. Measures, of Camberwell. They are of extraordinary size and colour, being nearly 7 inches across and the petals are remarkable for their breadth. The upper half of the flowers is deep rich orange-yellow, the basal half bright chestnut-brown, the sepals being equally bright, with transverse bands of orange-yellow. Amongst them is one flower of remarkable appearance, well deserving the varietal name of grande cambridgense; it is very large, and the petals at the tips are nearly 1⅛ inches across, where they are soft lemon-yellow, the basal half tawny orange; lip large, white, with a zone-like mark of fulvous brown at the base. It is altogether a remarkable variety.

FRUIT GARDEN.

THE SURFACE OF FRUIT BORDERS.

NEXT in importance to efficient drainage is a sound and sweet surface, and no fruit border can be looked upon as being in a satisfactory condition unless roots in quantity are to be found near to or upon the surface of the soil. Every experienced fruit grower is alive to the value of surface roots. Their presence in any quantity is a sure indication of health, and when by moving a few handfuls of soil active roots are discovered, or perhaps may be observed pushing their way through the surface, nothing further is needed to assure the cultivator that his trees are equal to the production of first-class fruit.

Many of the fruits we cultivate, however, are not natives of this country, but have been introduced from other parts, where perhaps the mean temperature may not be much higher, but the seasons are more distinctly marked than they are in our own variable climate: also, when at home, they grow in the habitats best suited to their requirements, and those which grow in a wild state in this country would, if left to themselves, only flourish in the localities best adapted to them.

The cultivator cannot, however, always pick his locality, and he is often called upon to produce fruit of all kinds under adverse circumstances, and failure is often the result. Much, however, can be done by selecting the best and warmest positions for the various trees, and where the soil is unsuitable, draining and improving it in various ways. By these operations it is rendered warm and pervious to sun and air, and the nearer we can bring the roots within the influence of these elements the more fruitful our trees will become.

Surface roots possess many advantages, and are far preferable to those which strike deeply down into the ground. In the first place, warmth during the growing season is most essential to their effective action, and being near the surface, they are brought under the influence of the sun, thereby inducing them to respond sooner and more effectually to the renewed activity of the branches than when they are buried deeply in the ground. Roots, too, that are growing near the surface are always more fibrous, and consequently better feeders than those farther removed from the beneficial and hardening influence of the air, and when in this position food can readily be supplied when most needed with a sure knowledge that it is appropriated by them. Seeing, then, how desirable it is to have an abundance of roots within easy reach, our aim should be to promote their growth by bestowing particular attention upon this part of the border, and having enticed them there, take care they are not driven away again by starvation or by the opposite extreme, overfeeding.

Inside borders often become sour and inert on the surface through being crowded with plants, especially if they are of a class requiring a great amount of water. The drainage from the pots in time saturates the soil, which then becomes cold and sour, poisons the roots and drives them away in search of sweeter pastures. The time is at hand for the annual winter cleaning of fruit houses and their occupants, and no house should be considered finished until the surface of the border has been thoroughly examined. All the old mulchings of manure should be removed first, then a few inches or more if necessary of the surface, till a thick layer of roots is exposed and the border is found sound and sweet. The compost for renewing the surface should, if the soil is inclined to be retentive, consist of nearly one-half of some porous material, such as burnt earth, charred refuse, old mortar, &c. Failing these, coarse sand may be used with advantage, the object being to keep the surface open and prevent it from binding when trodden upon during the necessary attention to the trees. A porous surface also allows a free passage for water, liquid manure, &c.

Nothing promotes the multiplication of surface roots in the way that these annual renewals of the surface do. Many roots are, no doubt, broken off, but for one that is destroyed in the operation several are formed in its place, and attracted by the new sweet compost. In time a perfect mat of roots is produced, which constitute the most important feeders, and may be relied upon to give quality and finish to the fruit. Outside borders are often filled with vegetables during a greater part of the year, and the roots of the trees are driven down into the ground by the necessary operations required for the cultivation of these crops, and often, when a space of a few feet is reserved at the base of the trees, it is used as a pathway, until in time it becomes a hard crust almost impervious to rain. If good crops of fruit are valued and desired the roots must have consideration, and the trees will always repay the attention they receive in this direction. It is impossible to avoid treading upon the borders a good deal at times in attending to the trees, but this should not be permitted when they are in a wet state, as considerable injury is done if they are trod into a pasty condition. A firm, porous surface, however, is always clean and comfortable to stand upon, besides being far preferable for the roots of the trees. A. BARKER.

GRAPES SHANKING.

I HAVE just been lifting a house of Vines. At the outside of the border, which is about 8 feet wide, I cut a trench about 9 inches wide and 3 feet deep. At this depth I found the majority of the roots, which were as thick as one's finger and black and fibreless. They had left the border and gone right away into the kitchen garden. I cut them asunder at the outside of the border and brought them to the top, cut all the wounded parts out, notched them, and laid them within 6 inches of the top in good soil. It is an early house, from which Grapes are expected in June. The Vines have, I believe, been planted twenty-five years. The berries shank and do not colour. TEN YEARS' SUBSCRIBER.

*** In answer to the above, had you applied for advice before, instead of after cutting, lifting, and relaying the roots of the Vines, it is almost certain that a more cautious mode of procedure would have been suggested. The roots, for instance, might have been cut in September, but instead of intensifying the check by lifting at once, this portion of the work should have been allowed to stand over for twelve months to give them time to form tufts of young fibres in light, rich soil, with which the trench could have been filled up again. It is, however, now too late to try to avert past events, not so to give a few hints which may prevent or soften the consequences. In the first place, "Subscriber" should well cover his border with stable litter to keep out frost, and to check cold snow-water in its downward course to the black fibreless roots lying within a few inches of the surface. In the second, he must give up all thoughts of Grapes in June, if at all next season, as the Vines, according to his own showing, will have a hard struggle to recover. Having made up his mind to this, the Vine being most tenacious of life, he must keep the house as cool as a greenhouse until the buds commence swelling naturally in the spring, when, the better to husband the stored-up sap to which this spurt will be due, he must introduce a good body of fermenting manure and leaves, syringe with warm water two or three times a day, and avoid over-heating the pipes by closing rather early with plenty of sun heat and atmospheric moisture. When all the buds are on the move, but not before, a layer of warm Oak leaves a foot or more in thickness placed over the roots and covered with long litter will quicken their action, and slight shade drawn over the roof for a few hours on bright days will give relief, if it does not prevent flagging. As growth progresses a few of the weakest breaks may be rubbed off, but upon the principle that leaves make roots, an extra quantity of shoots must be tied in, always, be it understood, that crowding is avoided. When the new roots have taken to the compost and daily flagging is on the wane, the weakest of the superfluous shoots may be gradually shortened back to throw strength into the best nearest home, as the buds formed at the base of these will produce the first shows, which should be allowed to swell to maturity. If the wood of the present year was well ripened, it is by no means improbable that the Vines will show plenty of bunches next spring, but whether or not it may be advisable to allow any of them to remain is a matter which must be decided by future progress. Under the most favourable conditions the crop should be extremely light, but, considering that the Vines have had a twenty-five years' run without a check, and the majority of the feeders are now lying dead and useless in the kitchen garden, it is questionable if all the shows should not be pinched off, as the bunches will be small and poor and of little value.—W. C.

Pear Williams' Bon Chretien.—As regards quality this Pear has been a failure this season. It is generally very good with us, but this year it is quite flavourless.—H. E., Northallerton.

Late Plums.—It may be of interest to your correspondent "J. C. F." (p. 447) to know that Plum Coe's Late Red is included in the collection of Plums grown in the Royal Horticultural Society's Gardens, Chiswick. It is truly a late variety, for the fruit is still hanging on the tree.—J. B.

MELON CULTURE.

At the present time growing fruit for profit is an important subject engaging the attention of the leading horticulturists, and any information relating to that industry is welcomed. A few hints on the cultivation of the Melon will be acceptable to many. What crops pay best? is a query easier asked than answered. I think as Melons increase in favour every year, and good ones find a ready sale, especially during the London season, their more extended cultivation is worthy of notice, and may be found fairly remunerative if we grow suitable sorts for market. Until recent years Melons have not been very extensively or successfully cultivated in British gardens, but we now have the advantage of both improved structures and superior varieties, and I know of no better sort than Hero of Lockinge, the variety represented in the annexed engraving. It will be seen that the house here represented is very suitable for Melon growing; it is light, well heated and ventilated, and the plants are growing in a good stiff loam. These four items are important essentials to the production of good Melons. A detailed description of the management of this crop may prove interesting. The seeds were sown at the end of March in pure loam, and planted out at the end of April in the same staple, made very solid on a bed of hot manure and leaves, the main stems being tied to a stake leading to the trellis. All the bottom and side laterals were rubbed off as they appeared. If these are allowed to grow and then pinched off, a wound that does not readily heal, but decays as the fruit begins to swell is often caused. This is the supposed canker often noticed. With plenty of heat and moisture these plants quickly filled their required space, after which the points were pinched to induce lateral growths. These laterals, when they had set the fruit, were allowed to hang down until a sufficient number began to swell, and were as large as cricket balls. If uneven in size, the small fruits were tied up first, leaving the larger ones hanging down until six even-sized fruits were obtained, all the rest being pinched off. About this period the plants require abundance of water, with occasional doses of warm liquid manure from the farmyard. When the fruits show signs of netting, moisture may be lessened and ventilation increased until the fruits begin to ripen, after which the ventilators are better left open both night and day, more or less according to the weather, with just sufficient moisture to prevent the leaves flagging. The fruit is supported with old strips of fish-net cut into 9-inch squares, a piece of string being fixed at each end and tied to the trellis. These form cheap and safe supports for the fruit. This house contained twenty-six plants, carrying 160 good handsome fruits worth 3s. each in the market. They were ripe in fourteen weeks from the sowing of the seeds. This variety keeps better when cut than any other, and the prize lists of the principal shows will prove the quality. The above crop is by no means exceptional, as Melons have done well at Elvaston for many years. J. H. Goodacre.



A fine crop of Melons. Engraved for The Garden from a photograph sent by J. H. Goodacre, Elvaston Castle Gardens.

THE CHISWICK APPLE SHOW.

Now that the Apple and Pear conference, and the very fine show of these hardy fruits are over, we may the better, perhaps, take note of what was said and seen than could well have been the case at the moment. Of one thing there can be no difference of opinion, and that was found in the admirable good feeling and hearty spirit of co-operation which marked not only the proceedings in committee, but the entire conference. The display of Apples was, for the season—a singularly bad season too—altogether a remarkable one, and showed that we have numerous fine varieties which can render good service when some others, and possibly favourites, fail. We may have our fancies for fine weather Apples, but to those kinds which give us good or even fair crops during bad seasons, the old axiom, as to a friend in need being a friend indeed, may well apply. Any new visitor to England, looking over the tables of Apples in the conservatory and noting the grand samples shown, might well have exclaimed, If these be product of a bad season with you, what may not be looked for when you have a favourable one? When in the course of a few years some of the more recently introduced varieties are widely grown, and we have a favourable Apple season, the recent display at Chiswick

will have to pale its fires in presence of the grander show of that date. Of the newer Apples, Tyler's Kernel, a grand looking conical Apple, rich in colour, very solid and handsome, introduced some four or five years ago, and Bismarck, sent out only two years ago, a good sized handsome Apple, of the blood-red hue of a Quarrenden, and a good keeper, stand out very prominent. Of Peasgood's Nonsuch, Saltmarsh's Queen, Grenadier, Potts' Seedling, Lord Derby, and Lord Grosvenor, kinds not too well known, there were many grand samples. Some disappointment seemed to be felt at the conference that no form of competition was recognised, but it is incomprehensible, remembering the proceedings of the previous Apple and Pear conferences, that any such impression should have prevailed. The show was specially a tribute to the unselfishness of growers and gardeners, who without hope of prizes staged such splendid examples of their hardy fruits. The certificates of merit given to single dishes proved to be the only recognition of merit in any case, and those were awarded, after careful consideration only, to the dishes of fruits individually, and not to the exhibitors. Generally, these certificates formed a good lead for the public, and it will be particularly interesting, when the list of these awards is published, to learn in what proportion certain sorts met with recognition. It was a rare circumstance that any variety regarded as worthless got a certificate, except where exceptionally fine fruits were shown, and really fine fruits of any sort, however devoid of flavour, produced this season would tend to show that it could not be an absolutely worthless variety after all.

Perhaps it is not too much to say of some dishes here and there that better samples of the respective sorts have never been seen. The exhibition of house-grown fruits amidst the outside-produced samples was unfortunate and very misleading. In the event of another similar show being held, a special class for such fruits will have to be formed. The samples grown under glass were marvellous in size, finish, and beauty, and they served to show what house culture will do in the development of hardy fruits. But orchard house culture is only for the amateur or nurseryman who wishes to test sorts early. In the matter of ordinary fruit production house culture can never be other than a pleasing, perhaps costly, amusement. I have been interested in the little difference of opinion which has sprung up between Messrs. Bunyard and Coleman with respect to Flanders Pippin and Mère de Ménage. Had Mr. Coleman's reference at p. 367 appeared a week earlier, I should have looked with considerable interest for the Eastnor samples of Flanders Pippin at the conference; as it was they were unnoticed. I do not think Mr. Bunyard went beyond the assertion that these two kinds were often given as synonymous, not grown, as Mr. Coleman puts it. Growing both would soon set the matter at rest, and Mr. Bunyard, I believe, does not grow the Flanders, and, further, never is asked for it. The "Fruit Manual," the "Herefordshire Pomona," and the Apple conference of 1883, when there were shown 170 dishes of Mère de Ménage and 117 dishes of Flanders Pippin, in spite of Mr. Coleman's dictum, all gave these two as identical. Of course, all these authorities may have been wrong. The matter can, however, soon be decided by Mr. Coleman sending Mr. Bunyard some grafts of his Flanders Pippin, and if he is found wrong in his judgment, I am sure he will be the first to make public acknowledgment. Possibly both the kinds named may in some localities be worth the place they now occupy in the select list of standard sorts; but with regard to the entire country, I fear they would come out low down in an Apple plebiscite. I went over the collection at Chiswick for the purpose of selecting two sections for culture for sale, as that is just now the dominant idea with regard to hardy fruits. It is needful to have not only good croppers for such growth, but showy fruits which will sell well. The first list—a selection of twelve kinds which, for size and fine form, stood out prominently in every direction—included only what are ordinarily termed cooking Apples. Most of them, further, were kinds of which the market growers at the conference took special note—Lord Suffield, Lord Grosvenor, Stirling Castle, Warner's King, Lord Derby, Winter Hawthornden, Potts' Seedling, Stone's, Ecklinville Seedling, Alfriston, Wellington, and Bramley's Seedling. If any intending planter will grow these kinds largely on the English Paradise stock, he will find that not only will he secure large crops of fine Apples, but will also have a selection which will last from the 1st of September to the end of March. Solid, conical or semi-conical Apples are preferred in the market to kinds which are flat and somewhat irregularly ribbed or have depressed eyes and sunken stems.

I made yet a further selection of twelve kinds for market culture which have either fine quality or very presentable appearance, and, in most cases, both combined. Apples to be sold at a profit must be presentable and handsome, but when both quality and beauty are combined, the sale is all the more profitable. Worcester Pearmain was the beauty of the show, and bore off the palm for colour, especially the dish shown by Messrs. Cheal, of Crawley. Colonel Vaughan was handsome in Mr. Bunyard's collection; it is a somewhat long, red-striped Apple and handsome. Duchess of Oldenburg was singularly beautiful in Messrs. Veitch and Sons' collection, indeed one of the most beautiful Apples in the show. Blenheim Pippin, Cox's Orange Pippin, and King of the Pippins are as handsome as good. Good and very handsome also was Scarlet Pearmain, not unlike Mother Apple, red striped and of delightful quality. Then of finer kinds, striking in colour and handsome in form, were Peasgood's Nonsuch, the handsomest large Apple grown; Bismarck, already alluded to, was in several collections of blood-red hue; Tyler's Kernel, also previously mentioned, shape of Adams' Pearmain, but very large and heavily coloured with deep red; a grand looking Apple, and of the best quality; Baumann's Red Reinette, a very brilliant coloured variety, good in form and in quality; and Lady Henniker, a good Apple at all points, colours well, and is a fruit of good appearance. I venture to submit that the lists given present for the market grower some of the most prolific kinds in cultivation and some of the most saleable. Those less known only need to be known to obtain wide reputations and secure appellations in the market familiar as those of Blenheims, Cox's or Kings.

A. D.

PLUMS.

THIS being the proper season for planting, a few remarks about Plums, with a selection of the very best or most useful varieties both for cooking and dessert, may be of service to many, as now that we have such swollen lists the difficulty with most persons is what sorts to choose. For first supply for cooking there are none equal to Rivers' Early Prolific, which bears medium-sized, roundish fruit with skin of a deep purple, the flesh being yellowish and of an agreeable flavour. The way to grow this Plum is in the form of low standards, and if planted in sheltered spots it will be found that they seldom miss cropping, and it is altogether a most valuable sort for market gardeners. Another kind that is spoken very highly of is The Czar, but of that I have had no experience at present, and simply name it that planters may look it up and inform themselves of its merits. The Victoria is such a general favourite and is so well known, that little need be said about it, further than that those who have not got it should add it at once, as it is a most reliable variety and so free in bearing, that it often becomes necessary to prop up or support the branches to prevent them from breaking under their load, as the fruits are large and heavy, and hang thickly in seasons at all favourable to a good set. Prince Englebert is almost equally valuable, and is likewise a very free-bearing kind. These three sorts are as many as need be planted for kitchen purposes, the others that are now to be named being all good for dessert. First and foremost comes the Green Gage, which in some districts does well in the bush form or as a standard, but grown in this way, except in favoured spots, the cropping is uncertain, and where space can be spared trees should be planted and grown against walls or buildings, where the blossoms get the necessary shelter from cold and frosts in the spring. Next in point of merit to this comes Kirke's, which is larger than the Green Gage and almost as deeply coloured, and as densely covered with bloom as a Sloe. The flesh is of a greenish-yellow and very richly flavoured. Jefferson is a grand Plum, as not only is the fruit very large, but it is remarkably handsome, the skin being of a rich golden yellow, flushed and dotted with red on the exposed side, while the flesh is firm, sweet and delicious. Coe's Golden Drop succeeds the Jefferson, and should have a place in every garden, as it is fine-looking, hangs a long time on the tree without shrivelling, and is a perfect sweetmeat when ripe. Reine Claude de Bavay is another most excellent Plum, that comes into use during October and may be described as a large late Green Gage, as it resembles that sterling variety. All the dessert kinds named require a wall to do them well, but an east or west aspect suits them if they are kept attended to and closely spurred, so as to bring their blossoms near the protection afforded by the breaks behind. In planting, the border should be broken up deep by digging out a large hole, and in this, if it can be had conveniently, it is a good plan and a great help to the young trees to put in some roughly chopped turfy loam, and to cover the roots with the same, in order to give them a start. In this the plants will make quick progress, provided they are not cut in too much, which is a barbarous practice and one that serves no useful purpose whatever; instead of which it greatly retards the establishment and fruit-bearing of the trees, as it throws them back each time it is done, and they have to do the same work over again. The way to manage is to let all the main shoots run and leave them full length, and in from two to three years quite 100 square feet of wall space may be filled, and trees of that age brought into full bearing.

S. D.

ROADSIDE PLANTATIONS OF FRUIT TREES.

THE planting of fruit trees along the sides of high-roads does not seem to be much approved of in France, and yet the experiments which have been made there have given good results wherever they have been conducted by competent men. From the last reports published in the *Revue Horticole*, we are happy to state that, some time since, the agents of the Board of Management of Bridges and Highways made a commencement of planting fruit trees on the margins of high-roads.

In France mention is made of roadside-planted Pear trees, each of which produces about 2 hectolitres (nearly 5½ bushels) of Pears, sold at the rate of about 5s. the hectolitre; of Plum trees, each yielding about 176 lbs. of fruit, sold at the rate of about ¾d. a pound. The Cherry trees, of the kind named "à kirsch," are every day becoming more valuable along the high-roads in Haute Savoie, the Meuse, the Vosges, the Jura, Doubs, and Haute Saône. The trees, which are from twenty to thirty years old, produce each from 66 lbs. to 132 lbs. of fruit, sold at the rate of from 12s. 6d. to 33s. for 220 lbs., according to the plentifulness or scarcity of the season.

On the other side of the Rhine the results are still more satisfactory. In Saxony, in 1884, the revenue from letting out the crops of roadside-planted fruit trees amounted to £4400, not including £600 received for cut wood. These receipts are clear profit, over and above all expenses. In Suabia the tree most generally planted on roadsides is the Plum tree. In the vicinity of Mulhouse we are told of Cherry trees planted on the roadsides which, from their earliest crop, have paid the expenses of their purchase and maintenance up to that time. In Germany and Austria roadside plantations of fruit trees are already very extensive, and are becoming of greater importance every day. Dr. Lucas, a government horticulturist, states that in some parts of the province of Hanover and of the Grand Duchy of Baden, "the expenses of maintaining the high-roads are almost entirely defrayed by the returns

from the produce of the fruit trees which are planted along the roadsides, while in other districts the returns range from £2 to £4 for every kilometre (1093¾ yards)." These last figures indicate minimum returns, which, of course, will advance with the age of the trees and the improved special knowledge of the road-keepers.

Roadside plantations of fruit trees present the following advantages:—

1. The sale of the fruit is more profitable than that of the wood of timber trees, mutilated as these always are by the loppings which are necessary to keep the roadway clear for traffic.

2. When such plantations are conducted by competent arboriculturists, they afford an opportunity of making known choice kinds of fruit trees of which the dwellers in certain districts are unfortunately ignorant.

3. Fruit trees being generally of smaller dimensions than timber trees, are less injurious to the adjacent crops, as they give less shade, and their roots do not travel and throw up suckers to the same extent as those of the Acacia, the Ailantus, the Poplars, &c.

The Board of Management of Bridges and Highways have made the following objections to these fruit tree plantations:—

1. "The sale of the fruit would not be as remunerative as that of the wood of timber trees, because much of the fruit would be stolen." Certainly, if, say, only a hundred fruit trees were planted, and these near some populous centre, such a result would often occur; but we are convinced that it would be very different if nearly all the high-roadsides yielded plenty of fruit, and especially if care were taken to plant in the neighbourhood of towns only kinds fit for cider-making, drying, or distillation. The Board would not be obliged to convert the road-keepers into rural policemen in order to save the crops from pillage if they sold the crops on the trees immediately after the fruit was set to the inhabitants of the district.

2. The civil engineers of the Board find fault with fruit trees as "growing more slowly than timber trees, and requiring, in general, soil of a better quality." To this we reply, that if fruit trees are carefully planted in soils and positions suitable for them, they soon grow large enough to adorn the landscape and afford shade to wayfarers. Fruit trees will grow in almost any kind of soil, but if we want them to be perfectly satisfactory, we must not plant a tap-rooted Pear tree in a position where a surface-rooting Plum tree should be placed, and (as has been done on high-road No. 21, in Haute-Vienne) Apple trees in dry soils, Cherry trees in wet ones.

3. "The expense of planting fruit trees is greater than that of planting timber trees. A timber tree planted on a roadside costs on an average 2½ francs (about 2s.), as per following items:—

Digging the hole	fr.0.25
Price of the young tree	1.50
Planting it	0.25
Tree-guard with metal points ...	0.50
	2.50

while it would cost at least 4 francs (about 3s. 3d.) to plant a fruit tree strong enough to fight its way and in well-prepared soil, viz.:—

Digging the hole	fr.0.75
Price of the young tree	2.0
Planting it	0.25
Tree-guard with metal points ...	1.0
	4.0"

In reply to this, it must be admitted that in order to plant a fruit tree as it should be planted, a somewhat larger sum must be expended than in planting a timber tree, but we assert that all such expense will soon be repaid, and more than repaid by the first fruit crops.

We are, indeed, advocates for planting fruit trees along roadsides, because the advantages which such plantations offer far surpass the few disadvantages which they present. In the climate of Paris the best fruit trees for this purpose are the Apple, the Pear, the Plum, and the Cherry. To these we must add the Walnut and the Sweet Chestnut for districts where the soil and climate are favourable for them, and for some southern localities the Olive.

The trees which are to be planted should possess the following qualities:—

They should produce good fruit.

They should be very vigorous-growing and productive, and hardy enough to withstand all the vicissitudes of the climate.

They should form tall trees with narrow heads, the result of having the branches ascending and not drooping.

They should flower late when they are to be planted in localities where spring frosts are to be guarded against.

When planted near populous centres, the fruit should be of a kind not palatable in the raw state, but suitable for cider-making, for drying, or for distillation.

In every district preference should be given to the local varieties of fruit trees which have proved themselves to be worth growing, provided they also fulfil the conditions of vigorous growth, hardiness, &c., and, besides, are certain to meet with a ready sale in the neighbouring markets.—*Revue Horticole.*

PEACHES AND NECTARINES.

MUCH has been said and written about Apples and Pears and the selection of varieties, but little attention so far has been given to Peaches and Nectarines, although it will, I think, be admitted that they are most important fruits, for though they are not of much use for cooking, they take high rank in the dessert. Admitting as they do of early forcing, their season is a long one, and it is well that only the very best should be grown. Taking the Peaches first, the earliest to ripen is Alexander, which in favourable summers is fit to pick from open walls by the middle of July, and though not equal in flavour to those coming in a month later, it is a very useful sort to have a tree of either indoors or out. Grosse Mignonne is a very fine Peach, alike good either for forcing or outside, as it sets and bears freely. The fruit is of large size, high colour, and delicious flavour. Bellegarde is likewise a most valuable variety that bears large fruit, slightly compressed at the crown, the skin being deep red streaked with purple, giving the fruit a rich and tempting appearance. Royal George, though one of the oldest, is still one of the best, its only fault being that trees of it, or rather the young shoots, are somewhat liable to mildew, otherwise it has all the good qualities found in a Peach. Noblesse, too, dates back a long time, but there are none to beat it either in appearance or flavour, as the fruit is like wax, so clear and transparent is the delicate skin, and the flesh and juice are most luscious. To succeed the above-named, Barrington is the next best, the fruit of this being very large and terminated by a nipple, and when well exposed to the sun it puts on plenty of colour and becomes rich and luscious in flavour. For ripening in October, Walburton Admirable is the best, and this in general appearance closely resembles the Noblesse, and in fine warm seasons is almost equal to it in quality.

Among Nectarines, Lord Napier holds the first place as an early variety, the fruit of this being very large, well coloured, and delicious in flavour. This is the best for forcing, and the one most desirable to succeed it is the Pitmaston Orange, which also yields large fruit, finely coloured, with flesh of a deep yellow, juicy and rich. Humboldt and Pine-apple are likewise exquisitely flavoured Nectarines, after the character of the last-named, and as they are later in ripening they are worth having where more than two kinds are grown. Those intending to plant should lose no time now in ordering the trees, and when they get them home, instead of pruning in, as too many do after the old fashion, let the trees be planted and the branches left full length, unless it may be any shoots that are soft and green at the ends. These may have the tips removed by cutting back to a bud, as plants treated in this way do far better than any that are shortened, and fill up their allotted space on wall or trellis under glass in less than half the time they would if they lost much of last season's growth. Before planting it is important that the border, if old, be trenched or well broken up, but on no account should manure of any kind be used, except for mulching the surface. Manure in the soil only encourages gross shoots, and these in Peaches and Nectarines are to be avoided, as they seldom ripen sufficiently or bear any fruit. What is highly beneficial to young trees, and what they ought always to have if possible just to give them a start, is a little fresh loam, and if this is of a calcareous nature all the better, as that assists the fruits during the stoning period.

As the soil is sure to settle after planting, it is always best to leave the young trees for a time without any training, as when the branches are nailed or tied the trees get hung up, as it were, and the roots become strained; whereas if left, all go down together, and after that the shoots may be laid and fastened in their proper places by taking the half to the right hand and the other to the left, leaving the middle open, as that part always fills readily, the tendency of growth being in that direction, and therefore the centre may with advantage remain till the last. S. D.

FRUITS UNDER GLASS.

PINES.

COMPARATIVE rest in every department for the next six weeks will be the order of the day, not that plants of any kind, Pines included, can be kept quite dormant, a condition from which they are more likely to go backward than forward. Steady progress in the fruiting house, of course, is imperative, and this may be secured by the maintenance of a night heat ranging from 68° to 70°, and 8° to 10° higher by day with a fair amount of atmospheric moisture and a chink of air if possible when the weather is favourable. With a steady bottom-heat of about 85°, plants in pots will take occasional supplies of warm diluted liquid or clear guano water, which should be sufficiently abundant to moisten every part of the soil, as the most active roots will now be found near, if not actually in, the crocks, whilst valuable aids to the development of the fruit will be coiling round the stems and in the axils of the base leaves. As the latter are entirely dependent upon the syringe for their food, a little warm liquid in a weak form must be forced into the axils at intervals, care being taken that they do not receive more than can be absorbed by the plants and the atmosphere, otherwise an excess will do more harm than good by rendering the surface of the ball pasty, if it does not rot the roots, when the hearts of the fruit will be discoloured. Direct syringing, unless it be the finest dewing over on a very fine day, must now be quite discontinued, but the walls and paths may be moistened and the evaporating pans filled every morning.

Early Queens intended for starting about the end of January must be treated as I suggested in my last paper, viz., at a top and bottom temperature that will keep the plants fresh and healthy and the roots slightly moving forward. No exact figures can be given, as some growers work their plants at a very high summer temperature, whilst others are content with a much lower range; therefore as a hard-and-fast line closely followed might prove fatal to the two sets, each case may be met by a gradual descent of at least 10° in the top and bottom-heat through the remainder of the resting period. If well mounded in moderately moist tan, and the bottom-heat pipes are not too near, water will hardly be needed; but here, again, there is no rule without an exception, and this exception must be determined by the person in charge of the house. In

Succession houses the temperature must be kept about 60° at night, with a proportionate rise by day, and a bottom-heat ranging from 75° to 80°. If from fire-heat and fermenting material combined the plants will take more moisture than would be

good for them were the hot-water pipes, a most necessary appendage, dispensed with, an occasional damping of the surface of the bed, as far as outward appearance goes, will keep matters right; but where the progress of these plants depends so much upon their management through the dead months, every operation must be conducted on well-defined lines. Therefore, watering at all times, especially in winter, being one of the main factors, each plant must be examined and well watered when found dry, or allowed to stand over until a supply is actually needed. Of two evils, it is better to choose the dry than the wet side, but by adopting this plant-to-plant examination the happy medium can always be secured, when the little actually required, even in winter, can be given at the right time. It is not good practice to disturb plants after they are plunged, but it sometimes happens that the beds sink or heat themselves dry, when rearrangement or raising to the light becomes necessary. In cases of this kind the plants need not be taken out, as they can be raised and packed up with the old material, which may be well moistened with warm water prior to the introduction of a little fresh tan or leaves over the surface. If

Strong suckers which were potted about the middle of September have filled the lower parts of 6-inch or 7-inch pots with roots, they must be kept very steady, both as regards bottom-heat and moisture, until the time arrives for shifting on in February. Here, as with the successions, their requirements may not be great, but the little they actually do want must be given at the right time, and in quantity sufficient to keep the whole of the roots in a nice growing state. In light, span-roofed, shallow pits, efficiently heated, many Pine growers keep successions and strong suckers moving right through the winter, and fruit them within twenty months; but then the suckers are good sized plants when they are detached from the parent stools, and their facilities, including plenty of heat without roasting or baking and an abundance of light, must be perfect. Lacking any of these, especially light, it is better to rest satisfied with slow, but sure progress than to risk the elongation of healthy autumn suckers.

Cucumbers.

Old plants in pots or upon hills still in full bearing will take copious supplies of diluted liquid a few degrees warmer than the mean of the bed, which should not run much below 80°. For some time to come the plants should not be heavily cropped, especially where they are expected to do duty after Christmas. If growing over hot-water pipes lying in rubble or hollow chambers, there is very little danger of over-watering, as more mishaps follow the sparing than the liberal supply of this element. Red spider, for instance, mildew and thrips not only make their first start, but spread and multiply and defy destruction when the roots of the plants are dry and the house is deficient in a continuous uprising of warm invigorating moisture. The remedies for these, of course, are well known, but prevention being better than cure, the first thing after receiving a proper degree of top and bottom-heat is a regular supply of generous food of a light, porous nature, through which the liquid can pass freely. Where drainage from the frame ground is always at command and judiciously used the plants will not go far wrong, but for all this they like a change of food, and this can be given in the form of guano or soot-water, whilst the latter in a weak clarified state comes in well for the pans and surface syringing. For top-dressing a good supply of light, rich fibrous turf, rough lime rubble, charred wood, and a little peat, where plentiful, should be kept in stock in a warm corner for laying thinly over the roots as they creep through the surface. Little and often, as the roots convert it into a mass of feeders, should be the principle, as too much stagnant moisture, which sometimes causes canker, cannot then be held in suspension.

As winter Cucumbers must have all the available light, a few of the old leaves and the weakest sprays may be cut away to make room for better foliage and fruit-bearing laterals as they require it. These should be regularly trained over the trellis, but not too closely pinched, unless space is very limited, when it may be wise to cut out one or two weak plants and let the others have room for extension. Younger plants which have not borne fruit must be kept well in hand by judicious pinching, otherwise a few of the strongest laterals will rob the weakest, and the trellis will become a tangled mass by the time a full crop is wanted. Feeding here will not be necessary, but the roots must be regularly top-dressed and watered with pure water. All male and female flowers must be picked and the trellis may be lowered to prevent the foliage from touching the glass. The latter cannot be made too clean by frequent washing inside and out, and covering at night will be a great help, as it prevents radiation and economises fire heat when a moist equable temperature is of the utmost importance.

Pot Vines

now on the move may have a little more water, especially where the bottom heat is brisk and the crock roots have been thoroughly liberated by cracking the bottoms of the pots with a hammer. It will not, however, do to be too free until the Vines are in full leaf, as future success greatly depends upon careful watering through the early stages. When properly started, the Vines may be tied up to the wires, disbudded, and in due course stopped at the first or second joint beyond the bunch intended to swell to maturity. All clusters, at the same time, not likely to be wanted had better be taken off, as every superfluous ounce makes a difference at all times, but especially when Vines with their roots cramped in pots are being forced dead against Nature. Keep the fermenting material regularly turned and renovated, as this will help the fires, and keep the structure well furnished with soft invigorating moisture. Top-dressing will hardly yet be needed, but a moderate quantity of good friable turf, dry rotten manure, charcoal or burnt earth and bones may be well incorporated and placed in a warm corner, or what will answer equally well, if not better, it may be covered up with a good body of fermenting horse manure to become still further enriched with ammonia. The tops of the pots meantime may be slightly dressed with fine bone-dust, and when the young roots rise to this stimulant small quantities of the dressing will be useful. Pot Vines started in or over bottom heat require very little syringing—indeed, the less they get the better, but the walls and surface of the bed must be damped with warm water, and the evaporating pans now in position will require daily replenishment with weak liquid.

Airing at this dead season is a difficult matter, but, aided by heat from the bed as well as the pipes, a chink of air, be it ever so small, can be put on at night; whilst a change through the early part of the day will be found a great help in strengthening the breaks and sweetening the atmosphere. Pot Vines will stand more heat than is good for kindred varieties whose roots are in a colder medium, but as nothing is gained by hard forcing, the night temperature for the present should not exceed 60°, whilst that by day may range from 8° to 10° higher, according to the state of the weather.

Early vinery.—When all the buds in the early house are well on the move the rods should be raised from their pendent position to prevent the young shoots from drawing backwards in their struggle to get to the light. Being nearer the glass, moreover, the shows as well as the shoots will be stout and compact—no small matter when Vines are started in November. As days become shorter and colder, more heating power will be needed, but instead of driving the fires, the extra force should be secured by frequent renovation of and additions to the fermenting materials placed in front of the borders. Believers in bulk set very little value upon fermenting material for driving heat downwards, and perhaps they are right; but allowing this argument to pass, there is no gainsaying the fact that a good bed of leaves saves labour and economises fuel. In days gone by it was by no means unusual to see 12-feet rods treated to 20 feet of border, but reliance on an abundance of cold, wet, worthless soil has given way, and well-drained, elevated ridges not more than half the width are now in favour. But where is the gain? some may ask. Well, if I must reply to an imaginary question, I may say the expense of formation—no small item—is reduced by one-half. The bright, active roots ramifying through every foot of compost prevent it from becoming sour and out of order. Their area being contracted, they stand a better chance of getting a full supply of liquid food, and last, but not least, the space inside and out, formerly filled up with worse than useless compost, can be converted into moist hotbeds of fermenting material, which saves fire-heat and quickens root action—the best of all factors in setting, swelling, and colouring the berries. Assuming, then, that once ponderous borders were split longitudinally last August, the external halves, roots and all, were carted away, and retaining walls of new turf and compost 18 inches in width were substituted, the space thus obtained will now be full of well-worked fermenting leaves, which will soften the atmosphere to an extent that will put an end to direct syringing and the old objection to top-heat will be got over, as it will be drawing into the drainage, thence upward into the compost. The gain does not, however, end here, as narrow borders heated and aërated in this way cannot easily be over-watered through the winter months—really and truly the early Vine's summer.

Late Grapes.

If any odds and ends, or relics of crops of Hamburghs and other thin-skinned Grapes are still hanging, they should be cut and placed in the Grape room, where they will keep better than upon the Vines. A clearance of this kind sometimes may extend to Alicantes and Gros Maroc, especially the latter, which soon turns black in the stalk, and loses more than half its value. If clear of foliage, Vines so relieved may be pruned and cleansed as circumstances admit, otherwise the houses can be thrown open to the weather for two or three weeks, as it is not a good plan to prune until they are leafless.

Houses containing Lady Downe's and other bottling varieties must now be kept moderately dry and just warm enough to prevent condensation of moisture, or the spread of mould upon the berries. If not thoroughly ripe and perfectly coloured, no amount of fire-heat and confinement in a high moist temperature will now be of any use, but rather the reverse, as this treatment will keep the Vines in a state of excitement when they ought to be sinking steadily to rest. A forced flow of sap may keep off the evil day for a time, but the first sharp frost will settle the green foliage, and the shrinking berries will show their deficiency in saccharine matter. When late Grapes are properly ripened, the foliage should gradually turn to a soft crimson-veined nankeen colour, and the leaves should part as freely as they do from Hamburghs in September. These, it is hardly necessary for me to say, should be picked up every morning; there should be no sweeping, no watering, nor plants in the house to require water, but the floors should be well bedded with very dry Bracken, first to keep down dust, second to absorb moisture, and last to give the house a neat appearance.

Muscats, now quite ripe, will require precisely the same treatment, only being more delicate in the cuticle it is just possible that some very light shade drawn over modern roofs may be necessary. A few hours' bright sun in November sometimes mars the appearance of the shoulders, but a sheet of hexagon netting put on in time will prevent this and do no harm to the Vines.

Gros Colman, contrary to many people's expectations, has coloured better than was anticipated. This I do not think at all surprising, as we have ample proof in the past that this long-season Grape does not get half enough water, whilst its foliage suffers in hot dry summers. W. C.

Pears, keeping.—In spite of the fact that we have had a very fair crop of Pears this season, complaints are very general as to the indifferent way in which they keep. That is unfortunate, and shows, after all, how much there is yet to be done in the

direction of obtaining really good-keeping Pears, which, whilst of good quality, will not be found sleepy or decayed inside long before external appearances lead to the conclusion that they are barely ripe. At some recent shows it was quite distressing to note the number of dishes of fine fruits ruthlessly put out of the running because the thumbs of the judges went into the fruits as easily as through tissue paper. The exhibitors must have been deceived by appearances, or they would hardly have taken so much trouble to stage rotten fruits. It would be interesting to learn from Pear growers how far they have found the season detrimental to keeping Pears sound.—A. D.

Flower Garden.

BRUNSVIGIAS.

These plants are not common in cultivation, because, as a rule, they are unsatisfactory as garden plants. On rare occasions we hear of them flowering, but no one appears to be able to make them blossom every year. Like many other Cape bulbs which are known to be of great beauty in their native homes, but which, as a rule, are failures under cultivation, the Brunsvigias require certain conditions which are very difficult to obtain in England. Still, it may not be impossible to surmount these difficulties, as has been done in the case of Nerines, Hæmanthus, some Cyrtanthuses, and Crinums. At Kew B. gigantea was flowered a year or two ago, and good bulbs are in cultivation there now, as also there are of B. Josephinæ. The latter species is very abundant on sandy flats about Grahamstown and on up to Natal. There the bulbs are buried deep in the ground, which is very sandy and full of stones. During the dry season they get a good baking, and in the spring of the year (our autumn) they push up fresh leaves and their large heads of bloom. The bulbs are never exposed, so that it is impossible to find them when they are at rest. Bulbs as large as a child's head, and even larger, are not unfrequently imported into this country from the Cape, and these are likely to flower the first year after arrival. Dean Herbert stated that he believed these bulbs might be at least 100 years old. They increase very slowly under the treatment they get in this country; indeed, they often decrease by casting their outer tunics or skins.

The right treatment for Brunsvigias is a thorough ripening by drought and warmth after growth has ceased, and plenty of moisture when new growth is being made. For soil they prefer loam with a sprinkling of sand, plenty of room and good drainage. The bulb ought not to be disturbed when once it is established; it must also be buried in the soil. Herbert says:—

As they sprout but once a year, nothing can be done to accelerate their growth beyond keeping them in a healthy and vigorous state, for which purpose the bulb must be kept under ground, with the neck perhaps above ground, but of this I entertain great doubts. If the whole bulb is exposed it imbibes moisture from the atmosphere in the season of rest, which becomes fatal to it, and I have found the seedlings (eleven years old) of which the neck has never been raised above ground in the safest state.

I have found by experience that the bulbs suffer a good deal when left exposed, whilst bulbs buried in the soil and allowed to remain have done well.

The growing season for these plants being winter, or the same as that of Nerines, the difficulty is in getting growth strong enough to induce the plants to flower. They cannot be made to grow in our summer. The process of drying and ripening is easily accomplished during the summer, but this alone will not bring success. The treatment required is almost exactly that for Nerines, except that Brunsvigias do not like to be exposed. The Kew plants are planted in a raised border in a sunny greenhouse, where they make good growth every year. Those in pots also grow well, but they do not flower. I have endeavoured to catalogue here all the difficulties I know of in the management of these plants, and also to offer a few suggestions which may lead to success. They are cultivated by the Dutch nurserymen, I know, but I could not learn from any last year that they were satisfactory in respect of flowers. The species best known and which can be obtained from the dealers are the following:—

B. Josephinæ.—Bulb large, egg-shaped, shining brown; leaves autumnal, about half a dozen, 2 feet long by 2 inches broad, pale green; flower-scape developed immediately before or along with the new leaves, about 1¼ feet long, a little thicker than the thumb, solid; flowers in a large head or umbel, from twenty to fifty in each head; each flower has a straight stalk 6 inches or more long; the perianth is 3 inches long and curved, the upper half spreading into six lanceolate segments; colour bright red. The form of the inflorescence is suggested by that of an Agapanthus or a Nerine, but, of course, it is much larger in Brunsvigia.

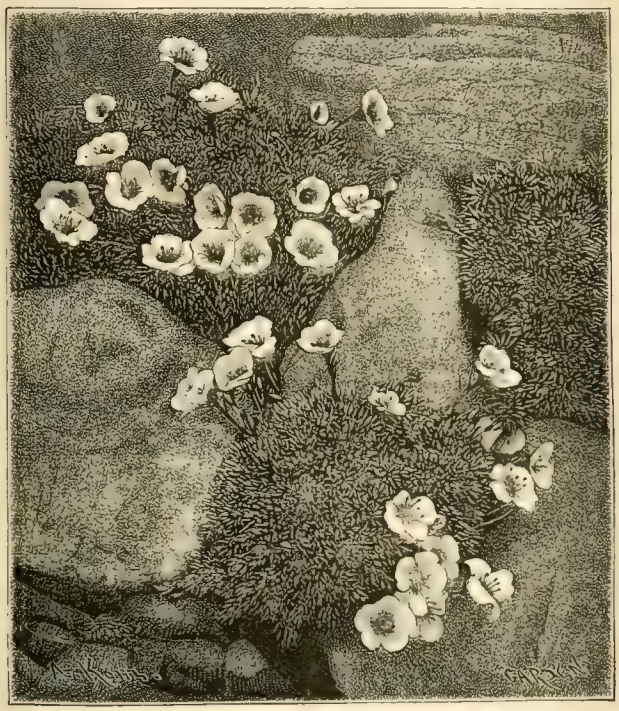
B. gigantea (syn., B. multiflora).—Bulb as in the above, but only about half as large; leaves in autumn fleshy, as in Hæmanthus coccineus, about 6 inches long by 3 inches broad, lying flat along the ground; flower-scape produced along with new leaves, a foot or less long, as thick as a finger, reddish; flowers about twenty in an umbel, each one with a stalk 5 inches long, the tube and segments 2 inches long, curved, spreading at the mouth; colour bright red.

Other species are B. grandiflora, which has many-flowered umbels, and pink flowers 2 inches long; B. minor, a small plant with leaves 6 inches long, and large umbels of pale red flowers 1½ inches long; B. Cooperi, similar to B. gigantea, but flowers of brighter colour; B. radula, and several others not known, except in herbaria.

There are very strong reasons in favour of successful hybrids being raised from these plants and Nerines. These two genera are very closely allied; indeed, Brunsvigias have been called giant Nerines. Herbert obtained crosses from B. Josephinæ and a form of the Belladonna, but nothing appears to have come of them. If anyone gets Nerine and Brunsvigia in flower at the same time, the attempt to cross them should be made. W.

SAXIFRAGA JUNIPERINA.

One of the truest gems of rockery or alpine garden, of the same neat and close habit as S. Burseriana, and just following it in time of blooming. Whether in bloom or not, its clean cushions of bluish foliage are always attractive, and show one of the truest types of dwarf alpine vegetation. It enjoys a cool nook among rocks out of the reach of fierce sunshine.



The Juniper-leaved Saxifrage (Saxifraga juniperina).

Christmas Roses.—"Christmas Rose," on page 430, is not quite sure about the two forms of H. altifolius, yet he answers the question exactly. Heyne's plant, which can be found wild in many parts of the Southern Austrian Alps, is smaller in all parts and flowers later than the English garden form. Whether the garden form should be regarded as a separate species, or as the product of long-continued garden cultivation, can be questioned. I would incline to take it for a separate species, and this for the reason that Hellebores of the niger section cling with the greatest tenacity to their parent form. What we have as niger varieties are local seedlings, and among the many thousands of seedlings annually raised in England no variation of note has hitherto been observed. That we may by patience and careful selection produce better forms I fully admit, and have even proofs of, but thirty years ago I scarcely think that Hellebores were raised from seed, and altifolius of gardens has been longer than that on the nursery lists. We have no record where it originated or from whence it came. Perhaps one or the other of the veteran English horticulturists could tell. A mistake between altifolius (Heyne) and Riverston var. is only possible to a very inexperienced eye, or for a person never having seen both plants, the leafage of altifolius (Heyne) being taller, more serrate, and spiny, less substantial and deeper in colour than that of Riverston var. Altifolius (Heyne) belongs to the stellate, and altifolius (Hort.) to the cup-shaped section.—Max Leichtlin, *Baden-Baden.*

Hardy Bamboos.—Few shrubs are so attractive just now as the hardy kinds of Bamboo, but very few people appear to know of the existence of a considerable number—say, at least a dozen very distinct kinds—of these graceful plants, and which are as hardy as Aucubas. Here and there one sees small pieces of the common Metake, generally in a position quite unsuitable for it; but, with this exception, hardy Bamboos are practically unrepresented in English horticulture. If anyone wants to know what the capabilities of these plants are, he cannot do better than see the collection of hardy Bamboos at Kew. Never mind the names. Nurserymen and others have amused themselves by confusing these as much as possible, and as it is

as impossible to name them correctly until they flower as it would be to name Grasses by their leaves only, we shall be compelled to wait some time before they are set right in this respect. But the plants are there, and very ornamental they look.—W.

Chrysanthemum maximum.—It is instructive to note the behaviour of these two fine autumn Daisies, Pyrethrum uliginosum and Chrysanthemum maximum. Both were in full bloom when the early October frosts came, but the flowers of the latter suffered most at the first, and those of the Pyrethrum did so later, although the lower flowers stood pretty well. But now that every flower on the Pyrethrum has disappeared, there is quite a large number open on the Giant Ox-eye Daisy, and they have sprung from the lower side shoots. Just now, when hardly anything else but the later Pompon Chrysanthemums are in bloom out of doors, a good batch of this giant Daisy is not to be despised. Possibly it would pay to lift the clumps, cut back the decayed flowers, and then place them in a warm house to bloom late.—A. D.

Narcissus incomparabilis Sulphur Phœnix.—This is one of the common names given to the variety albus plenus sulphureus, another is Codlins and Cream. A well-known gardener, who grows a large number of Narcissi for cutting from, regards this as the best of all, and has it in large quantities. It is very popular for this purpose and it is even much scarcer and dearer in price than any other of the double forms of N. incomparabilis; the petals are white and the nectary sulphur, and the combination of colours is delightful. It is known as the Peerless double Daffodil. The other double forms of N. incomparabilis are aurantius plenus, the sulphur Nonsuch Daffodil, with its common name of Butter and Eggs; aurantius plenus, the yellow Nonsuch Daffodil, or Golden Phœnix; and albus plenus aurantius, the white Peerless Daffodil, known as Orange Phœnix, or Eggs and Bacon. Mr. Peter Barr tells us that in the four varieties named there may be found gradations from fully double to almost single flowers. The orange Phœnix frequently passes from double to single, but it is a rare occurrence for the others to lose their double character.—R. D.

Layering Carnations.—It is good advice to layer Carnations early, but we must first be assured that the wood is fit to layer. During the past season the cold weather at once checked ripening or hardening of the stems, and the early formation of roots after being layered. The soil, in fact, was throughout the season several degrees colder than usual, and because of that the production of roots has been difficult. But the season has specially demonstrated the value, I will not say of absolute pot culture, but at least of having some plants of all our best varieties in pots and under glass during the blooming period. Whilst the flowers outside were being destroyed wholesale by persistent rain the flowers inside were very fresh and beautiful, and as the house was always cool the flowers lasted for a long time. Then there was this particular advantage that the warmth or protection which helped the flowers also helped to develop and harden the shoots, so that when a little later the plants were turned out of pots into the open ground and the wood layered it was in admirable condition for the purpose, with this result, that the layers rooted finely, and are indeed a long way in advance of as apparently strong-looking layers from plants of the same varieties in the open ground. That is great gain. In all cases the rooting of Carnations when layered must depend very much upon the soil and position, for in warm soils and positions the plants will be earlier and the wood riper, whilst rooting is facilitated. In cold soils and positions these things are reversed. On the other hand, warm positions and dry soils have their disadvantages in hot summers, and the plants in colder soils come off best.—A. D.

Ozothamnus rosmarinifolius.—This, as described by your correspondent (p. 409), is a very beautiful free-flowering evergreen shrub. I found it here more than thirty years ago on a south slope, and growing very freely in good loam. It would, I believe, thrive generally well in the south of England if planted in sheltered situations. It is very free-growing, making growths from 2 feet to 3 feet long in a season, and flowers most profusely in June and July. Cuttings strike freely in the autumn if put in a cold frame. I think the plant is little known, but deserves to be much grown.—J. GARLAND, *Killerton, Exeter.*

THE MANY-FLOWERED DAFFODILS.

THIS is a very appropriate designation for the fine varieties grouped under the general term of Polyanthus Narcissus. They possess two good qualities: they are very free of bloom, and they are highly fragrant. A third feature is that they are easily grown. You may put the bulbs into ordinary flower-pots with some common green Moss about the roots and they will bloom, but such rough treatment does not do the varieties justice. It is best to put the bulbs in a 7-inch pot, planting them in rich soil, and then they may be expected to put forth trusses of blossom that will be a credit to the cultivator. The varieties of the Polyanthus are naturally early flowerers when grown in pots, and they can be forced into bloom with comparative ease, but care is necessary in doing this. I think some growers make the mistake of commencing to force before the pots are well filled with roots, and as a consequence the plants have a drawn appearance and the flowers are of poor quality. One good plan is that adopted by the market growers, who force the fragrant, many-flowered Daffodils for market purposes. They pot the bulbs as soon as received, then stand them out of doors in the open, covering the pots to the depth of 6 inches with short manure and leaves, and when they have become well established and making growth they are taken into heat and brought on into flower in batches as required. They then begin to put up their flower-stems, and soon produce fine heads of bloom.

The varieties of Polyanthus Narcissus may be appropriately divided into two groups—one has the white perianth or saucer, with a white, citron, yellow, or orange cup, and another has the perianth yellow, with yellow or orange cup. To the former belongs the Paper-white; the flowers are white, small, produced in good trusses; it is the earliest to flower and the most valuable for early forcing. There is also the new large-flowered Paper-white, but it has larger blossoms. A small white-flowered variety with a sulphur-white cup is largely grown in the Scilly Islands, and comes into the London markets in considerable quantities in early spring. But the finest varieties are Bazelman major or Trewianus, white, the cup stained with orange, extra fine, but very scarce and dear—indeed, for some reason this variety appears to become scarcer and dearer each year; Gloriosus, white, with orange cup, an excellent variety for all purposes, and especially for exhibition; Grand Monarque, a fine old variety, the cup yellow; Her Majesty, large, the cup golden; Orientalis or Musart, a very fine variety, the cup dark orange, like that of Narcissus poeticus; and White Perfection, a somewhat new variety which might be classed as pure white in all its parts, though sometimes there is a tint of sulphur in the cup.

The varieties with a yellow perianth and yellow orange cup are as follows: Apollo, primrose, with deep yellow cup; Bathurst, primrose, with orange cup; Soleil d'Or, a very useful and popular variety, rich yellow, with deep orange cup; Jaune Suprême, primrose-orange cup; La Citronnière, citron, with orange-yellow cup, one of the best; and Sir Isaac Newton, yellow, with orange cup.

Then there is the old double Roman, a variety much grown for early forcing; the blossoms are white with an orange nectary, and though the trusses are not large or the individual flowers very attractive, yet they are produced early, and they come in very useful for mounting on wires for bouquets and button-holes. R. D.

Red-edged Picotee Nellie.—With reference to "R. D.'s" note in THE GARDEN, November 10 (p. 430), I grew this variety for the first time last year, and although I cannot say that it grows like a weed, it is sufficiently vigorous to make a very satisfactory growth, and flowers with great freedom. A more beautiful variety one could not desire. I quite agree with "R. D." that such gems are too precious to risk in the open air all the winter. I am working up a collection of both Picotees and Carnations, and although I write from the west of England, a long experience here has shown me that it is not safe to risk the border kinds in the open air from November to the middle of March. During that time a cold frame is the proper place for them.—J. C. C.

FLOWER GARDEN NOTES.

EARLY CHRISTMAS ROSES.—Christmas Roses in fine flower are already to be seen in the nursery grounds of Messrs. Robert Veitch & Son, Exeter. The variety Helleborus maximus is at this early season quite a mass of bloom, and the individual flowers are so large, that the stems supporting them are as stout as an ordinary lead pencil, and each stem bears on an average three blossoms of proportionate size. No doubt the mild and moist climate of Devon has something to do with the production of such early and fine flowers, as there were quantities to be seen in the florists' shop-windows at Torquay; yet the variety must be an exceptionally early one, and all that are desirous of having these grand flowers for a lengthened period would do well to procure stock. Our own plants of the same variety, or rather the variety we grow as maximus, are only just showing flower, so that I feel certain it is not the same, as this Devonshire maximus has been in bloom quite a month. There is also another form of maximus named major now flowering in the Messrs. Veitch's Exeter Nursery. The flowers are quite as large as those of maximus, but the plant is dwarfer and more sturdy and a little later in flower. Another variety in the Exeter collection that quite took my fancy was named H. angustifolius. The flowers were only just appearing, but the foliage was different to that of any variety I had ever before seen, being narrow and finely pointed, and is held by the leaf-stem in horizontal position—a perfect form of leaf for backing up and holding together a bouquet of flowers. The only difficulty that I have experienced in the forcing of Christmas Roses has been in getting the plants to do equally well for two or three seasons in succession. Plants that have been established in the ground for two or three seasons will, if lifted now and put into gentle warmth, flower abundantly, but next year they will fail to do so, at least satisfactorily, and it was these reverses that led me some years ago to keep the plants for forcing in pots all the year round, a plan that has answered well in regard to the production of quantities of flowers, though they are of a smaller size than those from plants lifted from the open ground. Perhaps the most perfect way of forcing the plants is to place frames over them in their growing quarters. The flowers may be a little later, but the plants escape the injury and check involved by lifting, and few hardy plants are more impatient of frequent removal.

SCHIZOSTYLIS COCCINEA.—This handsome hardy plant cannot be sufficiently well known, or it would be much more generally grown than at present. It is of comparatively recent introduction, but had a wide distribution when first sent out. I have occasionally seen large clumps in gardens and not a flower on them at this season when they ought to be in full bloom. The plant is an exception to the general run of hardy plants, as by annual removal the plant flowers most freely. We have several clumps now blooming well and others that have not a flower on them, and without exception the former (those now flowering) were all transplanted last year. The best way to treat the plant is, as soon as flowering is over, to lift the entire stool, split up and select the shortest crowns for replanting in the flower border and the small ones for planting in rows in nursery beds. These latter, in the course of a couple of years, make excellent crowns for potting to flower in frames from now on to Christmas. Those in search of a variety of flower

at this season at but little cost of labour should give this plant a foremost place in their list. For use as cut flowers it takes the place of Gladiolus, its long spikes of bright red flowers showing off to great advantage. We are just now moving some large clumps, and the stoutest bulbs or crowns are being selected for planting in Rose beds that have been recently trenched and manured, so that next year we look forward to having spikes of flower of extra size.

WALLFLOWERS.—Though I made a note of these a month ago, I feel justified in referring to the subject again. The rage for flowers of every kind is great, yet none are more popular than the old-fashioned favourites of our childhood, a handful of these Wallflowers being very often preferred to the grandest Chrysanthemums that are now so plentiful. This is the first time we have been fortunate enough to have Wallflowers for cutting at the end of November, but it will not be the last. The seeds were sown in the open border in April, and the young plants planted out from the middle to the end of June, and there have been flowers in greater or less quantity since September, and they promise to be at their best about Christmas. They are likely to be so valuable, that in the event of severe weather setting in we shall strive to devise some mode of protection.

VARIETIES OF PAMPAS GRASS.—How many varieties are there, and what are their names? I can only find two in the various lists of hardy plants, and here we have at least half-a-dozen distinct types—Gynerium argenteum and G. roseum. These two are easily distinguished by both foliage and flower-spikes, the former being of very compact growth with plumes to match, ivory-white in colour, and the latter has a more spreading habit of growth and loose, dingy-coloured plumes. The other varieties are mostly intermediate between these two, and having been raised from seeds, the variation is no doubt due to fertilisation. We have the several kinds in good condition now, and, backed as most of the plants are by massive clumps of Rhododendrons, they are quite a feature in the winter landscape. The most telling mode of dispersing the plants is to form groups of three or five plants, and in every case they should either be planted on turf in front of shrubbery clumps, or on the banks of lakes or streams. Early spring is the best season for transplanting. W. W.

Self Auriculas.—In THE GARDEN, Nov. 10 (p. 430), there is a request by "Stroud Nesbit" for the names of twelve self show Auriculas, also an answer by "J. D." "J. D." starts with the statement that "there is confusion in the minds of growers as to what constitutes a self Auricula." To this I must take exception. There is no confusion in the minds of growers as to what is a self. Even the inquirer, although he does not seem to know a great deal about Auriculas, is careful to ask for a list of self show Auriculas. There is no doubt about his inquiry. Passing over the list of alpines given, we come to a list of selfs in the show class. It is folly for "J. D." to recommend the dozen of show flowers he names. I do not object to the quality of those named, except that of Duke of Albany, the general verdict on which is that it is a very rough flower, and has not maintained the character with which it was sent out, but because of their price and scarcity. Some of them are simply beyond the reach of the average buyer. Heroine and Mrs. Potts are 30s. each; Sapphire is still scarce; Black Bess may be got, but is still high-priced; and where can Sunshine be got, or who has seen it? It is really a useless list to anyone who is not very well up in Auriculas. The following list I would recommend to a beginner in Auricula culture, because it consists of really good sorts of tried merit, easily obtained at low prices. Shades of blue, violet, &c.: Turner's C. J. Perry, Campbell's Onward, Barker's Nonsuch, Turner's Amy. Maroon and darker shades: Campbell's Pizarro, Spalding's Blackbird, Sim's Eliza, Pohlman's Helen Lancaster, King's Popsy. Crimson and kindred shades: Campbell's Lord of Lorne, Spalding's Mary Gray, and Martin's Mrs. Sturrock. Yellow: there are a few plants of Gorton's Stadtholder in existence, but they are hardly to be bought; therefore, there is really no yellow in the market. I could lengthen the list considerably, but these varieties, at from one-third to one-tenth of the prices, will hold their own with what are termed the new sorts.—W. S.-B.

CHRYSANTHEMUMS.

E. MOLYNEUX.

NEW VARIETIES.

GROWERS of Chrysanthemums not having an opportunity of visiting the shows have not the means of seeing the new varieties which annually are brought forward as improvements on older varieties, and which in some instances are inferior to many already in existence.

The bulk of the new varieties are shown at the metropolitan exhibitions or are to be seen in the nurseries around London. A few good sorts annually appear in private gardens where they may have been sent for trial. Having lately had an opportunity of inspecting many that have come under my notice, I will describe the best and most reliable sorts for the guidance of cultivators during the coming season. In many instances the colours of the blooms are difficult to describe accurately, but I will give what I consider sufficient description to convey to the reader an idea of the variety named. The Japanese varieties, owing to their fast increasing numbers, merit first attention:—

GEORGE DANIELS, a variety shown by Mr. R. Owen, and certificated at the last exhibition of the National Society, has flowers of a delicate pink, suffused with a deeper shade towards the centre. The florets are very broad and strap-shaped. It is a bold, handsome flower, of large size, and should be in the hands of all exhibitors. Etoile de Lyon, as shown by Messrs. Cannell and Sons, does not differ sufficiently from George Daniels to be considered distinct. The plant is of dwarf, sturdy habit, carrying good foliage, the blooms measuring 9 inches in diameter from tip to tip.

MONS. BERNARD, shown by Messrs. Laing and Sons, belongs to the same class as Mme. de Sevin, with the exception that the florets droop more and the colour is more purple than in the case of that variety. Altogether it is much superior to Mme. de Sevin, and is very effective on a stand, as colours of that sort are scarce.

MLLE. BLANCHE PIGMY is sulphur-white in colour, a full deep bloom with reflexed florets; this is not exactly a new variety, but one not so much cultivated as its merits deserve. Good blooms are produced on plants 5 feet high.

SUNFLOWER, one of Mr. Cannell's new varieties, has long, drooping, rich orange-yellow florets.

FLORENCE PERCY has been shown well several times this season. It is an attractive sort, wax white, each floret being deeply cut at the edge. It is a variety well worthy of extended cultivation.

SOUVENIR D'ANGELE AMIEL is a variety not quite new, white, with a faint dash of colour in the centre; the florets are long and narrow. It is on the whole an attractive variety.

ROI DES JAPONAIS is chestnut-red, tipped with gold; a full flower.

MRS. BEVAN, a clear golden sport from Mr. Ralph Brocklebank, promises to be an acquisition to the yellow-flowered varieties.

FREDERICK MARROUCH has rich deep yellow fluted florets. It is an acquisition to the back row varieties; keeps well.

HAMLET is a good addition to the reflexed Japanese section; orange-chestnut colour, full solid flower.

THEODORE BULHER.—A medium-sized variety, conspicuous by its colour, which is similar to that of Edouard Audiguier, except that it has more red in it and appears to be much superior.

MADAME BACO.—A full bold flower, very deep bright rose, with bluish tinge, serrated florets; a distinct and good sort.

BUFFALO BILL.—Cinnamon-buff, long fluted florets; a full showy variety.

MRS. FALCONER JAMESON.—A new Japanese, described on p. 396.

INCURVED VARIETIES.

LADY DOROTHY is a sport which originated from the Princess Teck family, from which it obtains the character in form of flower and petal; the colour is cinnamon-buff and quite distinct from that of the variety Charles Gibson, which is also a sport from the same family.

VIOLET TOMLIN is a violet-coloured sport from Princess of Wales, the character of which it retains not only in the form and size of the bloom, but also in the formation of the petals. This is a grand acquisition to the incurved class.

JAPANESE ANEMONE.

JEAN MARTY is a decided acquisition to this section, as it possesses a really full centre, which is deep lilac, the guard florets being paler.

JAMES WESTON.—Pure white, full disc, and long drooping guard florets.

MME. DE CONSANORT.—A full-centred, claret, self-coloured variety shown by Messrs. Davis and Jones.

ANEMONE.

THORPE JUNIOR is a first-class variety, having a full centre, the colour of the whole bloom being of a rich orange-yellow, similar to Chevalier Domage.

SABINE.—Sulphur guard florets, primrose-yellow disc, full flower.

M. PANKONCKE.—Purple-claret guard florets, centre claret, bronze tipped; a fine full flower.

SINGLE VARIETIES.

It is pleasing to note that several new varieties of this section are brought forward which will give a stimulus to their cultivation, as the colours are now becoming brighter.

DAVID WINDSOR.—Bright chestnut-red.

FIGARO.—Double row of florets, which are pale lilac in the centre, deepening toward the points.

EFFIE.—A curious mixture of chestnut and claret; the florets are very long.

Chrysanthemum flowers damping.—Complaints of flowers damping are general in this neighbourhood. We have about 1100 plants grown in 9-inch pots for large blooms, and on being housed in the first week in October they were as strong and healthy a lot as could be desired. Through October they showed no unfavourable signs, and the earlier sorts, such as Mons. H. Jacotot, Mons. W. Holmes, Lady Selborne, &c., developed splendid blooms; but at the end of the month damp began to attack the flowers and even the buds on showing colour, resulting in the loss of scores of flowers. Of course the weather was very unfavourable, it having been almost continuous rain here for the last three weeks. The plants are in a special house, a span-roof, 80 feet by 30 feet, with ample ventilation and means of heating. The plants, as in the case of those of your Clonmel correspondent, are taller than usual, and, as in his case too, E. Molyneux, Martha Harding, Elsie, M. Freeman, and others have withstood the damp—Mme. C. Audiguier, Elaine, Mlle. M. Fabre, and E. Audiguier being amongst the worst. The general opinion here amongst growers is that it is caused by the soft unripened wood made during the miserably wet and cold summer.—FRED. C. SMALE, *Torquay*.

Preparing the plants for cuttings.—By the time these lines are in print, many persons will be thinking about the cuttings to provide the plants for next year's supply of flowers. To have the best cuttings requires some attention and forethought. During the time the plants are in bloom little attention is paid to the suckers as they spring from the base of the old stools, the plants being generally crowded together. In this manner the cuttings, if allowed to remain, will be drawn up weakly, rendering them of little use to supply stout plants for

next season. As soon as the blooms are past, cut down the plants close to the soil in the case of those varieties which are well supplied with cuttings. Those sorts, however, which are new or scarce and promise few cuttings should not be cut lower than 1 foot from the soil. By allowing this length of stem, there is a possible chance of obtaining some cuttings from the stem, not that these cuttings are to be desired, but still they are better than none at all. Those plants which promise an abundance of cuttings, and which if allowed to remain would become drawn up weakly, should have the most forward removed, so that more space is given to those which are just showing above the soil. These will grow large enough by the time they are needed, and will be stout and stocky. Stand the plants as near the glass as possible in a cool house or frame where the frost can be kept from the plants. Little water will be required to the roots at this stage.

Chrysanthemum Elaine.—I cannot supply the information sought for by your correspondent, "X.," on p. 438, as to the year in which this variety was introduced, for on referring to the catalogue just issued by the National Chrysanthemum Society, I find that the year in which it was put into commerce is given as 1882, while as a matter of course it was really in general cultivation long before that. A peculiar omission is to be found among the incurved, of which there are two lists; the first a descriptive one of all the most select varieties, and the other a selection of the best thirty-six, which, according to the catalogue, are "arranged in the order of merit determined by the number of votes, those bracketed being equal." Now in the list of the best thirty-six there are three bracketed equal first, viz., Empress Eugénie, Empress of India, and Lord Alcester, the first of which, Empress Eugénie, is not even mentioned in the descriptive list immediately preceding, which numbers eighty varieties.—H. P.

—— "X," who inquires in THE GARDEN, Nov. 10 (p. 438) as to the date of distribution or raising of this variety, may like to know that Mr. Adam Forsyth's catalogue for the spring of 1872 contains a list of new Chrysanthemums for that year, in which Elaine and Fair Maid of Guernsey both appear as the only new Japanese varieties for that year. We often hear about the good old days, and one cannot help thinking that some sort of judicious selection was exercised in those times when two new varieties only were sent out, and that they are as popular and as well grown, if not more so, sixteen years afterwards than the first season of their appearance. Speaking from memory, Dounton, of Guernsey, was the raiser, but I find in a note in the *Gardener's Magazine* for November 15, 1873, that Elaine is there described as having been "sent out two years ago by Mr. Joseph." Whether Mr. Joseph was the nurseryman who originally distributed it I do not know, but as Mr. Forsyth offered it for sale in the spring of 1872, it certainly must have been raised in the previous year at the least. The "Chrysanthemum Annual" for the present year states in the list of certificated Chrysanthemums that Elaine was exhibited by Mr. Rowe at the Royal Horticultural Society, and was awarded a first-class certificate on November 6, 1872. I may observe that I am strongly of opinion that the white Japanese variety so frequently mentioned in Continental catalogues under the name of Hé'ène is one and the same thing as our much valued friend Elaine.—C. H. P.

SHORT NOTES.—CHRYSANTHEMUMS.

Mr. Garnar is a Japanese flower of a brilliant gold yellow colour, one of the brightest of all. It is of excellent substance and fulness, the petals narrow and rather short.

Lord Alcester, one of the best of the incurved kinds, has been remarkably well exhibited this season. Those who do not have this variety should get it.

Sunflower, a rich yellow Japanese variety, is one of the finest of 1888. The flower is very massive, large, but not coarse, and rich golden yellow.

Cullingfordi still remains one of the best of its class. It will be difficult to eclipse the beauty of this well-shaped, deep crimson flower.

Violet Tomlin promises to be one of the finest incurved varieties of 1888. It is of a purple violet tint, and has the excellent character of Princess of Wales, from which it is a sport.

Large-anemoned varieties of the character of Lady Margaret and Fleur de Marie deserve great encouragement. The flowers are exceedingly beautiful when in their best character.

Florence Percy, one of the purest of the Japanese varieties, is much finer than those blooms shown of it at a committee meeting of the National Chrysanthemum Society led us to expect. It is full, solid, and of the purest white.

Mrs. J. Wright is a Chrysanthemum that has been especially good this season. It is a white-flowered Japanese variety of great beauty, and the good opinion formed of it on its first appearance has been fully maintained.

Chrysanthemums at Kew are well worth inspecting by anyone who prefers a bush of natural form with a good crop of bloom rather than a broom-handle-like plant with a big flower or two on the top. In the large temperate house, as well as in the conservatory, the display of flowers is good. Most of the standard sorts are included, so that a selection of colours and plants of suitable habit could readily be made there by anyone who is noting Chrysanthemums for next year's display. One cannot, however, help seeing, both at Kew and in other gardens where a large number of kinds are grown, that a good many are poor enough to be discarded, whilst others are different from each other in name only. In the craze for big flowers the form and habit of the plant are often ignored. This is evident enough at Chrysanthemum shows this year, where cut blooms are the rule, plants the exception.

THE REFLEXED JAPANESE CLASS.

IN the new catalogue recently issued by the National Chrysanthemum Society and containing much useful information, one feature is the introduction of a new class called the reflexed Japanese. Those who know the difficulty there is in classifying the hundreds of varieties we have now will consider the formation of a new class for flowers intermediate between those of a reflexed and Japanese a step in the right direction, but it remains to be proved whether it meets the case. Even those who promoted it did so for "experiment," but from what I have seen this year it will be difficult to make it answer. L'Adorable and Val d'Andorre are certainly not more reflexed than many that are now included amongst the Japanese varieties proper; while apparently Amy Furze may come into either the reflexed or the reflexed Japanese, as it was shown in both divisions at an exhibition I was present at without any comment. Elaine, Maiden's Blush, and more that could be named are of the true reflexed character, but it will be exceedingly difficult to found a class upon varieties that only show this distinctive character. The reflexed class is at present very small, and might be made to include those Japanese varieties that have flowers with reflexed florets. There are many varieties that it is difficult to classify at all, as they are neither Japanese nor reflexed; then it will be necessary, if each is to receive recognition, to form a class upon a broad basis that will include these nondescript kinds. Avalanche sometimes shows a reflexed and sometimes a true Japanese character; then is the one who shows a bloom in the first-named class to be disqualified? It is a matter that requires careful consideration, and the difficulties become more numerous every year as the rapid introduction of new kinds goes on. It is now the time to found a distinctive class or classes for the new types, so that as each new variety appears it may be allotted its proper division. If this is not done, in a few years' time the varieties of Chrysanthemums will become hopelessly mixed, as many other flowers are at present—the Narcissi, for instance. But so much has already been accomplished by the National Chrysanthemum Society, that varieties will, without a doubt, find their allotted places in the course of time. It is a great work to cope with, demanding skill and discretion.

X.

Avalanche Chrysanthemum.—The varying character of this fine new variety in flower-production, referred to at p. 436, was admirably illustrated at the Royal Aquarium the other day. In the very fine forty-eight blooms shown by Mr. Packman, his top corner flowers were those of Avalanche, superb specimens, but distinctly reflexed; in fact, were like short-petalled Mlle. Lacroix. No one who saw the broad, flattish-petalled forms of it, shown at the Royal Aquarium by other growers, and so finely by Mr. Molyneux at Kingston, would for one moment think the flowers in both cases could be from the same plant. In the latter case the blooms are distinctly ball-like or rotund, the florets broad, thickly set, and in the centre of the bloom quite erect, as in the case of Elaine, but because the florets are shorter the blooms assume a more ball-like appearance. Some differences of culture probably account for this variation in the blooms. It is a grand addition to the white forms, the flowers being very pure and the plants dwarf and robust.—A. D.

—— In THE GARDEN, Nov. 10 (p. 436), I noticed a reference in the Chrysanthemum columns to the variety Avalanche sometimes coming out of character. We have here two plants of it, each bearing about six flowers, all of which are quite different in form to the flowers of that variety which I saw at the Aquarium on the 8th inst. They are of good size, but the petals are curled like those of Lady Selborne, and not drooping as in the true form; in fact, the flowers are entirely shapeless. I thought at first we could not have the true variety until I saw the note in THE GARDEN. The plants are strong and healthy. Will the stock propagated from those plants come true?—FRED. C. SMALE, *Torre Park Nurseries, Torquay.*

GARDEN FLORA.

PLATE 676.

FOXGLOVES.

(WITH A COLOURED PLATE OF D. PURPUREA, SPOTTED VARIETY.*)

THE common Foxglove and its allied species, though long and closely associated with our flower borders, have for very many years been somewhat neglected as garden plants in this country. They are happily again coming to the front, though in a vastly improved form, as may be seen by the accompanying coloured plate. That the Foxglove has not been entirely neglected in sunny France is clearly proved by the flowers from which the plate was made, and which are chiefly, if not entirely, the outcome of liberal cultivation and careful intelligent selection. That it has taken a long time to produce the above spotted variety there can be little doubt, but the achievement has been well worth years of waiting to attain, and entirely does away with the oft repeated, but not very intelligible objection many people have to the purple Foxglove, on account of its, to them, monotonous and somewhat disagreeable colour. We have been so long accustomed to seeing the Foxglove growing wild in our woods and dells, that we rarely, if ever, think of it as a border flower, though, to our mind, these plants make a charming group when well placed, blooming, too, at a season when flowers of this class are not wanted. In some few gardens in this country these Foxgloves have been made a specialty, and many fine varieties have been raised from seed, planted out, and again selected. The commoner varieties, many of which are beautifully spotted and shaded, are amongst the most useful and attractive flowers for the shrubbery or so-called wild garden. If the ground is kept comparatively clean of rank weeds the Foxgloves will give little trouble, the seedlings coming up by the thousand; in many instances we have seen them literally cover the ground, so thickly had the seed been strewn about. When kept long in one place, however, the plants are apt to die out, and this will have to be remedied by changing their position every few

* Drawn for THE GARDEN at Messrs. Vilmorin's grounds, Verrieres-le-Buisson, July 12, 1888, by H. G. Moon. Lithographed and printed by Guillaume Severeyns.



SPOTTED FOXGLOVE

years. Clumps or groups of the best of them can easily be kept in the flower beds or borders by collecting a pinch of seed and sowing in a pan or box or on a sheltered border in the open air, planting out as soon as the seedlings are large enough to handle. Selections of these varieties of Foxgloves might also be with advantage associated with groups of trees and shrubs in our pleasure parks, &c. There are no plants so well adapted as Foxgloves for work of this kind, and as the trouble of cultivating the plants is small, there can be no excuse for excluding them from collections. Amongst the allied species and varieties, the foremost is perhaps D. grandiflora, which also goes under the names of ambigua and ochroleuca. Its flowers, produced in long racemes, are dull yellow, and not by any means so pretty as those of the varieties of the common species. D. ferruginea, lævigata, &c., are often grown in the rockery,



Foxgloves in the wild garden.

but they are not to be recommended as garden plants. Some little good might be done in making the purple Foxglove more perennial, and maybe improving the strain by crossing with some of these truly perennial species. Our own experiment in this direction was, however, a signal failure, though this does not by any means prove it is impossible. We selected a strong raceme of the D. purpurea var. and crossed the flowers with pollen of D. grandiflora, and after carefully marking above and below where the pollen was placed, we waited until seed time. The result was rather curious, as all the capsules above and below the marks were plump and full of good seeds, but those, without a single exception, dusted with the pollen of D. grandiflora were withered up, not a fertile seed—indeed, no seed of any kind—being produced. This has happened twice. Have any readers had the same experience with these Foxgloves?

D. K.

STOVE AND GREENHOUSE.

THE AMARYLLIS.

I READ at p. 440 under the heading "Autumn-flowering Amaryllis" that "there is a possibility of obtaining an autumn-flowering race of Amaryllis." This might have been said some six or eight years ago, for about that period autumn-flowering Amaryllids were first introduced at nearly the same time by Mr. B. S. Williams, of Holloway, and Messrs. J. Veitch and Sons, of Chelsea. Autumn Beauty was the first of the Chelsea hybrids, while Mr. Williams introduced President Garfield and Mrs. William Lee, the parent in each case being A. reticulata. They are all very beautiful in their way, but are not likely to become so popular as those of the early spring-flowering section. They have all been raised from A. reticulata striatifolia, which takes its varietal name from the white line or band in the centre of the leaf. This is the plant now grown as A. reticulata. The true A. reticulata was introduced at a much earlier date by a Dr. E. W. Gray about the year 1777, and has plain green leaves and beautifully reticulated flowers. The variety striatifolia was introduced about 1810 probably. The bulbs were sent from Brazil to a Mr. Griffin, and on this point Dean Herbert remarks that the bulbs were probably sent there from Africa in some slave ship. I am tempted to make a few remarks on the Amaryllis at this time because it is the season of rest for our plants, and the season of rest for them, although it is more apparent than real, is not one for the cultivator (I am alluding now to the spring-flowering section). The leaves have all died down, and have been removed to the rubbish heap. We have pulled the pots out of the plunging material, and the woodwork of the house will be washed at the first opportunity. We find it very difficult to keep thrips off the leaves in summer; red spider also attacks them very seriously. It is therefore best to make sure that no insect pests are lurking in the crevices of the wood. All the loose material at the crowns of the bulbs has to be removed with the fingers, as in these, insect pests are more likely to lurk than in the woodwork of the house. All the rubbish should be removed at once from the house and burned. In some collections the more troublesome mealy bug finds a lodgment also in the crowns of the bulbs, and seriously checks the growth of the plants; this may also be removed with the loose material, and it is an excellent plan to dust the crowns with dry Tobacco powder. This will kill most insect pests, bug included; at least, it cannot live where the powder is, and will turn out after the process of dusting.

Another important matter is the preparation of the potting soil. We set about it immediately, as it is all the better for lying in a heap for about six weeks at least before being used. It is not necessary to be too strict in keeping to one uniform preparation. The compost I find that answers well, as we use it the same every year, is one of three parts decayed turfy loam, one of light fibrous brown peat, one of decayed stable manure, and one of sharp white sand, to which is added a sprinkling of broken charcoal. We have our loam piled in a great heap, so that it is usually very dry when it is used. In that case it is best to leave the heap of compost out of doors piled up in the form of a cone, so that it does not get too wet. It is better out of doors in the open air than dried up in a close potting shed, perhaps made worse by being exposed to the fumes of coke from the stokehole fires. I like all composts to be in a medium state of moisture when being used, although I would rather err on the dry side than the reverse. Potting time with us is about the second week in the new year. I get in some spent tan about two weeks before commencing to pot, and this causes a moist bottom-heat, not too violent, as we merely mix it with the old material. All, or nearly all, the old potting soil is removed, and the bulbs carefully potted in the fresh material, and as they are potted another man plunges the pots to the rim in the warm tan.

After this two points are of the utmost importance—that is, the temperature of the house, which must not be high at first, and no water should be applied to the pots containing the bulbs for a month at least after they are potted. Any bulbs badly rooted or that show signs of decay should have the decayed portion carefully removed and some dry lime dusted on it; some dry, clean sand should also be placed around the bulbs to prevent the compost from coming into immediate contact with them. The best varieties are of considerable value, and they ought to be well cared for. The large proportion of Amaryllises now in cultivation having been produced from South American species, do not succeed in a greenhouse temperature and must be cultivated in the hothouse, and they do much better when some bottom-heat can be afforded to them. The greatest injury is likely to accrue to them from over-watering. A moderately dry atmosphere is also best at first. There are some more hardy species and varieties which will succeed in a greenhouse, and some persons even say out of doors planted in the open borders; but they are South African species, of which A. vittata is the most beautiful, and probably the parent of numerous varieties now in cultivation. A. vittata was introduced so long ago as 1769. It is well figured in the *Botanical Magazine*, tab. 129. It is there stated that it was introduced by a Mr. Malcolm, but its native country was doubtful. The editor of the *Botanical Magazine* also states that it rarely puts forth offsets, but that it might be readily propagated by seeds. I have recently heard (and also read) of a blue Amaryllis being in cultivation, but it will probably be, like the blue Dahlia and blue Rose, ex-

isting in the imagination only. I have been told that the plant alluded to as a blue Amaryllis is A. Rayneri, figured in the *Botanical Magazine*, tab. 5883. If so, it is South American, and was introduced from Bahia by a Mr. Williams, who sent it to Mr. Rayner, of Uxbridge, who flowered it in November, 1870. The flowers are not blue, but have a pale purple tint. It is a stately plant; the leaves, which are of large size and sickle-shaped, are peculiar, as they have a narrow buff-coloured margin. It is certainly a very distinct species, and belongs to the long-tubed section. It probably would form a good seed or pollen parent for crossing with those already in cultivation, and may for all I know be autumn flowering. J. DOUGLAS.

Snake Gourds.—The several species of Trichosanthes which have snake-like fruits are sufficiently ornamental to be recommended as stove climbers for every garden. They are easily grown, requiring the same treatment as an ordinary Cucumber, which they resemble in habit and foliage, except that the Trichosanthes are less leafy. The fruits are developed in summer, and grow to a length of about 2 feet or even 3 feet. They are about 1½ inches in diameter, tapering to a long tail-like point, which is often twisted and curled so as to suggest a snake hanging downwards. The colour is bright orange, mottled and striped with green and yellow. In the Nymphæa house at Kew these plants have been very attractive this autumn. A fine fruit from this house was exhibited a month ago at the meeting of the Royal Horticultural Society, where it was much admired.

Cordyline indivisa, true.—This is the broad-leaved, brownish green form, with a broad stripe of russet-brown down the midrib, and which is very distinct and ornamental as a greenhouse plant. There are other very different Cordylines to which this name is applied, but the true plant is that here described. It is often found difficult to grow in pots, but when planted in a sunny border it grows vigorously; moreover, it is quite hardy in the neighbourhood of London. At all events, plants which have stood out of doors nearly three years, and have not been protected in any way in cold weather, are now in perfect health and colour at Kew. For gardens in the south of England this Cordyline would certainly prove a success.—W. W.

Dahlia imperialis.—This Tree Dahlia, which was the subject of a note and illustration in THE GARDEN of June last (p. 527), may now be seen in flower in the temperate house at Kew. The past summer was not favourable to the development of the plants to their usual dimensions, but they are well furnished with leaves to the bottom and show promise of plenty of flower. The tallest are about 12 feet high. It is only in large houses that such a plant can have winter accommodation, but it is always worth its room. The blooms are 5 inches across, white, faintly tinted with rose, the ray florets being large and arranged in a single row round the small cluster of yellow disc florets. Has anyone in England flowered the allied kinds known as D. excelsa and D. Maximiliana? They are grown at Kew, but they do not flower.

Combretum purpureum.—In looking over some numbers of the *Gardener's Magazine* of fifty years ago, I noted in the report of a meeting of the Royal Horticultural Society of August 7, 1838, that—

> A paper by Mr. Thomas Sellars was read upon the cultivation of Combretum purpureum. The author of this communication stated that in the year 1834 there existed at Mostyn Hall, near Holywell, a plant of this species, which occupied 308 superficial feet of the trellis on the back wall of a hothouse. Its shoots were trained upon wires at the distance of from 7 inches to 8 inches, and produced in one season 557 panicles of crimson flowers, all expanded at the same time, namely, in the month of July, from which period it continued to flower till late in the autumn, although not so abundantly as at first.

Such a plant as this would be a magnificent sight and one that might be sought for in vain at the present day, even after the lapse of so many years, for though this Combretum is frequently noted in the various horticultural publications, it is really very seldom met with, though it is certainly worthy of a place among the most select of stove climbers. It is not so readily propagated as many others are, for it is necessary to graft the young shoots on to pieces of the roots. Strange to say, I do not find this beautiful climber mentioned in the "Dictionary of Gardening."—H. P.

WORK IN PLANT HOUSES.

BULB FORCING.—More Roman Hyacinths should now be put in heat to furnish flowers in succession to those started earlier. A portion of the stock of the large-flowered varieties should also be put in heat if the flowers are required about the end of the year, as when the bulbs have made enough roots, it is better to start them so that they will have sufficient time to come on without subjecting them to any undue amount of heat. When hard forced the flowers are never so fine as when the plants are not hurried into bloom. The early Paper-white Narcissus should also be started. Some of the first potted Snowdrops and Scillas ought also to be moved into heat. When a house or pit where enough heat can be kept up is available for forcing bulbs, shrubs, and other hardy subjects, independent of the ordinary plant stove, it is much better, as then the things that are to be forced can be treated exactly as they require without having to consider what the permanent occupants of the structure are like. One of the principal things to be borne in mind is that the plants are kept as near the roof of the house as possible, as by this means alone can the flowers be had in a condition that will give satisfaction. Before putting any of the above-named bulbs in heat it is well to examine them to see that they have made enough roots to carry them through the trying ordeal they are to undergo.

LILIES.—Plants of L. Harrisi and its near relative L. eximium that were forced last winter, and afterwards kept in pots and encouraged to make growth, will soon be coming into bloom again. The amount of heat that will be required to bring them into flower will depend upon the condition they are in. If the bulbs have been well attended to, an ordinary greenhouse will suffice. All the bulbs of these Lilies that are intended for flowering during the winter and spring should now be potted, as the time has come when they will begin growing, after which the longer they are kept out of the soil the more it will interfere with their blooming. The same holds good with the common L. candidum, which naturally begins to grow earlier than the varieties of L. longiflorum. This old-fashioned Lily has only in recent times been tried for pot culture, but enough has been seen of its adaptability for flowering in this way to ensure its being extensively grown both for winter and early spring flowering. Either for conservatory and greenhouse decoration or for using in a cut state these Lilies have few equals. L. speciosum and any plants of the different varieties of L. speciosum that flowered late and yet remain unpotted should receive attention at once, as if the work is longer delayed, the young roots which they will shortly begin to form will suffer when the bulbs are taken out of the old soil. These Lilies are often allowed to remain for several years in the same pots without the soil being renewed, the result being that they get so far impoverished by overcrowding, that they do not produce half the number of flowers that they are capable of when fair attention is given them. All the pot Lilies that are intended to flower next summer, including L. auratum, may be left anywhere out of the reach of the frost until their top growth appears above the surface. All that is necessary is to see that the soil does not get too much water, or that the opposite extreme of its being over dry does not occur.

STOVE.—BOUVARDIAS.—The amount of bloom which these plants are capable of producing depends on their size and strength. To grow them to the requisite size in a single season, it is necessary that the propagation should be carried out early in the winter. To have the cuttings in a condition for this, the plants that are to yield them should be prepared without further delay. Two or three of each of the varieties that are to be grown should be dried off by withholding water until most of the leaves are shed. By keeping them dry in this way for a month or six weeks they will be in the requisite condition. After this the soft immature ends of the shoots must be cut away, shortening them back to the firm wood. The soil should then be well moistened and the plants put in a brisk, growing temperature; this will cause them to break back from almost every eye. The shoots thus formed will strike as readily as Fuchsias when they are about 2 inches long; whereas if cuttings are made from the tops of plants that have been kept on growing in the ordinary way few will strike, and those that do root will move very slowly. During the drying-off process the plants should be kept in an intermediate temperature; this is better than either having them in stove heat or in a cool temperature. See that Bouvardias now blooming have enough heat to keep up the successional growth that is to flower after the first crop borne on the extremities of the shoots is over. Surface dressings of concentrated manure or manure water at short intervals should be given to maintain the requisite strength. Keep the plants as near the glass as they can be got, using no more atmospheric moisture than necessary. These conditions are necessary to give the requisite substance to the flowers, which in winter are more subject to flag and wither when cut than those of many things.

MEDINILLAS.—To grow these plants well they like plenty of light at all times, with a somewhat drier atmosphere than some stove subjects need; in addition to which they require a longer season of rest than the majority of heat-requiring species want. During the time they are kept dormant the soil should be as dry as it will bear without causing the leaves to flag. Whilst the plants are at rest they will be better where the night temperature is about 60° than if warmer. After three months of this treatment they will, when again started, flower profusely from the old mature wood as well as from the extremities of the past summer's shoots.

STOVE CLIMBERS.—Stove climbers and twiners trained to the rafters of the house and that flower from the current season's growth should now have their shoots shortened, so as to allow additional light to reach the other plants grown beneath them. In pruning climbers it is necessary to distinguish between those that bloom from the current season's shoots and those that flower from the ripened wood made during the previous summer, as whatever reduction is made in the shoots of the last-named plants will correspondingly reduce their flowering. These should not be cut in further than by removing any superabundant growth that they may have, or cutting away straggling shoots that can be spared. Stove climbers are a source of constant trouble to the cultivator through the insects with which they often become affected, and which if allowed to get numerous find their way to all the plants grown under them. Advantage should be taken at this season of the ripened condition of the wood, that will now bear a stronger application of insecticide than it would be safe to use when the growth was soft and immature. In the case of any plants that are affected with mealy bug and that can be taken down from the wires, the most effectual way of destroying both the mature insects and their eggs is by dipping them in the liquid and allowing the tops to remain for a short time immersed. By this means the solution will reach all cracks and inequalities on the bark where the insects lurk and the eggs are deposited. One application of this kind is often more effectual than half a dozen syringings. The aim of the grower should be to get completely rid of this most troublesome of all insects. By beginning early, the plants can be gone over a second time before they again commence to make new growth.

IXORAS.—Where a selection of the best kinds of these plants is well grown, some or other of them will afford an almost uninterrupted supply of flowers for cutting. To make sure of this, plants of different ages should be used. Where there is a number of large or medium-sized specimens, they should

have their annual cutting in at different times. Plants that had their shoots shortened moderately after they had bloomed in summer will now be again set with flowers, which, if the plants are grown in a warm house, as Ixoras require to be, will keep on opening slowly during the winter. Examples that were cut in later in the season will again have pushed new growth that will produce flowers early in spring. Plants that bloomed during the autumn and are now out of flower may be cut in more or less according to their size. These will flower later in spring and through the early part of summer. To have I. coccinea—which is still the best of all the Ixoras—in bloom in spring, it should be cut in about the end of summer. In cutting back Ixoras, it is not only necessary to shorten the strong shoots, but they should be well thinned by cutting out the weak growths altogether. This is more requisite with most of the now numerous hybrids, as otherwise they get crowded with a thicket of weak growth that produces a quantity of small, insignificant trusses of bloom, in place of which it is better to concentrate the energies of the plants into supporting a moderate quantity of strong shoots that will give large, full-sized heads.

RONDELETIAS.—When these plants are well managed they will give two or three crops of their long-enduring flowers in the course of the year. In most cases those that have flowered latest will have done blooming. Specimens that are as large as they are required to be may have their shoots shortened to within about three joints of where they were cut back to last winter. In the case of these Rondeletias, it is well to thin out the weak growths that always exist to a greater or less extent, and which only tax the roots to no purpose. These plants do as well at all times in a lower temperature than is necessary for Ixoras and others of the hotter section of stove plants.

FRANCISCEA CONFERTIFLORA.—This old species, which when well managed is one of the finest of all stove plants, will, if treated as recommended during the summer, have finished its growth, which may be seen by the formation of small terminal buds at the extremities of the shoots. The plants should be removed to cooler quarters. A house or pit, with a temperature of about 45° in the night, is the right place for them; here the buds will go on slowly increasing in size and numbers. When the specimens are strong, and have made shoots 12 inches or 15 inches long, that which now appears to be only a single flower-bud will form from a dozen to a score, which in the spring will keep on opening in succession for six or seven weeks, during which time the plants will present a mass of bluish purple colour that will contrast well with flowers of any kind. T. B.

Kennedya Marryatæ is an exceptionally good greenhouse climber, but it is not much grown. It grows freely, the habit is graceful, the foliage of a healthy colour, and the bright scarlet, Pea-like flowers are very attractive. When planted in a border in a greenhouse or conservatory it soon covers a large space either of pillar or roof. It is covered with bloom now and will continue so for the whole winter and following spring. This and the pretty red-brown-flowered Hibbertia are especially attractive in the greenhouse at Kew just now.

The scarlet-flowered Skull-cap (Scutellaria Mocciniana).—This beautiful stove-flowering plant is now rarely met with in good condition. It is one of my earliest acquaintances among stove plants, and I have never seen it in better condition than it used to be grown in Sussex some years ago. It was introduced from Mexico and distributed by Messrs. Veitch & Sons about the year 1868. As it was prior to 1870 that I first saw this plant, it would then be quite new, which would account for its receiving better treatment than it now gets. What a pity that the rage for new things should cause so many good old plants to be neglected! Young plants propagated early in the spring make good specimens for flowering the following winter. Cuttings should be taken from the strongest growths that can be obtained, and these will root freely in an ordinary propagating case. As soon as rooted they should be potted on and grown as vigorously as possible during the summer. A suitable compost for growing this plant is rough fibrous loam, leaf-mould and peat in equal parts, with a little manure and sand added. After the plants are well rooted, liquid manure may be used with advantage. The beautiful terminal clusters of rich crimson flowers are among the most showy objects to be found in the stove during the winter months.—A.

CYCLAMENS AT CLOVELLY, HOUNSLOW.

THERE is now to be seen at the above establishment a very fine and healthy batch of Cyclamen persicum numbering about 130 plants. It is a pleasure to see such a collection, especially when one considers in what a short space of time the plants have attained a flowering size. Mr. Ford, the gardener, informed me that the seed was sown as late as the 3rd of January of the present year; therefore, at the time of my visit the plants were ten months old. Many of the plants measured 15 inches across, and the quantity of flowers expanded was remarkable. On some of the specimens there were as many as sixty blooms. The strain was exceptionally fine, the white variety especially so, the flowers being large, of good form, and great substance, some of the individual petals measuring quite an inch across. Nothing can be more beautiful in these dull winter months than a collection of Cyclamens, and although they are so useful and so easily managed it is seldom we find a good collection, especially in a private establishment. The seed was sown in a shallow pan in moderately light sandy material, and placed on a shelf in a stove. The pan was covered with a piece of glass. Germination takes place very quickly, and as soon as the young seedlings appear the glass is removed to prevent the young leaves from being crippled. When large enough to handle they were pricked off, about an inch apart, in other similar pans, replacing them in the same position close to the glass. In course of time they were potted off into 3-inch pots, and kept growing in the same position until June, when they were ready for 4½-inch pots. After being potted they were removed into a cool pit, and gradually hardened off. The most important secret seems to be to never allow them to receive the slightest check. All that is required is to keep them cool and moist, and never to allow them to become dry, and keep them slightly shaded from hot scorching sun. Their greatest enemy is black fly, which soon curls up the young leaves unless destroyed, but this pest can be easily exterminated by constant fumigating. Great care must be taken to see that this operation takes place when the plants are perfectly dry. Now that the plants are in bloom a temperature of about 50° would suit them best. As far as horticulture is concerned, Clovelly is quite a new establishment, but we shall expect to hear more of it in the future. Mr. W. H. Ellis, the proprietor, has of late taken a lively interest in his garden, and has recently made extensive additions to the glass department, and, from what I can understand, intends adding more soon. The conservatory was gay with various autumn-blooming plants, among which were good specimens of Celosia pyramidalis plumosa, which proves exceedingly useful for house decoration at this time of year.

J. GRANDFIELD.

SHORT NOTES.—STOVE AND GREENHOUSE.

Thyrsacanthus rutilans. — This is a very pretty, though much neglected plant. It should be propagated annually, and may be grown in a pit during the summer, and will flower better for being well exposed for a period in the autumn, as it will thus form shorter jointed growths. The long pendent racemes of crimson flowers are very attractive.—A.

Calla æthiopica.—In reply to a question on p. 440, I beg to state that C. æthiopica is certain to ripen seed in England, provided that a good strong specimen be planted out in the open in a half shaded place, and be well provided with copious waterings during summer. I had in this bad season ripe seeds in September of a compact growing variety called Leberi. When in full flower a camel's-hair brush should be applied to the pistil, rubbing the male pollen.—MAX LEICHTLIN, *Baden-Baden.*

Rondeletia speciosa.—This old stove shrub is one of the many pretty things that passed into disfavour as Orchids increased in popularity. This is to be regretted, for its trusses of orange-scarlet flowers are of a colour not common among the occupants of glasshouses if we except the Lantana. A large plant of this Rondeletia is nearly always in flower. At Handcross there are some enormous specimens in pots, but at Ketton Hall Mr. Divers has planted it out and is training it over the back wall of a small stove. It is valued here for cutting, and especially for making button-holes.

Gloxinias at Twickenham.—Very beautiful indeed, and certainly remarkable for the time of year (the 13th of November), was a fine lot of seventy-two cut blooms of Gloxinias, shown at the Twickenham Chrysanthemum show by Messrs. Hooper and Co., of that place and Pine-apple Nursery. The flowers were set up in bunches of three and with a little Maiden-hair Fern. They were of good size for the time of year, and superbly coloured and speckled, indeed, the strain is a most beautiful one. It is a new feature to find flowers of so tender a character shown so freely at this time of the year. They were the product of plants raised from seed sown last spring. It is apparently only necessary to have low light houses with ample warmth to have the plants in beauty nearly all the winter.—A. D.

Sericographis Ghiesbreghtiana. — A very desirable winter-flowering plant from Mexico, and closely allied to Justicia. Where large conservatories have to be kept gay during the dull months, this should always find a place, while it is also very useful for cuttings. It requires a little management to flower it successfully. It is now some years since I grew it, but when I was in Sussex a good batch used to be grown every season. Our mode of treatment was to propagate fresh stock every season and discard any plants more than a year old. The cuttings should be put in as early in the spring as possible, so as to give them a chance of making good growth early in the season. We used to grow three or four plants in a pot, flowering them in 8-inch pots. If grown on freely they make good plants by July, when they should be stood outdoors in an open position in order to ripen the wood and set their bloom. They will flower well in a warm greenhouse temperature. The bold deep green foliage and numerous bright crimson-scarlet flowers, which are produced in panicles from the axils of the leaves, keep up a good display for a considerable time.—A.

Bouvardia President Cleveland. — This beautiful Bouvardia to which "T." alludes in THE GARDEN, November 10 (p. 440), certainly did come into commerce less ostentatiously than do most new plants, more especially considering its sterling merit. "T." is quite right in supposing that it came from America. It was introduced by Messrs. H. Low and Co., of Clapton, and was distributed by them in the autumn of 1887. I think that they could have hardly recognised the fact that it was so much in advance of other varieties, or they would not have distributed it on the terms they did. The fact that, although they had a large stock of plants at the commencement of the season, these were all sold out, and many customers had to be disappointed, proves its value. Bouvardia Vulcan has been spoken of as rivalling the above; it certainly is of a rather deeper shade of colour and a desirable variety, yet I scarcely think it will find so much favour as President Cleveland is destined to do. Vulcan has been in this country several years, but little has been heard of it at present. I believe this also comes from America.—A.

Callicarpa purpurea.—Two great points in favour of this beautiful stove or intermediate house shrub are, its very distinct character and the length of time it remains in beauty. Its principal ornamental qualities are not flowers or foliage, but the bright purple berries, which are borne in great profusion. The plant when young is by no means attractive, being of a loose, straggling habit, but when larger the long flexible branches dispose them-

selves in a graceful manner, and thus render the plant totally devoid of any stiffness or formality. The individual berries are small, but they are borne in large, densely-packed clusters, and often for more than a yard along the slender shoots. Propagation is readily effected by cuttings put in during the growing season. In the case of plants now in fruit, when they have lost their freshness, which will not be till the earlier months of the new year, the old shoots must be pruned hard back, the plants again started, and encouraged to make good growth during the summer.—T.

Trees and Shrubs.

THE IVY.

The Ivy in its various phases is very little known, although it is not difficult to obtain or see a first-class collection. The common Hedera Helix of the woods and hedgerows is, of course, familiar to all, but its many beautiful varieties, that show marvellous leaf variations and colourings, besides constitutional differences, are as yet scarce, though why this should be is difficult to tell when we consider the usefulness and the great hardiness of most of the Ivies. All are not of the same vigorous habit, as will easily be seen by cultivating a collection, but the rich self, green-leaved kinds are usually as rampant growing and as hardy as the wild type, the smaller-leaved variegated kinds,



Irish Ivy (H. canariensis).

as some of the marmorata forms, showing a certain tenderness of constitution. Although there are dozens of varieties, there are only two accepted species, and thus the genus is considerably reduced. There is Hedera australiana that is confined to the continent of Australia, and Hedera Helix, which is found wild in the British Isles and spreads over Europe, reaching into North Africa and West Central Asia. It is under our English Ivy that the large number of forms in cultivation are classed, and a few of these are touched upon in the present article, the accompanying illustrations showing six of the best types. Although there are only two species, we can classify the Ivies in several groups for the purpose of a more easy identification, as the range of colour and variation in the leaves enable us to bring together those varieties that have the same character in these



Heart-leaved Ivy (Hedera Rœgneriana).

respects. Thus there are the green-leaved kinds, those with golden leafage, &c.

Before I touch upon the best kinds it will be well to briefly refer to the cultivation of this climber and to certain objections that are raised against it. It may be thought that it requires no cultivating, but this is a mistake, although many consider the Ivy will thrive anywhere, even in a cold, bleak position, where there is very little soil and this of the poorest character. If you want Ivies in the fullest beauty, it is necessary to pay some attention to position, soil, and training. This applies to all the kinds, but especially to the more delicate varieties, as marmorata minor, which need rather special treatment. Ordinary garden soil will grow the Ivy well, and the strong growers, as Emerald Gem, Rœgneriana (of which an illustration is given), algeriensis, canariensis, or the Irish Ivy, sagittæfolia, lucida (here figured), palmata, gracilis, dentata, digitata, pedata (here figured), and angularis, will need no special position; but in the case of the naturally more tender kinds, as madeirensis variegata, a lovely, free-growing, and showy form, some little discretion is needed. It is better, in my opinion, to plant these kinds as edgings to a bed of shrubs or permit them to clamber over a root-stump, arbour, or form a pyramid of them, as is shown in the accompanying engraving of the Algerian Ivy, where they will be less exposed to the full force of an east or north wind than if they were trained on walls facing these aspects. Moisture is of great value to the Ivy. On a moist wall on which a particle of sun never shines I once planted Rœgneriana and a few of that kind, and the growth made was marvellous. The plants were in the first place healthy pieces and properly trained, so that every encouragement was given. Many tear up a few bits from the hedgerow, stick them in anywhere and anyhow, and then expect them to live and cover the house with greenery. If they grow slowly, which is the natural consequence of such treatment, then the Ivy is considered as being extremely slow of growth, and far less useful than the Virginian Creeper and many other climbers. It is very difficult to establish the wild Ivy, as the slips obtained from the wood are generally bruised and with few roots. In most nurseries there are plants that having been well grown soon make progress when planted out. Cuttings may be struck in the latter part of the summer, and quickly root if put in a shady border where the soil is fairly good; but in the case of the very delicate kinds it is better to put them in pots. Unless the cultivator is an Ivy enthusiast, a few of the green-leaved and one or two of the more vigorous variegated kinds are the best to select.

Many consider that a wall is the only place fitted for the Ivy, but, as can be seen from the engraving of H. algeriensis, this is not the case. A pyramid rising from the green turf makes a beautiful picture; so also does a bower or arbour covered with the glossy foliage, or a carpet of Ivy under a spreading tree. Trellises of Ivy are not wanted, nor any formal arrangement as we occasionally see in gardens where there are still remnants remaining of the bedding-out age. One point often overlooked is to train the shoots systematically. I allude, of course, to when the plants are young, as afterwards they cling by their tendrils unaided. Very often the shoots are permitted to hang loosely without nail or tie, and not only run the risk of being broken off, but growth is stopped. It is also sometimes necessary to cut the plants down to the ground after the first year, as frequently the shoots are very weak; but this severe pruning induces a stronger growth later on. This is often necessary with the wild form. As regards the best time to plant, the spring months are the most suitable; but the Ivy may be planted any time if it is in a pot, and during the first



Glossy Ivy (H. lucida).

summer, if the weather is hot, give plenty of water at times.

There are two objections urged against the Ivy. One we have disposed of, and that is its slow growth, and another is that it injures buildings and creates damp walls. This may also be disposed of in a very few words. The Ivy, instead of creating damp, maintains a dry surface, and this is at once evident, as the mass of foliage and stems shield the wall from rain. No wet can penetrate through a thick mass of Ivy. The Ivy does injure stone ma-

sonry by sending its shoots between the stones or bricks, dislodging them after a time; but careful attention to these matters will prevent such mischief. A ruined abbey, castle, or tower mantled with a dense canopy of Ivy



Finger-leaved Ivy (Hedera digitata).

has been the subject of many an artist's picture, and to tear this beautiful covering from its place is wanton disregard for what is truly picturesque. A ruin often owes its beauty as much to the Ivy as to its situation.

When we come to the selection of varieties, we approach a somewhat intricate subject. The kinds mentioned above are good, but in many



Arrow-leaved Ivy (H. hastata).

places only two or three green-leaved and, perhaps, two variegated varieties are wanted. Three of the finest in the first-named section are the bold-leaved, vigorous-growing, and somewhat coarse H. Rœgneriana, the useful rich green Irish Ivy (though why it should be called "Irish" is not quite clear), H. Helix canariensis (syn., grandifolia), and Emerald Gem, a splendid variety of great richness and beauty; it is very free and robust in growth. This is sometimes called Emerald Green, and it has other titles. If more are wanted, a selection may be made from those previously mentioned. Madeirensis variegata is one of the best of the variegated Ivies; one called Lee's Silver is also very handsome, and a few of the smaller-leaved kinds, as marmorata minor, might be added. In the case of this group it is advisable to use a somewhat poor soil, so as to bring out the variegation, which is the special beauty of the plants. That the nomenclature of the Ivy is mixed there is not a doubt, but those kinds noted above are usually found under the names given. If a curious little Ivy is wanted for the rockery, plant H. conglomerata, a twisted stemmed variety of interesting character.



Bird's-foot Ivy (Hedera pedata).

A word must be said for Tree Ivies, which, although not often grown, make rich, verdant bushes in the garden, and may be associated with other shrubs in beds. The growth is hard and irregular, and healthy plants make dense, rounded heads of foliage, relieved during the blooming season with masses of greenish flowers. An Ivy in full bloom is exceedingly picturesque, and in some gardens we meet with huge buxom specimens crowning a wall, knoll, or arbour with a great cushion of rich green leaves. One of the most advisable methods of dealing with the Tree Ivy is to graft the healthy shoots in the month of March on stocks of the Irish Ivy that have been grown on in pots. Arborescens is one of the best. Many of the more delicate of the variegated Ivies may be grafted in this way on a strong-growing stock. E. C.

Rubus biflorus.—This is scarcely the subject one would plant in close proximity to choice and delicate shrubs, as they would be likely to suffer from such a vigorous-growing neighbour; still, for all that, where there is no danger of such a thing happening, this Himalayan Bramble forms by no means an unattractive feature during the winter months. The whole of the stems are of a dazzling whiteness. It is just the plant for the wild garden, as, indeed, are several of its allies, among which may be named the pretty North American purple-flowered Rubus spectabilis, which when once established will hold its own under very adverse conditions. A group of three shrubs especially remarkable for their bright coloured bark during the winter would consist of this Bramble, the golden-barked Willow (Salix vitellina), and the Dogwood (Cornus alba).—T.

PLANTING TREES AND SHRUBS.

We are now at the height of the planting season, and by way of introduction I may state it is curious to notice how dry the subsoil is in many places, notwithstanding the incessant rain which fell all the summer through. The effect of the continuous rain was to beat down the surface as solidly as possible, which caked hard in fine weather, and then seemed to throw off the rains which came after the dry time instead of absorbing them. I saw cases where the water appeared to run off the surface and find its way into the walks. I was in a large fruit garden a few days since, where some standard trees of inferior varieties were being removed to make room for sorts of better quality, and it was surprising to observe how dry the soil was below the surface roots. The best thing to do under such circumstances is to trench the ground well, getting the dry soil upon the surface, so that it may have the advantage derived from the autumn rains. It would be as well to saturate the soil a few days before planting, so as to secure moist soil about the roots.

At the recent fruit conference at Chiswick, great stress was laid upon the proper planting of fruit trees. It was constantly observed by the readers of papers bearing on planting that it is not sufficient merely to dig a hole and put in the roots, but that there is much more to be done if the tree is to succeed. Let us try to set forth a few suggestions as a guide to those who may be inexperienced in the work.

It is obvious that it is useless to attempt to plant trees and shrubs unless they are properly rooted, and, further, the roots should be in a fitting condition at the time of planting. Therefore it is necessary there should be a sufficiency of small fibrous roots, which are the requisite feeders of the plants. Anyone acquainted with trees knows how much they vary in the form of their roots. The Rhododendron, for instance, has a dense mass of tangled fibres close to the base of the main stem, and it is the presence of these that makes it so safe to transplant. Other trees have long coarse main roots or one stout tap root, with some smaller ones of a similar character. In such cases transplanting is a somewhat risky process unless such trees are removed when young. But a tree with a main tap root may be safely transplanted, provided the tap root puts forth tufts of fibres in sufficient number to act as feeders and to sustain the tree. But if it is necessary to cut away any of the top roots, the naked ones and not those furnished with fibres should be removed.

Now, in digging the hole in which the tree is to be placed it should be made larger than the roots when fully spread out, and planters are generally agreed that it is best to dig the holes some days or even weeks before the planting is done, so that the soil may be exposed to the influences of the weather, and especially to fertilising rains. The best time at which to plant is when there is freedom from frost, and when the weather is damp and cloudy. It is best not to plant during a spell of drying weather, unless it is necessary to do so, or unless it is at a time of the year when rain may be expected to follow. When planting it is well to see that the fibrous roots are spread out carefully upon the soil and some fine soil placed upon them, then the chances of the tree surviving are great. On the other hand, rough, imperfect, hasty planting often leads to loss of the trees and also of expenditure and labour. The aim of the planter should be as far as possible to give the roots similar positions to those they occupied before the tree was lifted.

Planting is very often done from pots, and especially is this true of Roses, Clematis, choice shrubs, creepers of various kinds, &c. It is not sufficient to simply dig a hole, turn the plant out of the pot, and place the ball in the soil just as it was in the pot. The proper course is to uncoil them when they have grown round the ball of soil and lay them out carefully, taking pains not to injure in any way the points of the roots. Many a plant has died from being placed in the soil from a pot without any attempt to unwind the coiled roots. Another point emphasised at the conference was not to plant too deeply. The tree should not be fixed in the ground lower than will bring the soil when the hole is filled 1 inch or 2 inches above the collar of the tree. By the collar of the tree is meant that portion of the stem just above where the roots radiate from its base. In all cases where the subsoil is cold, retentive, and clayey, or where there is only a shallow depth of surface mould, it would be best to gently fork it up, beating it fine and making it level, and then spread the roots of the tree carefully upon it, adding the necessary depth of surface-mould and treading it firmly down. There is no doubt many trees are annually killed by planting them too deeply, and especially in the case of standard Roses, as gardeners appear to be so very fond of heaping up mounds of soil about the stems until the roots are so far removed from the surface that they die. If the spot planted be an exposed one, then a little deeper planting may be resorted to, or, better still, let the trees be securely staked. The late Mr. Charles Lee, who had great experience as a planter, adopted the practice of laying stout stakes across the roots in two or three directions, and when the soil was trodden down firmly upon them they would take a great deal of swaying about by the wind without the roots becoming appreciably loosened.

I have seen the effects of good and careful planting as compared with the ill effects which followed upon indifferent planting. I know a provincial town in which the street trees have done remarkably well. Large holes were dug out, the unsuitable soil removed, and fresh and proper added; the roots were spread out into their natural position upon a proper bed. The hole was half filled with some fine soil, which was shaken well into the interstices between the roots by gently pulling the stem up and down just enough for the purpose, and then it was trodden lightly down. The hole was then filled up, still treading it down pretty firmly, the surface made neat, and the work finished off. One point of some importance is to have the stems of the trees in a perfectly perpendicular position, as it gives such a finish to the planting. If the trunk is not quite straight it should be tied securely to an upright stake placed firmly in the ground. It is also necessary to add that the stake and the tree stem should not touch, or the bark will be rubbed off the latter. A pad of hay or some such material should be placed between them, and both bound firmly together. R. D.

The Arbutus in flower.—The Strawberry Tree and its allies deserve notice now. The common Strawberry Tree is too well known to need any description, but it may be noted that the variety Croomei forms a much more ornamental specimen than the type. Its foliage is broader, of a thicker texture, and of the darkest green, which in contrast with the dull red bark of the twigs forms in itself an attractive feature. The pink-tinged blossoms are also borne in great profusion, and the fruits are equally as ornamental as those of the type. There are several well-marked varieties of the Strawberry Tree (Arbutus Unedo), among which may be noted, besides Croomei, crispa, with the edges of the leaves crisped; integrifolia, a low, dense-growing form, with the leaves destitute of serratures; salicifolia, with long narrow foliage; quercifolia, the leaves of which bear a certain resemblance to those of an Oak; and rubra, the flowers of which have a reddish tinge. Besides all these varieties the Grecian A. Andrachne is a very handsome tree, and is by some considered the best and hardiest of the whole genus. It forms a much-branched specimen, well clothed with very deep green leaves, while the peculiar appearance of the bark forms a very prominent feature. In this kind the old bark peels off every season, when the new which makes its appearance underneath is at first green, but by winter it changes to a bright mahogany tint. Sometimes portions of the old bark hang loose for a considerable time, and when this is the case the plants wear a rather wild and rustic appearance. The spring months are generally considered its season of blooming, but we have a specimen bearing a considerable number of flowers at the present time. The hybrid is in general characters about midway between this species and the common Strawberry Tree. One that sheds its bark in the manner common to A. Andrachne is the North American A. procera, which differs from Andrachne in the plant being far less dense, the leaves rounder and much more glaucous, while the trunk and principal branches are whitish instead of the mahogany hue of the other. Though A. procera is remarkably free-blooming in the spring, I have not observed any flowers on it in the autumn. The colour of the blossoms is a sort of greenish white. The beautiful fruits of the different members of the Arbutus family are borne by none of the others in such profusion as the common Strawberry Tree (A. Unedo).—H. P.

A Weeping Pinus ponderosa.—The following note in *Garden and Forest* reminds us of a pleasant visit to an English-like and charming garden on the beautiful banks of the Hudson River. It refers to a specimen, and the only specimen which is known, of the Yellow Pine of the Pacific forest (Pinus ponderosa), in which all the branches have assumed a weeping habit. This tree was imported from the Knap Hill Nurseries in England in 1851, when only a few inches high, and planted by Mr. H. W. Sargent in his garden at Wodenethe. It is now 59 feet in height, with a trunk diameter, 3 feet from the ground, of 21½ inches, and is still growing rapidly. The origin of the seed from which this tree was raised is unknown, although it no doubt came from Oregon or California. But the real interest in this tree is not found in its graceful habit, but in the fact that it was planted by a man to whom, more than to any other, Americans owe their knowledge of cultivated trees, and who, for nearly half a century, devoted himself, with an energy and enthusiasm which no disappointment ever dulled, to experiments in tree culture. This Pine may well serve to keep green the memory of Henry Winthrop Sargent, and to remind the present generation how much it owes to his labours in their behalf.

The Manna Ash (Fraxinus Ornus) has yet another charm that I was not aware of when writing a short article lately on this handsome, but much neglected tree. As autumn comes on the beautifully green leaves turn of the most intense bronzy hue, and as this is not regular all over the tree, the appearance is most distinct and attractive. Although our specimen flowered with the greatest freedom, yet no seeds have been produced, a matter to be regretted in so handsome and easily cultivated a tree. Cuttings will, however, I have little doubt, root freely enough, and thus a good stock of this early and rich flowering tree can be obtained. When ordering forest trees for the ensuing year, I might be allowed to suggest that gardeners and foresters should make a note of the Manna or Flowering Ash. It associates well, from its neat and somewhat strict habit of growth and plentifully produced, nearly pea-green foliage, with other trees, particularly the dark-leaved, straggling-habited Pines and other Conifers, and is peculiarly well suited for planting along the margins of such woods and plantations as are visible from drives and paths. To produce well-balanced specimens plenty of room should be given to this Ash, a space of at least 40 feet in diameter, and as it stands the storm well it may be placed with equally good effect and equal chance of succeeding in the open ground, and at a considerable distance from any other tree or shrub. The successful cultivation of the Manna Ash requires no more trouble than is necessary for an Elm or Oak. It succeeds well here in sandy loam of not the best quality, resting on a bed of gravel, and where it is fully exposed on all sides.—A. D. Webster, *Holwood*.

Populus canadensis Van Geerti.—Though the leaves did not change colour to the same extent this autumn as last, yet before they dropped the entire foliage became of a pale golden hue; indeed, as far as my experience of it extends, the only time in which it can be called golden-leaved is just before the foliage falls. During the summer if even in a sunny spot its colour is at best but a sickly green. It certainly affords variety, and a large specimen would no doubt appear more distinct in hue than a small plant, but still it is by no means so rich in colour as some descriptions of it would have us believe.—H. P.

ALTERATIONS IN GARDENS.

Autumn, when the gardening anxieties, for the time being at least, may be said to have terminated, seems a fitting time to take stock of our position, with a view to the recasting, if need be, of the materials upon which our gardening efforts and energies are employed. The general tendency of the present age is towards economy, and the new-born zeal for saving or earning has led many to rearrange their gardens on a commercial basis. The long-continued agricultural depression has seriously diminished incomes; and many gentlemen are now burdened with larger gardens than they feel justified in keeping up. To those who have no real innate love for Nature, gardening is very much a matter of fashion, and may be generally regarded in the nature of a luxury. As a matter of course, in times of depression, gardening, to a certain extent, must languish. Fortunately, at the present time, the love for gardening is not confined to the rich only, but is rapidly permeating every class down to the lowest in the social scale; it has, in fact, become a national necessity. It is true now, as it always has been, and probably always will be, that the great gardens in each district give a tone to the smaller places scattered around. I was particularly struck with this when visiting Belvoir Castle some years ago, then, and now, famed for its beautiful display of spring flowers, for every cottage garden, from Grantham to the ducal castle, and all the villages round, was overflowing with spring flowers, showing that the influences of the great garden were paramount. Years ago, when the fashionable world was smitten with the mania for creating large masses of brilliant exotic flowers, an unhealthy stimulus was given to a particular form of gardening, and the reaction which is now more or less felt is but the natural outcome of previous extravagance, and would have set in sooner or later if there had never been any agricultural depression. In the matter of garden design, the tendency of the age is towards greater freedom. The man who now proposed to make little formal patches of different coloured stones or gravels, edged about with Box, in front of a mansion, would find his occupation gone, and yet it is not so long since such deformities were the rage in the fashionable world. Whatever style of gardening is adopted, there must be good walks, and the walks in all gardens should be dry and well made. There is more than one way of making walks. Concrete walks, if well made, are excellent; asphalte has its merits, and bright gravel, that can be freshened and renewed as often as we like, seems to meet the ideas of most people. I believe no better or cheaper walk can be made than by taking out the soil a foot or so deep, place 10 inches of brickbats or stones on the bottom, and 4 inches of good binding gravel on the top, and then all that is necessary for years is to turn the gravel over once a year with a fork or spade, regulate the surface, and roll it down firmly. In the removal of soil or turf, if the turf is to be laid down again, the surface should be made firm, but no amount of ramming or treading will make the land as firm and close as it was when it came from the hand of its maker; so, as the years roll round, the turf which has been disturbed, no matter how carefully laid down, will require to be taken up, the ground levelled and the turf relaid. All forms of gardening require a pure atmosphere

and a good fertile soil to obtain the best results, and it is well for those who are able to grasp the situation at first without being taught by an unpleasant, or it may be a bitter, experience what may and what cannot be done. In laying out small gardens, individual fancies and tastes should have free scope. As these are matters which do not really come under the term "culture," the person whose ideas are prim and formal may, if he likes, have his formally laid-out garden, where experience will soon teach him what he cannot and what he can grow well. On the other hand, those who love to see natural growth may have in the smallest patch a little bit of Nature, untrammelled and unpruned if they like; but both the formalist and the lover of Nature will travel on the same road at first, as all systems of gardening require the same care in the preparatory work.

An open lawn in front of the windows, running away and becoming lost in green grassy glades, among trees and shrubs, forms an exceedingly pleasant groundwork for pretty informal groups of hardy and other flowers. I do not mean that the open places should be filled up with the masses of flowers, but a group here and there might be dropped into the margins or fitted in some salient position where a green background could lend its aid in toning down too much brilliancy. The Daffodils, the Lilies, Hollyhocks, Tritomas or Torch Flowers, Cannas, Pampas Grass, Japanese Anemones, Fuchsias, and many other things might be mentioned as suitable.—E. H., in *Field*.

KITCHEN GARDEN.

DRAWBACKS IN TOMATO CULTURE.

It is much to be regretted that the Tomato industry in this country, and with which must be included the Channel Islands, should this season have received such a very severe check. On all sides the demand for good sound fruit has increased rapidly, and more especially among the classes who can afford to buy Tomatoes, but those who fondly imagined the days for comparatively high prices were past have had an unpleasant demonstration to the contrary. It is true, soft, flavourless fruit could be bought in most towns at 4d. or less per pound, but in this district firm, good samples have dropped to 6d. per pound, while in September nearly double that figure was reached. This great falling off in the supply was, I am afraid, not merely due to the failure of outdoor plants. That alone would have been bad enough, but it is no new thing, and is to a certain extent what we have to prepare for in this changeable climate. In most private gardens as many plants as there is room for are grown against sunny walls and other warm positions, but they are not depended upon to keep up a supply of fruit, the prudent cultivator preferring to grow a few or many plants in houses or pits where they are supposed to be a certain crop. I repeat "supposed to be," as events have proved the fallacy of this belief. As a matter of fact, failures complete or partial under glass have been more numerous in 1888 than in any year previous to my knowledge, and it is owing to this that the scarcity is most felt. Tomato culture under glass has become a lottery, and consumers will have to pay dearly for it. In 1887, or before many were aware of it, a new and most destructive disease was devastating some of the larger Tomato houses in Guernsey and elsewhere; it was a commonly expressed opinion that too many already were growing Tomatoes for sale, and it was therefore useless for others to commence. The advent of Cladisporium fulvum has altered all this, and in all probability there never was a better time for commencing their culture. Some of the very largest growers are giving up for a time at least, the houses previously utilised or built expressly for Tomato culture being destined for Melons, Cucumbers, and any class of flowers that can profitably be grown for sale. I do not advise anyone to build a number of houses expressly for Tomato culture, but there is no reason why any structures not wanted for other purposes should not be planted. If the disease does not reach the plants the crop is certain to be most remunerative, and no great loss will result in the event of a failure.

As yet there is no remedy forthcoming either for the Potato disease or the Cladisporium. Plenty of suggestions have been made, but as far as a cure is concerned, it has yet to be discovered. Unfortunately, the Cladisporium appears to be more deadly than the Potato disease, as up to the present time it cannot be either prevented or cured. The Cladisporium, in common with Peronospora infestans or Potato disease, is said to spread by means of spores carried in the air, but although apparently also a fungoid growth, it is yet doubtful if the Cladisporium is spread in that way. If this is so, it will also be found that the spores are more easily spread than those of the Peronospora and retain their vitality longer. In any case the disease was very rife in some localities during 1887 when the Potato fungus was not prevalent. This season has been exceptionally favourable to the spread of injurious fungoid growths or diseases, and it was only by careful ventilation that many Tomato crops under glass were saved. Wherever the front lights of houses were opened or the lights of pits blocked up the Peronospora effected a lodgment, and in some instances the leaves, stems, and fruit were completely destroyed by it. Quite recently I saw a large house filled with young Tomato plants, some of which had been introduced from a freely ventilated house and the rest from the open air, and nothing short of cutting back the whole of them to unaffected portions of the stems would prevent a complete failure. In another garden situated in the same locality there was not a trace of disease in the Tomato house, and a valuable crop was ripening on the plants. No front air had been given in this case, and as the plants were growing in an inner compartment the doors did not admit any outer or disease-laden winds. We grew a number of plants along the front of a Peach house where much air was necessarily given, and these were badly diseased. Others in the same house, but trained between the trees on high back walls, escaped, and at the present time have many large clusters of nearly fully grown fruit yet hanging on them. Strong winds, accompanied with a moist atmosphere, are most to be dreaded, as it is these that spread the Potato disease. The best, in fact only preventive, is to exclude front air in dull, damp weather, giving air at the top only, and at the same time keeping up a buoyant atmosphere with the aid of fire-heat. At no time is a strong heat to be recommended, and in mild weather a little top air may be safely left on during the night. Any plants already diseased ought to have all affected stems and leaves cut out and burnt, fresh and healthy back-growths being laid in to take their place. If they fail to set many fruits before midwinter, they will yet perfect profitable crops much in advance of those obtained from quite young plants.

However much the Peronospora may be prevalent in a garden or locality in one year, it does not follow that it will be troublesome during the following season. Certain conditions would appear to be necessary for its propagation, and all the precautions we may take this year will not prevent the air from becoming impregnated with the spores, should circumstances favour it, next season. In the case of the Cladisporium, we are quite unable to account for or to prevent its spread, and, what is still more vexatious, no precautionary measures yet tried will destroy the germs, so tenacious of life have they proved. This information may have a disheartening effect upon any who have been troubled with the disease this year for the first time, but it is only too correct, and likely to prove a very serious drawback to Tomato culture on a large scale. In one instance that has come under my notice, no less than three determined attempts have been made to disinfect several large houses, everything short of burning the structures having been resorted to, without, however, preventing an early attack on the next crop. At the outset it is the lower leaves that are usually affected, the first symptoms being yellow spots, which soon become blacker in colour and much larger, the whole of the leaves being eventually destroyed. The upper leaves and the fruit are in time badly affected, and a great failure is the sure result. I have seen thousands of plants rooting in extra long ranges of span-roofed houses all affected by this dreaded disease, as well as a few dozen plants in quite small houses in private gardens, a hundred miles or more dividing these, and yet the disease has not been general in the respective localities. It is this peculiarity that inclines me to the belief that the disease is constitutional rather than of the nature of an epidemic. If it were not so, how comes it that the older leaves are the first to succumb, and why should it be so partial? What confirms me in this opinion is the fact that the stock of seeds in three different cases was all obtained from one source. Probably much of our Tomato seed is saved in the south of Europe or Northern Africa, and it may yet be found that we import the disease with the seed. Most of the Guernsey and Jersey growers preserve their own seed, and if my advice is taken, those who have a tainted stock will burn all the plants and seed they may have, making a fresh start with either seed or cuttings obtained from a stock warranted free from disease. None of the remedies or solutions recommended for destroying mildew are of any avail in the case of either of the diseases alluded to, or those of a similar nature which sometimes accompany them; nor is the latest suggested remedy, viz., sulphate of copper in powder and slaked lime, applied either in a powdered state or mixed with twenty times its bulk in water, effective. It is powerless to check the spread of the disease, but will kill the plants more surely. There are no disease-resisting varieties, all alike collapsing, and if a change of seed fails to get rid of Cladisporium, the only remedy would appear to be that shortly to be tried by some of the unfortunate trade growers troubled with it, *i.e.*, a cessation of Tomato culture for one or more years. W. I.

Colewort Cabbages.—In walking about the market gardens at this season of the year, it will be seen that many portions of the ground, occupied during the summer by Scarlet Runners, Vegetable Marrows, and other crops, have been planted with Coleworts, as they are termed. We may say of the term Colewort, Collards, or Collet, which all mean the same thing, that it is practically the same as Cabbage, and is an old designation applied to this vegetable. In our days it does not so much represent a distinct species as a somewhat small, loose-hearted early Cabbage, hardy, and which turns in quickly, and can be pulled in early spring and sold as bunched greens. That is to say, the heads are not cut as in the case of ordinary Cabbages, but the

plants are pulled up, stalks and all, the roots are trimmed off, the stems tied together, and so sent to market. This type of Cabbage is largely grown because it is a quick and profitable crop, coming in quickly, and making good prices after Brussels Sprouts and the mid-season Broccoli are getting over. The seeds are sown in the open about July, and the plants are transplanted in October and November, at which season the Coleworts quickly lay hold upon the soil and soon grow into size. The Colewort is the principal crop planted out at this season of the year. The Rosette Colewort is a selection from the ordinary green type, and it differs from it in that the leaves are arranged in circles, forming a symmetrical body resembling a disc. It is generally preferred for garden purposes, but the market gardeners appear to like the old type best. —R. D.

Gilbert's Late White Victoria Broccoli.—This is one of the novelties which, unlike the majority heralded in with noise of trumpets only to be as quickly forgotten, will become indispensable in the garden. Its lateness, snowy whiteness, and beautiful mild flavour have already been noted, and from what we saw recently of a large batch of it in the kitchen garden at Burghley it is a dwarf and sturdy grower. Every plant in the long rows appeared as even and true as it was possible for them to be, while the lower leaves rested on the ground, leaving no stem exposed to wind and frost. Two conclusions might be drawn from the great area of Broccoli we saw here, including the kind under notice and others growing near. One is, that upon all points in comparison with others this new variety is of sterling merit; and the second, that in spite of Mr. Gilbert's much-abused system of crowbar planting, it is the right thing to do at Burghley.

A curious Potato.—A few days ago a friend was exploring a room in a dwelling house which appeared to have been unused for a long time, when he found a curiosity in the shape of a Potato plant which had sprung from a large kidney Potato that was lying at the bottom of a damp cupboard. It had made no roots, but had thrown up several leafless stems which were perfectly white, and had filled the lower compartment of the cupboard. From every joint of these stems long white filaments were thrown out, each of which bore several small Potatoes similar to those I enclose, which were the largest that could be taken without disturbing the plant. In all the Potatoes must number some hundreds, all grown from the same parent tuber.—J. C. TALLACK.

Chou de Burghley, praised by some and abused by others, is greatly in favour at Ketton Hall, where we recently saw a splendid breadth of it in the kitchen garden. Mr. Divers says that by many it is "sown far too soon, and consequently comes in at a time when it is not wanted, namely, in early autumn. By sowing later it does not grow so large and it comes into use before the spring Cabbage, when it is especially valuable, and much appreciated as a change from Broccoli."

Stachys affinis (S. tuberifera).—In answer to "G. J.'s" queries in THE GARDEN (p. 387), this is one of the best vegetables of recent introduction. Its culture is very easy, as it grows well in any good garden soil and is readily propagated by means of its numerous tubers. When these were scarce, cuttings of the somewhat creeping growths answered the purpose. The cultivation of the new comer deserves to be extended to all gardens, for the flesh of its tubers is wholesome and delicious. It is now asked for by most people, as nearly all the fruit and vegetable dealers in Paris keep it—a fact which induces me to anticipate its extended cultivation. Now is the time for the crop to be taken up and stored in a cellar where the roots must be covered with layers of moist sand to prevent shrivelling and loss of quality. If the ground is not wanted the roots may be left in the soil through the winter without protection, as severe frost does not affect them. In that case the supply may be lifted according to the demand. The only drawback I have heard of lies in the small size of the roots. Our French cooks have various ways of cooking this vegetable. A very good and simple one may be thus described: Boil the roots in water with a pinch of salt, then fry them.—J. SALLIER, *St. Germain-en-Laye.*

KITCHEN GARDEN NOTES.

ENDIVE.

RARELY have we had a season more favourable to the growth of Endive, and with an abundance of strong, fully-grown plants, it is only necessary to take good care of and to blanch these properly, and in such a manner as to maintain a supply throughout the winter of salading equal to any imported from or used in France. The bulk of the plants ought to receive some kind of protection, as they are by no means hardy. If left on the ground where grown till frost damages the points of the leaves, nothing will long prevent the wholesale decay of the plants. Our plan is to select a dry day early in November, and after all the plants to be moved are carefully tied up, to lift these with a ball of soil and roots, and transplant some to frames, others to raised borders near the front of late Peach houses, and a good batch to the Mushroom house. The latter are packed together rather thickly and the roots surrounded by moist soil. Those that are to keep much longer are given rather more room, and the ties are removed when all are planted. Being duly protected from rains, snow, and frost by the aid of lights, mats, thatched hurdles, and other contrivances, the Broad-leaved Batavian will keep till Lettuces in frames are plentiful, and the green-curled variety will be available to February or later. Where frames are scarce and house room limited, some other method of wintering Endive ought to be resorted to. Few now-a-days, or since frames, pits, and houses have become more plentiful, adopt the plan of storing Endive in mounds or dry sheds, but I have seen it answer well, and would practise it again if need be. In this case, advantage should be taken of dry weather to tie up the plants so as to well enclose the hearts by the outer leaves; the plants should be then lifted with a portion of soil about the roots and bedded in rather dry sand. They must be packed in layers with plenty of sand between them and only the points of the leaves kept uncovered. Thus treated the hearts blanch thoroughly and keep good for several weeks, always provided the plants were in a dry state when stored. If there is plenty of room, Endive will keep longer if fixed upright in sand or soil, and any open or closed shed may be utilised for thus storing it, care being taken to protect the hearts from rats, mice, damp, and frosts. Endive blanches well in Mushroom houses, and a batch should be introduced every fortnight. Failing this convenience, the plants in frames or houses may either be tied up closely a few at a time, or they will blanch nearly as well if thickly covered with hay. While Lettuces are plentiful there is less need for the broad-leaved varieties of Endive, these being kept for either mixing with the Green Curled, or for using alone in a salad. Late-raised plants may be kept growing in frames, and these will be found of good service early next spring, or when salading is frequently rather scarce.



Hedera algeriensis as a pyramid. (See p. 492.)

LETTUCES.

These have continued to grow rather later than usual, the Brown Cos being especially conspicuous in this respect. Any that have already partially hearted in or are nearly fully grown may be lifted and packed rather closely together in frames where they can be protected in some way. If lightly tied up the hearts will blanch fairly well and be much appreciated when mixed with Endive and other ingredients of a good salad. Should mild weather continue, the earliest of the plants intended for hearting in next spring will grow too strongly to be hardy. In order to check this undesired growth it is advisable to insert a trowel under each and partially lift them, the soil being again made firm about the roots. This will effectually check their growth for a time. Those pricked out or sown late in frames ought to have all the air possible, being also kept clear of weeds. If unduly coddled they become much drawn, and if not killed during the winter, are not of much service for planting out.

CAULIFLOWERS AND CABBAGE.

The earliest raised Cauliflower plants, now under handlights, have in some instances bolted or hearted in prematurely, and those transplanted in a much smaller state promise to be the most hardy and serviceable. We have found it necessary to put the whole of the plants in one row of handlights, their places being taken by plants raised fully three weeks later. This extreme measure may not be called for in the majority of gardens, but it is still advisable to check exuberant growth, and all plants that are growing too strongly ought therefore to be partially lifted with a trowel and reinserted in the soil. If the lights are left off both day and night in mild weather, and the plants thus checked in growth and hardened, little besides the glass covering will be needed in severe weather. Slugs ought either to be trapped under heaps of old Cauliflower leaves or kept down with the aid of dustings of soot and lime. Summer-raised Cabbage plants, or those required to heart in early next spring, are also making too much progress, and if not checked either by frost or by partial lifting will form tiny hearts prematurely. With an abundance of Coleworts, Savoys, and other green vegetables, small Cabbages are not needed, and rather than that they should

heart in now and, perhaps, many be spoilt by severe frosts, we much prefer to administer a severe check to them. It is those on loose and very rich ground that are growing most rankly and stand most in need of partial lifting. We want Cabbage in abundance at Easter, and not in November and December.

GOOD BRUSSELS SPROUTS.

Very rarely are Brussels Sprouts so good as this season. Given good room they grew moderately strong, and formed a capital crop of firm, mildly flavoured, and not too large sprouts. After trying numerous varieties, we have arrived at the conclusion that Ne Plus Ultra, or its synonym, Northaw Prize, is the best in every way. Large sprouts, notably the Aigburth, are not tolerated on the dining-table, as, besides being coarse, they are also strongly flavoured, and what is wanted are those that are close, small, and mildly flavoured. Paragon and good selections of the Imported were at one time preferred for home use, but these are not so reliable as Ne Plus Ultra, and have been discarded accordingly. Ne Plus Ultra is of fairly strong growth, the stock very well selected, and the produce always good. On good ground Brussels Sprouts generally ought to be capable of producing a second crop. If, instead of being stripped off the stems, the sprouts are either snapped off short or severed with a knife not quite close to the stem, a cluster of sprouts will follow. These, if small, will be appreciated late in the spring. On no account should the tops of the plants be cut before the sprouts are gathered. They are usually quite hardy, will keep a long time, and their purpose is to nurse up a late supply of sprouts. All should be cleared of decaying lower leaves, but there ought to be no necessity for removing healthy foliage.

W. I. M.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY'S PROVINCIAL SHOW AT SHEFFIELD.

NOVEMBER 16 AND 17.

IT cannot be said that this, the first venture, was successful in promoting a first-class exhibition of Chrysanthemums either in a cut state or as specimen plants. The competition was very limited. If this first venture did not prove successful in one way, it created much interest and enthusiasm in the cultivation of the Chrysanthemum. In the evening a well-attended conference on the Chrysanthemum was held, at which papers on the cultivation of the plant were read by Mr. W. Tunnington, The Gardens, Calderstones, Liverpool, as representing the north, and by Mr. E. Molyneux, Swanmore Park, Bishop's Waltham, as the southern representative, when a most interesting discussion took place on the various points alluded to in the papers. A capital schedule of prizes had been prepared by the National and local societies combined, and as special interest centred in the cut bloom classes, it was surprising that the competition was so limited. Quite a novelty in the way of class-making had been prepared, viz., the best representative collection of large-flowering varieties, not more than twelve blooms of any section, including the following: Incurved, Japanese, Japanese reflexed, reflexed, large Anemone, and Japanese Anemone—the two first sections to be distinct varieties, the remaining four not less than six varieties in each section, and not more than two blooms of any variety. In the above class the handsome prize of a silver cup, value 15 guineas, and £10 in cash, was offered as first, while £6 and £4 were the next two prizes. Three competitors only entered, and, singular to relate, all three were disqualified by not complying with the stipulated conditions of the schedule. The best blooms were staged by Mr. R. Parker, gardener to Mr. Corbett, Impney Hall, Droitwich. Where he failed to comply with the schedule was, in staging six blooms only of Japanese Anemones. The second best blooms were from Mr. W. Packman, gardener to Mr. C. Shea, Foot's Cray, Kent. Where he lacked the necessary conditions was in staging two blooms of Mme. J. Laing as a Japanese reflexed. This variety is not considered to be such by the National Society's catalogue. The third collection was staged by Mr. T. B. Morton, Mowden Bridge Nurseries, Darlington. Where he failed to meet the conditions was in a bloom of L'Ami Layton in his stand of Anemone, which was considered to properly belong to the Japanese Anemone section.

After the disqualifying of the three competitors, the judges proceeded to make their awards according to the merits of the blooms. The result was the three competitors were then placed in the order named. Mr. Parker's blooms were of good quality, being large, fresh, and fairly well staged, Lord Alcester, Princess of Wales, Mrs. Heale, and Prince Alfred being the best in the incurved section. Lord Alcester in Mr. Parker's collection was awarded the prize for the premier bloom in the incurved section. The Japanese varieties were good, Avalanche being very fine; to this bloom was also awarded the premier honours in the Japanese section. Ralph Brocklebank, Golden Dragon, Boule d'Or, and Thunberg were the most noteworthy. A capital lot of blooms were staged in the Japanese reflexed section—Criterion, Jeanne Délaux, Mons. J. Laing, and L'Adorable. Reflexed and Anemone varieties call for no special comment. Mr. Parker was the only competitor in the class for thirty-six Japanese blooms. There were no entries in Class 13 (twenty-four Japanese), and only one (Mr. J. R. Leadbetter, gardener to Mr. A. Wilson, Tranby Croft, Hull) in the class for twelve Japanese varieties. Strange to say, no entries at all were received in the classes for thirty-six, twenty-four, twelve, and six incurved blooms. Fairly good blooms were staged in the district classes, confined to a radius of twenty miles. Specimen plants of Chrysanthemums and groups of the same call for no special comment.

A few good bunches of Grapes were staged in competition for the prizes offered. A neat group of miscellaneous plants arranged for effect was put up by Mr. W. Collier, gardener to Mr. J. Eaton, Sharrow Bank, Sheffield, consisting of Palms, Crotons, Ferns, and flowering plants.

Non-competing collections of plants were arranged by Messrs. Fisher, Son, and Sibray, Sheffield, Mr. S. W. Seagrave, Seagrave Nurseries, Sheffield, Messrs. Hiram Shaw and Son, Broad Street, Sheffield. A first-class certificate was awarded to the first-named firm for a box of blooms of Lapageria maculata, an exceedingly pretty spotted variety, the foliage being large and deep green. This same firm staged a nice lot of cut blooms of Java Rhododendrons—Duchess of Teck, buff or creamy pink; Princess Alexandra, pale blush; Duchess of Connaught, bright scarlet.

Messrs. Cannell and Sons, Swanley, staged many boxes of cut blooms of zonal Pelargoniums and new varieties of Chrysanthemums. Messrs. Davis and Jones, Camberwell, had six dozen blooms of leading and new varieties of Chrysanthemums.

Messrs. G. Bunyard and Co. exhibited about seventy dishes and ten baskets of Apples and about thirty dishes of Pears, the quality of which is too well known to need description here.

ROYAL HORTICULTURAL.

Scientific Committee.

Potato reversion.—Mr. Smith mentioned that eighteen years ago Mr. Fenn crossed two long sorts of kidney Potatoes, viz., the Early Coldstream and the Early Ashleaf, the result being of a globular form, which he called W. G. Smith. After eighteen years, during which this had come true, one plant suddenly reverted to the original type, being 5½ inches long, the round tuber being only about 2½ inches in diameter.

Oak timber, defective.—Dr. Masters exhibited specimens of Oak wood, which was used for spokes of wheels, and found to break off short. It was referred to Professor Marshall Ward for examination and report.

Pinus Lambertiana.—Dr. Marten exhibited a branch of this species, received from Mr. C. Herrin, of Dropmore, Maidenhead, with two cones about 1 foot long. The size, when growing naturally in California, is said to be double that of the present specimen.

Cleistogamous lawn plants.—Mr. Henslow showed specimens of several species of plants which are propagated by cleistogamous flower-buds. By that means, while retaining a dwarf habit, they are able to multiply very rapidly, and to extend over considerable areas in a tennis-lawn. Although none of them are perennials, they remain so reduced in size that they are not exterminated by the mowing-machine periodically cutting them down. The result is that each species has more or less completely covered certain patches of ground, to the almost entire exclusion of everything else. The plants in question are Cerastium glomeratum, Montia fontana, Trifolium procumbens, Sagina procumbens, Alchemilla arvensis, Veronica arvensis, and Poa annua. Mr. Henslow added that he had observed many years ago Trifolium, subterranean, flourishing in the same way on the close-cut Grass in Kew Gardens, on the site of the present rockery.

Rumex crispus, gynomonœcious.—Mr. Henslow exhibited specimens of this plant, which bears hermaphrodite flowers on longer, with female flowers on shorter pedicels, thereby forming whorls along the main peduncle. It does not appear to have been described in any work as being in this condition.

Cotyledon umbilicus, abnormal.—Mr. Henslow exhibited a specimen and leaves of this plant, found growing in a wall at St. Ives, Cornwall, the peculiarity being that it bore a flat, expanded, rosulate arrangement of leaves exactly like the Houseleek, Echeveria, or several sorts of Saxifrage. The leaves were spathulate and not peltate at all. Some few growing freely were funnel-shaped.

Raspberry and Blackberry hybrid.—Mr. Henslow drew attention to the foliage of a supposed hybrid received from Mr. Viccars Collyer, of Leicester. The plant blossomed, but bore no fruit this season. The flowers were exactly like those of the Raspberry, as well as the tomentose under surface of the leaves; but the method of forming the quinate leaf out of the ternate agreed with that of the Blackberry as follows: The simplest form of leaf is a single oval leaflet near the flowers. This becomes lobed at the base, and so two leaflets are given off, forming the ternate leaf. From the basal pair in the case of the Blackberry two more are given off, and thus form a quinate leaf, the lower four leaflets being nearly "palmate." In the Raspberry, however, the second pair of leaflets are given off from the terminal leaflet, just as were the primary pair. Consequently the five leaflets now form a more decidedly pinnate leaf. In the hybrid in question, although in all other features it agrees with the Raspberry, yet in this one particular it resembles the Blackberry. As no fruit was produced, a comparison could not be made.

Exhibition of Californian fruits, &c.—Messrs. J. W. Draper and Son, Covent Garden, W.C., send us the following extract from a Californian correspondent's letter:—

The trouble with California is that we raise more than we can consume and more than we can find a market for, and we have reserve land, millions of acres of which is still in sheep pasture or lying idle, which when put into cultivation will grow enough Olives, Figs, Lemons, Oranges, Peaches, Raisins, and wine to supply a goodly portion of this mundane sphere. Now we (the producers of the State of California) have come to the conclusion to make known to the people of Europe the advantages to be gained by those who may become purchasers of our products. In furtherance of the object, we propose to hold an exhibition in some European city of recognised commercial importance, and exhibit therein the products of our State, consisting of canned and dried Apricots, Peaches, Almonds, Raisins, dried Vine Grapes, Hops, honey, wax, hides, and last, but not least, an unlimited supply of unadulterated pure wines, olive oil, Wandy Nuts, canned salmon, &c.

We understand, from extracts furnished us by the Californian press, that the proposal on the part of the Californian fruit growers to establish such an

exhibition as that mentioned in the paragraph just quoted is in general well received, there being only one mind with respect to the expediency of their adopting this now popular mode of advertising the products of their country and of bringing their claims on the commercial world prominently before the European public. As to where the exhibition should be held, there is, however, considerable diversity of opinion, and much discussion has ensued, some maintaining that Berlin or Vienna are best suited for the purpose; others that Paris, as a republican city, has the foremost claim; whilst a third faction, consisting of the merchants and growers, maintain that in London only can full justice be done. We incline to the latter opinion ourselves, as there is no denying that it is the great centre of European commerce. We are informed that Messrs. J. W. Draper and Son, whose opinion has been sought on the subject, have strongly advocated London, as being a city pre-eminently superior for the carrying out of such a design effectively.

NATIONAL CHRYSANTHEMUM SOCIETY.

NOVEMBER 21.

THERE was a very good meeting for the season at the Royal Aquarium on Wednesday last, several beautiful novelties being shown.

First-class certificates went to the following:—

MISS M. A. HAGGAS.—We are pleased to observe the gradually increasing number of incurved varieties, and here is one of the finest of the year. It is a sport from the famous Mrs. Heale, and makes the fourth variety of the Princess of Wales family. The flower has the form, expression, and petal of Mrs. Heale, but not its colour, which is of a fine golden yellow, as pure and clear as in Golden Empress of India. It will make an excellent companion to the violet-purple-coloured variety Violet Tomlin. Exhibited by Messrs. Davis and Jones, Camberwell, for Mr. J. E. Haggas.

MRS. WHEELER.—Size seems to be the end in view to the cultivator and exhibitor. In this new Japanese variety, which is of American origin, he will have this special attribute of the Chrysanthemum in full perfection. The flower is larger than that of Edwin Molyneux, and of much the same character, but not so handsome. The florets are broad, massive, and rich crimson, and incurve as in Comte de Germiny, showing a dull gold reverse. It is certainly coarse. From Mr. T. Bettesworth, Burton Grange, Cheshunt.

L'AUTOMNE.—This is the kind of flower we admire. It is distinctly incurved, of medium size, and of a beautifully clear shade of buff, the broad florets forming a handsome, well-shaped bloom. Mr. G. S. Addison, Parchmore Road, Thornton Heath, the exhibitor, said it was a variety raised in France by an amateur. It is one of the finest flowers of its class, and ought to become a favourite.

ALCION.—This is without a doubt a reflexed Japanese variety of no ordinary merit. The flower is formal in character, full, and of average size, the long, broad petals folding back, and here and there showing the bright silvery reverse, which is in good contrast to the rose-carmine of the upper surface. From Messrs. H. Cannell and Sons, Swanley.

Mr. Ridout, of Reigate, showed the Anemone-flowered La Margaret, which was certificated in 1885. The flower has a splendid disc, short guard florets, and is of a somewhat dingy purple colour; it resembles the Japanese Anemone Nelson in colour. Messrs. J. Veitch and Sons exhibited several new Japanese varieties, one or two of them showing considerable promise. There has, however, lately been such a surfeit of Japanese varieties, that it must be a thoroughly distinct, not to say remarkable, flower to gain any award. Those worth a note are Europe, one of Mr. Salter's seedlings, and a Japanese flower of full form, but no particular colour; William Elliott, a useful decorative variety of a rich crimson; Thomas Cartlege, greenish yellow; and Mrs. H. Thompson, which is the same as W. and G. Drover. We refer to this for the purpose of saying that the less we see of coarse huge flowers such as these the better. It was shown three times last season, and, unfortunately, certificated. Messrs. Davis and Jones, Camberwell, had a bunch of the deep crimson-coloured reflexed variety named Samuel Morley, the flowers being cut from the open air. This is a great advantage. We wish that more attention still were given to the smaller reflexed and Pompon varieties for the open air. The same exhibitors also had a sport from Edouard Audiguier named Mrs. Walter. The flower in form is very much like that of its parent, but the colour is that of Jeanne Délaux. An excellent stand of flowers of the variety Florence Percy came from Mr. A. G. Hookings, gardener to Sir W. Thompson, West Moulsey. It is pure white, and one of the most promising of the newer Japanese varieties. When first exhibited the blooms were thin and papery. A sport from the pale yellow Ralph Brocklebank, itself a sport from Meg Merrilies, and named Mrs. Bevan Edwards, was sent by Mr. T. Winkworth, gardener to Mr. R. Brocklebank, Childwall Hall, Liverpool. It was of a deeper colour than the parent, but of the same straggling character. We have quite enough yellow varieties in cultivation. A Japanese variety called Geo. Maclure was exhibited by Messrs. John Laing and Sons, Forest Hill. It is in the way of W. and G. Drover, the flower full, solid, and with the florets of a rose and white colour. Several varieties came from Messrs. H. Cannell and Sons, the best being La Vanité, rose, with silvery reverse to the florets; M. Baco, pink, a promising Japanese variety; Dr. John Tanner, crimson, and gold reverse; and Glauca, which is like Amy Furze, except the colour, and this is of a dull carmine shade. There were also blooms of Yellow Jane, a single variety, identical with the white form in shape, but instead of pure white they are of a clear rich yellow. It is a beautiful addition to its section and admirable for cutting.

Messrs. W. and G. Drover, Fareham, showed flowers of the new Japanese Anemone variety Nelson, which is one of the finest of its class, and a welcome addition to a not over lengthy list. From Mr. Elliott, Jersey, came a rich orange-coloured Japanese flower named Mr. J. Brown, and Carnea maxima, a reflexed variety like Christine.

The Chiswick conference.—This and other recent conferences have aroused interest amongst the fruit-growing public, although most of the real growers for market held aloof from the discussions. This is a great pity, and much to be regretted, for if these men could be induced to come forward and give their practical opinions upon questions of such national importance different results might be arrived at, and help to remove some of the fallacies of the papers read by nurserymen and gentlemen's gardeners. These conferences, with the excellent knowledge to be gained thereby, have apparently been patronised only by those interested in the sale of fruit trees, or those interested in the production of first-class or show examples of Apples and Pears, and consequently failed to reach ordinary farmers and the most interested of all, the consuming public. Of course, I am fully conscious of this difficulty; moreover, I myself am sceptical that any useful knowledge on fruit growing will ever be acceptable to the old school of Corn-growing farmers. Such men, I regret to say, have but little capital, and, worse still, they will not be taught, even with the trees placed in their hands, their rule being to stuff the trees into small holes and leave them to their fate. Some of the papers read, also "W. C." (p. 427), make a charge against landowners, for whom I plead. I am not a landowner, but I know some large owners, whose sincerity I cannot doubt, who have expressed their willingness to give agreements and security to eligible tenants who choose to embark in fruit growing to any extent, if such tenants with the necessary capital can be found. I am unaware of any direct evidence of any grower, having permission to plant and who secured his right by agreement for proper compensation, losing his tenancy or of being refused his desire to plant. On the other hand, I believe there are very many landlords only too anxious to grant easy terms. An isolated case or two to the contrary has been given, but in the absence of details prove little beyond the suicidal policy pursued. Of course it is easy for an unscrupulous tenant to plant good, bad, and indifferent trees, and finally, from some cause or other, turn round and ask for full compensation, as he becomes aware of the folly of his indiscretion. I should like to see the Royal Horticultural Society more representative, that is, more large landowners, real market growers, and farmers, Fellows, although I am conscious of the difficulty to secure them in the present state of affairs.—C. W. M.

NOTES OF THE WEEK:

Mildness of the season.—A small bunch of coloured Primrose flowers comes from Mr. T. S. Ware, of Tottenham. Many plants are blooming out of their usual season.

Aster Amellus.—This has been the gem of our hardy flower border for some time past, having withstood the frost and rough weather with but little injury.—E. B. L.

Violets in November.—A gathering of Violets comes from Mr. G. H. Mounsdon, Lifton Park Gardens, Lifton, Devonshire. The flowers are large, double, powerfully fragrant, and show that the plants have been well cultivated. Few things can be more acceptable at this season than a bunch of Violets.

Citrus trifoliata.—I send a sample of this, the hardy deciduous Orange, which has borne a quantity of fruit here this year. The flowers are rather large and fragrant, but as an edible fruit it is of no value. If it could be easily propagated, this shrub would make an excellent fence by reason of its formidable spines and flexuose growth.—J. M., *Charmouth, Dorset.*

Cyclamen africanum, sometimes known as C. macrophyllum, and a native of Algiers, does not seem to be worth the room it takes up. It is not hardy in the open air, and although it stands well in a cold frame the flowers are not numerous, and they are not much different from those of the well-known C. hederæfolium.—K.

Christmas Roses.—If the weather does not alter we shall have very few Christmas Roses at the end of December, in the south of England at least. Just now most of the varieties are in full flower, the individual blooms large, and unusually clean for the open. The plants seem to have retained their foliage better than usual, which helps in a measure to protect the flowers from wind, &c.—K.

White Hoop Petticoat Daffodil (Narcissus monophyllus).—The first flowers of this truly charming Narcissus opened the other day. The bulbs are growing in pots in a cold frame, having been potted up somewhat earlier than is usual with us. This is a lovely bulb for the cool greenhouse, where without the aid of heat it remains in bloom for a considerable time.—K.

Flowers at Brighton.—A friend very fond of gardening writes to me as follows: "The Chrysanthemums are in full flower in the 10,000 villa gardens of this enormous town, which now contains 150,000 inhabitants. The chief features, however, are the Euonymus and the Tamarisk, which flourish everywhere to the very water's edge." How interesting it would be to get similar broad sketches of the gardening in other localities in as few words.—F. W. B.

Narcissus monophyllus (Clusi).—Enclosed we have pleasure in sending you our first flower of this interesting and popular race of plants. There is no doubt but that Narcissi are destined to play an important part in the decoration of the flower garden. This is the first season we have tried this plant in Southport, and we are highly pleased with the result. The bulbs from which the flower was gathered were potted up in October and placed in a cold greenhouse. Water was withheld up to the present, except on one occasion when the foliage began to push through the soil. The plant is said to be difficult to grow, but a little extra care and attention will be more than compensated for seeing it is the first of the family to cheer us at this dull season of the year.—W. H. STANSFIELD, *Southport.*

The Sea Buckthorn (Hippophæ rhamnoides) makes a splendid picture in the Royal Gardens, Kew. A large mass of this Willow-like native shrub fringes the pond near the Palm house, the twiggy stems being crowded with the yellowish brown berries, that by reason of their number give great

richness of colour. Just now, when every deciduous tree is bare of leaves, we need brilliant-berried shrubs to brighten the landscape, and the Hippophæ, though seldom grown well, is one of the best of all. It is found in Britain, chiefly near the sea along the east coast, but it also inhabits Central and Eastern Europe and Central and Russian Asia. Spring is the flowering season.

Begonia insignis is one of the prettiest and most useful of this large genus for flowering during the winter months. It belongs to the evergreen shrubby section, grows and blooms freely, and is very useful for cutting from. This Begonia used to be largely and well grown by Mr. Barron at Chiswick, and recently when at Mr. Balchin's nursery at Hassock's Gate, we noted an exceptionally fine lot of it.

Crocus iridiflorus.—This is well named, the flowers being very marked, and readily suggest those of the Iris, the pumila section more especially. Crociris has been suggested as a generic name which seems very suitable. Its usual time of flowering is September and October. It seems, however, to vary, and is in full bloom now. The flowers are medium-sized, the outer segments clear rich purple, twice the size of the inner ones, which are pale lilac. It is a native of Transylvania.—K.

Crocus lævigatus.—If one could always ensure open weather like the present, there would be no difficulty in utilising the autumn-flowering Crocuses. The above species is one of the most charming we have yet seen, the flowers large, the segments varying from white to lilac (the latter predominating), the outer surface of the outer three being coated with buff and variously feathered, or evenly suffused with rich purple. The effect of a patch of the above in a sheltered nook leaves little to be desired. A native of the Greek mountains and the Cyclades, and usually flowers from October until Christmas.—K.

Helleborus purpurascens is just beginning to open its flowers. I think this is one of the loveliest of the early Lenten Roses, the fine globe-shaped, deep purple-bronze flowers devoid of leaves being always full of interest, and when planted in sheltered positions the plants rarely suffer, even from the most severe frosts. H. intermedius and others of this set are usually washy as the blooms become expanded, and are not so serviceable for decorations as H. purpurascens. The deep plum-coloured forms of H. colchicus should be in every collection. They are amongst the latest, and are rarely disturbed by frost. With H. abchasicus, however, it is different, and rarely a season passes in which one gets presentable flowers.—K.

Carnations in November.—During October and November I saw Carnations growing in the open and carrying flowers which would bear comparison with the best blooms in July and August. In some varieties the late flowering tendency is more marked than in others; with one to such an extent that nearly every layer put down in July flowered in the autumn, with others by an apparent chance development of an odd flower-spike upon an extra strong layer. The development has been gradual, the expansion of the buds slow, but it was watched with interest as the precursor of something new, and, in spite of October frosts and November rains, the buds opened into blooms of faultless symmetry, purity, and depth of colour.

—— I send a few Carnations cut to-day from the open ground. There are hundreds of buds like those sent. They are not from the garden under my charge, but from a neighbouring village. They show the capabilities of the vigorous strains of French Carnations. The cuttings were inserted in the September of last year in the open ground like Gooseberries, and transplanted to their present position in spring.—H., *Sandwich*.

November colour in the Oaks.—Even now (Nov. 16) many of the large Oak woods of Sussex are as beautiful in their varied tints of amber and gold as we usually see in the early autumn and often warm days of October. This retention of the leaves is an interesting instance of the effect of the season upon vegetation, and is in marked contrast to that of last year, when the growth having been made early and become well ripened, the leaves fell at the usual period. This year the first growth of the Oaks was stripped of leaves by the plague of caterpillars. After the plague subsided a second growth, in some cases as much as 9 inches in length, was made. This wood was quite soft when early frosts came in October, and the leaves were perfectly green, but gradually the shoots have hardened, the leaves have coloured, but they refuse to drop, and resist the force of strong November gales which have recently been sweeping over the country.

Eccremocarpus scaber.—We were reminded of the beauty of this fine old plant by seeing (Nov. 16) in a Sussex garden a specimen in full flower rambling over a Yew hedge; it was unharmed by either the early frosts or cold winds. The free habit of growth, combined with the profusion of flowers, which are also unique in colour, should render this plant more popular. Occasionally we see a plant of it by a roadside cottage, wreathing a bush in beauty or depending from the walls of the house in graceful sprays. In large gardens it is rarely seen, yet it is a plant that gives little trouble and when in bloom is most effective.

Primula Auricula in full flower.—It seems rather strange at this time of year to see Primula Auricula in full flower, but such it is, doubtless owing to the spell of open weather we have had of late. Come when it will, it is amongst the most welcome of hardy flowers, by reason of the large open rosettes of mealy leaves and the pretty bunches of deep primrose-yellow flowers. I like the typical or wild form for rockery work much better than the alpine Auriculas of gardens. It has the advantage of lasting longer, and always gives one an impression of freshness lacking in the others. P. Sibthorpi, a variety of vulgaris, with rosy purple flowers, is also in bloom, and in open, exposed places the common Primrose is in full beauty.—K.

Flowers from Broxbourne.—A fine gathering of hardy flowers from Messrs. Paul and Son, Broxbourne, reminds us of the mildness of the season and the usefulness of hardy plants. Messrs. Paul write that Senecio pulcher is still throwing up flower-spikes which will continue to appear until Christmas if the weather remains mild. Geum miniatum promises to bloom throughout the year, and the individual flowers last an immense time when cut and placed in water. Double Primroses, Violets, Crocus Thomasi, &c., are ready to burst into flower as if it were spring. There were bunches of the beautiful white Centaurea montana alba, Iberis gibraltarica, Doronicum plantagineum, the blue Gromwell (Lithospermum prostratum), Chrysanthemum maximum, Cyclamen græcum, &c. If it had not been for the two or three unexpected sharp frosts early in October, we should have had a garden full of flowers in November this year, owing to the exceptional mildness of the season.

United Horticultural Benefit and Provident Society.—The usual monthly meeting of the above society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening, November 12, Mr. J. Wheeler in the chair. Two new members were elected. The committee are glad to say that the late annual dinner was a decided success, and it was proposed by Mr. J. Hudson, and seconded by Mr. G. Wheeler, and resolved that the best thanks of the meeting be given to Messrs. Williams and Laing for decorating the dining hall with beautiful groups of plants; to Messrs. Cannell, Lowe, and Chard, for cut flowers; to Mr. Thomson, of Clovenfords, and other friends, for fruit; to Miss Belval and friends for their music and singing; and the press for their valuable help in giving such an excellent report of the proceedings. The rules may be had for six stamps on application to W. Collins, 9, Martindale Road, Balham, S.W.

Gardeners' Royal Benevolent Institution.—We learn that at a meeting of the committee held on Thursday, the 15th inst., it was determined to hold the fiftieth annual general meeting of the subscribers at Simpson's, Strand, on Wednesday, the 16th of January next, and to add on that occasion fourteen pensioners to the list, five without election under Rule No. 6, and nine by election among the subscribers. The voting papers will be issued on or about the 15th of December. The usual annual friendly dinner of the members will take place after the meeting, and the very Rev. S. Reynolds Hole, Dean of Rochester, has most kindly consented to preside. A special committee has been appointed to consider the best manner of celebrating the year 1889, that being the fiftieth or jubilee year of the institution.

Tomatoes at Chiswick.—Having read "A. D.'s" remarks on these, he suggested that the plants should be shortened back for fear they would not finish what fruit they had on them. I always find that the top fruits ripen more quickly than the bottom bunches; so why cut off the fruit at the top?—J. B., *Beaumont, Jersey*.

Eucharis bulbs unhealthy.—I send you a bulb of Eucharis. I fear it is suffering from the Eucharis mite.—P.

*** In reply to the above, the Eucharis bulb you forwarded is certainly attacked by the Eucharis mite (Rhizoglyphus echinopus). There is no very certain remedy. Shake out the bulbs and wash them as clean as possible; then soak them for twenty-four hours in a solution of 1 lb. of sulphide of potassium dissolved in a pailful of water and repot into fresh soil; take care to leave none of the old soil lying about, but burn or bury it. If the bulbs cannot be repotted, stand the pots in the solution, so that they shall get thoroughly soaked, or stand the pots in saucers and water them well several times. These methods have been very successful in some gardens.—G. S. S.

Death of Mrs. Laxton.—We are asked to announce the death of Jane Maria, wife of Thomas Laxton, which occurred at Bedford on the 17th inst., at the age of 54.

BOOKS RECEIVED.

"Bulletin of Miscellaneous Information." No 23. Roya Gardens, Kew.

"The Secret of Success in the Production of Fruit, Flowers, and Vegetables." W. Wood and Son, Wood Green London.

"Cultural Directions for the Rose." Seventh edition revised. J. Cranston, King's Acre Nurseries, Hereford.

"The Invisible Powers of Nature." E. M. Caillard. John Murray, Albemarle Street, London.

"Twelve White Flowers." By Frances Livings and A. Livings. London: Hamilton, Adams and Co.

J. F.—Low's "Table Decorations" may be had from our office for 6s. 3d., post free.

Names of plants.—*Mrs. Layard.*—Your Fern is not fertile, and it is difficult to determine; it appears to be Platytoma seticaulis.——*W. W.*—1, Selaginella pubescens; 2, Polystichum proliferum; 3, Pellæa adiantoides; 4, Blechnum, probably B. campylotis.——*W. A B.*—Such scraps are not easily determined. 1, an Equisetum; 3, Doodia media; 4, Asplenium fœniculaceum; 5, Gymnogramma ochracea; 6, Adiantum mundulum.—*F. S., Reigate*.—Flowering plants cannot be named from leaves only, and are all very small. 1, Pteris crispa; 4, Selaginella pubescens; 6, Polystichum capense; 7, Nephrolepis pectinata.——*G. B. W.*—1, Acampe longifolia; 2, Cœlogyne Massangeana; 3, Bolbophyllum cupreum; 4, Masdevallia civilis.——*H. G. J., Sheffield*. 1, a form of C. Gaskelliana; 2, Cypripedium tonsum; 3, Oncidium varicosum, good variety; 4, Stanhopea Wardi; 5, Trichosma suavis.——*Indian.*—Your flowers are all varieties of Indian Crocus. 1, Pleione lagenaria; 2, P. humilis; 3, P. præcox.——*T. G.*—1, Cypripedium punctatum violaceum, good form; 2, C. Stonei; 3, C. Spicerianum, with a good deal of colour in the dorsal sepal.——*W. Good.*—All forms of Oncidium crispum.——*Ferny.*—1, Adiantum trapeziforme; 2, A. fragrantissimum; 3, Onychium auratum; this when in fruit is an extremely handsome species; 4, Rhipidopteris peltata.——*Mrs. G. W.*—1, Adiantum Victoriæ; 2, A. chilense; 3, Antrophyum lanceolatum; 4, Trichomanes pyxidiferum; 5, Davallia polyantha; 6, Phlebodium aureum; 7, Callipteris malabarica.——*D. W.*—A fine form of Cymbidium Mastersi; 2, C. giganteum; 3, Lycaste aromatica.——*Cæsarea.*—Cannot name the Chrysanthemum from such a scrap.——*A. Nixon.*—1, variety of Lantana; 2 and 3, please send when in flower; 4, Magnolia grandiflora. You will find information on the Banana in THE GARDEN for Aug. 11, 1888, p. 131.——*J. L. L.*—Polystichum proliferum.——*Dr. Paterson.*—Poor form of Miltonia spectabilis.——*C. O. Miles.*—Camellia flowers, unfortunately, quite smashed.——*Flower in small black box.*—Acampe sp.——*T. W. F.*—Chrysanthemum not recognised.—*W. Nelson.*—Send better specimen.——*Sigma.*—1, next week; 2, Maxillaria tenuifolia; 3, Maranta zebrina; 4, Fittonia argyroneura; 5, F. rubro-nervia; 6, Primula obconica; 7, Justicia speciosa.

Names of fruits.—*W. F.*—1, Doyenné du Comice; 2, Beurré d'Anjou.——*Newark.*—1, Royal Somerset; 2, Duck's-bill.——*J. C. Tallack.*—The Apple is unknown to us.——*L'Amie.*—Pear Beurré d'Amanlis.——*A. P. Thornley.*—*A*, Marie Louise; *b*, Marie Louise; 3, Duchesse d'Angoulême.——*A. C.*—Pears: 1, Duchesse d'Angoulême; 3, Forelle; 4, Beurre Rance; 2, Apple, Beauty of Kent.

WOODS & FORESTS.

THE HORSE CHESTNUT.

THE Horse Chestnut is never planted as a timber tree for profit in this country, although its timber when clean grown and free from knots is used for a variety of purposes, and can be turned to good account when of a fair size. Although the Horse Chestnut does not rank as a first-class timber tree on account of the soft, brittle texture of the wood, yet its claims as an ornamental subject are of a very high order. When planted as a standard tree in a large park or lawn where there is space for its full and proper development, and where it can be seen to advantage, it forms when in full flower a very attractive and beautiful object. From its large size and massive contour when full grown, the Horse Chestnut stands at the top of the list among deciduous trees. One peculiarity of this tree is that it often assumes various shapes and forms even when planted on suitable soil and under favourable conditions as regards site and exposure. Of course this can be corrected to a certain extent by pruning or cutting back strong, unwieldy side branches in order to form a compact uniform top, but as it is rather impatient of pruning, such should always be done, if possible, when the tree is young and in a vigorous state of growth. Sometimes we see fine specimen trees assume the shape and outline of a perfect cone; others that of a perfect globe, while others, again, have a broad, extended outline. Although it cannot be said to be fastidious in its choice of soil, yet, as a general rule, the largest and finest specimens of the tree to be found here and there throughout the country are upon deep, rich loam and in open, but moderately sheltered situations. Although it likes shelter, many of the largest and finest specimens of the Horse Chestnut in the north of Scotland are growing at a high elevation. At Invercauld House, Braemar, which is 1110 feet above the level of the sea, there is a very fine specimen upwards of 100 feet high and containing over 100 cubic feet of timber. This tree produces abundance of flowers every season, but no fruit, caused no doubt by the influence of the climate at such an elevation. At Abergeldie Castle, Crathie, at an elevation of about 900 feet, there is a fine thriving conical-shaped tree growing upon the lawn in front of the castle. But the largest round-headed, spreading specimen of this tree which I have seen in the north is at Skene House, Skene, one of the seats of the Earl of Fife. This tree is 58 feet high, with a stem 13 feet in circumference above the swell of the roots. The diameter of its spread of branches averages from 70 feet to 90 feet; twelve large limbs touch the ground at a considerable distance from the stem, thus forming a wide, open space around the trunk, and capable of affording shade and shelter to a large number of people under its verdant leafy canopy. The site of this tree is about 350 feet above sea level, and the soil is deep loam resting upon gravelly clay. The branches of this tree would have occupied a larger area had not some of them been cut back during the time that extensive improvements were being carried out about forty years ago.

Although the wood of the Horse Chestnut is of a soft texture, yet it produces and finishes its annual growth of young wood within the period of one month in early summer, by which means it has time to ripen and become hard and firm before winter sets in. There can be no doubt but that this is beneficial in promoting its hardiness and rendering it capable of withstanding the rigour of the climate at high elevations. Under favourable conditions, the tree generally produces abundance of fertile seed, which is contained in a shell and is ripe in autumn, when it then falls to the ground, and should be collected and sown at once on well-prepared nursery ground of a soft, sandy texture. When the nuts are spread out upon the surface of the seed-bed they should be pressed down to fix them on the spot, and covered with fine pulverised soil to the depth of 1 inch. The seedlings should be transplanted from the seed-bed into nursery lines when they begin to get crowded, and by repeating the operation several times and allowing the plants plenty of space, fine young trees will be produced in a few years' time. In propagating this tree, it is important to select the largest sized nuts, as they produce by far the strongest and finest trees.

The red-flowered Horse Chestnut (Æ. H. rubicunda) is a very compact ornamental tree of a smaller size than the preceding, and is well adapted for planting about suburban villas and other places where the grounds are of limited extent. It blooms very freely, and commences to produce its flowers at an early stage of its growth. The flowers being very showy, and retaining their brilliant colour and substance for a considerable time, are great points in its favour. There are likewise several varieties of this tribe of small ornamental trees which belong to the genus Pavia, all of which are highly attractive when in flower, and very suitable for planting as single specimens on a small lawn or in the mixed shrubbery. As the whole tribe thrive best in deep, rich, loamy soil, rather of a damp than too dry a character, the planter should be particular in having it thoroughly prepared by trenching and breaking up the subsoil, and in cases where it may be desirable to plant the trees in poor thin soil a quantity of soft rich earth should be mixed with the staple at the places where the trees are to be planted.

The nuts of the common Horse Chestnut are very nutritious, and are eaten by deer, sheep, and horses, and in Ireland they are sometimes used to whiten linen cloth, as also to form a paste for glazing calico; while the bark is occasionally used for a yellow dye. Although the timber is of a soft texture, yet it is used for a good many purposes by carpenters and others, and I have sold it at prices varying from 8s. to 10s. per ton, while choice pieces have realised 1s. 6d. per cubic foot. J. B. WEBSTER.

SHORT NOTES.—WOODS AND FORESTS.

SOME of the finest Scotch Pines in the Athole Woods are growing upon a gravelly soil, which afforded them thorough drainage, and at the age of 150 years they were seen to be still in good health, with clean bark, and covered with the lizard-like scales belonging to the indigenous Scotch Fir.

Bark of Hemlock Spruce (Abies canadensis) is in America extensively used for tanning purposes. Its market price is about 15s. per ton, as against from £5 to £6 for Oak bark. The area of country producing this bark in America was stated to be over 10,000,000 acres. With an abundance of raw hides always available, this industry must very seriously affect the leather trade in our own country.

Alburnum or sap wood or white wood are the same thing. When the colour varies much from the heart to the circumference, and, above all, when it lightens suddenly or too rapidly towards the limit of the alburnum, we may be assured that the tree is affected by some disease. The greatest strength is found between the centre of the tree and the sap wood, and the heaviest wood is the strongest.

PROFESSOR BUDD, in the recently published report of the Ohio State Forestry Bureau, says that his experience with the Honey Locust for fence lumber dates back some twenty-five years. Fence rails of that age nailed on posts have outlasted three sets of posts and two sets of red Oak rails, and the Locust rails are yet mostly good. The rails were split and nailed on in June and July. Posts made from Locust timber, seasoned one summer before setting, and mixed with white Oak posts treated in the same way, lasted equally well.

Rabbits *v.* trees.—A teaspoonful of tincture of asafœtida in half a bucketful of liquid clay or mud, applied with a brush to the stem and branches of young trees, will preserve them from the attacks of hares and rabbits without injury to the trees. Two or three applications during the winter will be sufficient. —B. S.

The Silver Lime (Tilia argentea) is a very handsome tree, of well-formed and majestic habit, great vigour of growth, and perfect hardiness. Plants of it grafted on the common Lime have the disadvantage of growing thicker than the stock, and thus produce a very unsightly swelling or nodosity at the point of junction of the graft. As it is impossible to graft it in any other way except by approach, it may be grafted low so that ultimately it may come on its own roots. It is recommended that it should be multiplied either from seed or by layering. The leaves, which are of a pale green on the upper surface and greyish white underneath, form a pleasing contrast to any foliage of a dark green or other colour. In some nurseries there is a variety which has leaves variegated with yellow; this has not yet been distributed to any great extent. If the variegation proves permanent, it will be a very great acquisition as a subject for isolating on lawns or for planting in groups.—W. M.

Trees suitable for chalk soils.—Of large deciduous trees I would especially recommend Acer platanoides and A. colchicum rubrum, Populus monilifera, P. alba, P. canadensis, the common Lime, the Beech, the American and Huntingdon Elm. These nine kinds are especially useful for extensive plantings upon the chalk, but others of smaller size, such, for example, as the several kinds of Alder, the Almond, both common and large-fruited, may be used. As regards the Birch, imperfect observation might lead to error; a large number of the trees die directly they are planted, and the soil might be thought inimical to them, but this is not so; they die from that quality which is inherent in so many trees—impatience of transplantation. When once established, they grow with remarkable vigour on chalk soil. The double Cherry, Pyrus Aria, P. Malus floribunda, Mountain Ash, Cotoneaster Simonsi, Garrya elliptica, all the Sumachs, and the various Thorns grow with such exceptional strength that they evidently revel in chalk soil.—C. G.

Blasting tree roots.—I have blasted roots with dynamite, and found it fairly successful when used in the best way, which, I think, is as follows: Bore a hole with a large auger, say, 2 inches or 1½ inches, into as nearly as possible the centre of the wood to be split up (this must be done across and not with the grain, otherwise the auger will not bore well), and place a charge at the end, tamping up (not too hard, especially near the charge) with clay or soft earth, &c., and firing by the ordinary copper cap and slow fuze used in quarries. I think a charge of about 8 inches or 10 inches length of the ordinary dynamite cartridge, as thick as two fingers, would raise a very large stump, and the cost would be small, though I cannot now tell the exact amount. The great point seemed to be to trust to an explosion only, as, after one cartridge has been fired, there is often little wood left sufficiently solid and unworked for another to take good effect on. I do not think it would be necessary to clear away the soil, as a good charge fairly low would lift all that, as well as splitting the wood.—H. R. G., in *Field*.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SMEARING STEMS OF FRUIT TREES.

GARDENERS from a very remote period have applied all sorts of concoctions to the stems, branches, and buds of their Vines and hardy fruit trees, and, notwithstanding the fact that extra strong dressings may have done more harm than good, there exists but little doubt that insect pests could not have been kept under without them. If we turn to any horticultural journal we find insecticides of every kind advertised at prices, as compared with their vaunted efficacy, which fill us with surprise, when on looking round we find inventors are still flourishing and insects are as lively as ever. Better so than our having to lament the annihilation of insects and trees into the bargain, a calamity by no means likely to overtake us so long as gardeners of experience with their usual caution have to ply them. Painting with clay to which an insecticide has been added is as old as the hills, but within the past year the smearing fever has assumed a new form—in other words, it has fallen into fresh hands, and, judging from several communications which have reached me, I am very much afraid serious mischief may be the outcome. Quite recently it has been generally known that the larvæ of the winter moth emerge from the chrysalis state early in November, and that the female, which is almost wingless, creeps up the stems of the fruit trees and deposits her eggs, to be incubated by the first warm days of spring, when the devastation witnessed this year, dependent upon certain conditions, may be continued. About the same time a preventive, by no means new, in the form of a smear of cart-grease and Stockholm tar in equal parts, was recommended in the horticultural journals. Being novel, the editors of nearly all the country papers, especially those who had the mortification of seeing their own Apple trees leafless, made this preventive known to their readers. Many of these individuals at war with the winter moth, and all other moths for that matter, commenced smearing the stems of their trees, young and old, regardless of consequences. Others consulted experienced men before plying the brush. Another section dressed their trees first and applied for advice afterwards. A few weeks ago a gentleman wrote me to the effect that he thought of trying Davidson's Composition, but never having used it I could only say proceed with caution, particularly where the trees are young, the stems smooth and tender. Down to this date I had not realised the full meaning of the old adage, that a little learning is a dangerous thing; indeed, until last week it had not occurred to me that the most deadly materials might be substituted by the inexperienced. On the occasion to which I refer, a lady who has just acquired some excellent fruit-growing land in this neighbourhood drove over to consult me as to the best mode of adding new to existing orchards. Elated with the smear, she stated that her man had given the stems of all her trees a coat of gas tar, and innocently inquired if I thought this dressing would put a stop to the wingless females of the winter moth. Knowing something of the effects of gas tar, I said I thought it would, and she might think herself fortunate if the trees themselves survived the dressing. Truly sorry for this distressed but too confiding lady, I advised her to lose no time in having all the young trees well scoured with grease and dry loam, but knowing how injurious oils, animal, vegetable and mineral, are to the bark, I much fear that many of them are permanently crippled. I could give other instances, but these will answer my purpose, and I trust these words of warning will become disseminated in time to prevent others from falling into like mischief. Although I have never used smears in orchards, I have no doubt their application may prevent these moths from ascending the trees, and, further, that the very rough stems of aged trees will take a strong dressing with impunity, but, at the same time, I feel bound to advise caution, as it is better to endure the shadow than to destroy the substance. Experiments, of course, may be tried, but why plaster the stems when the application of a ligature of stout brown paper, a foot in width, as a foundation for the smear will prevent the moths from making the ascent, and at the same time shield young stocks from injury? W. C.

FLOWER GARDEN.

TREE STUMPS ON THE ROCKERY.

THE folly of using tree stumps in rockeries is apparent in many of the best English gardens, and especially at Kew, where on one side of the large rockery there are more tree stumps than rocks or stones. This rockery was constructed about the year 1882, and is now filled with the rarest alpine flowers, but one half of it is an eyesore. The tree stumps are showing unmistakable signs of decay, and stand out in bald ugliness in winter when their place should be occupied with Moss-covered stones or pieces of rock coated with spreading Rockfoils. It is evident from the decayed aspect of these tree stumps that a thorough renovation will be essential, and then we strongly advise that material suitable for a well-constructed rock garden should be alone used. A rockery is not a mixture of tree stumps and stones, and not only are tree stumps out of place, but they engender decay and harbour vermin. In the summer their shabbiness is partly hidden by hardy perennials, Cytisuses, Foxgloves, and many other flowers dotted amongst them. In some gardens there is what is called a rootery, but it is generally a poor affair, although providing excellent accommodation for many of the smaller-leaved Ivies and the finer Clematises. There is a rootery at the end of the central walk in the Royal Horticultural Society's gardens at Chiswick, but it is scarcely beautiful, as comparatively few things do well, and these of the more rougher type of beauty, as shown by the French Willow Herb; but its bareness can be in some measure atoned for by planting clumps of spring-flowering bulbs, as Crocuses, Scillas, Hyacinths, &c. The rockery at the other end of this walk, unlike that at Kew, has very few tree stumps, and they are placed to fill up an odd corner where little but Ferns, Ivies, and shade-loving plants will grow. Here the stones are so disposed that no rough, unsightly edges disturb the view, but are toned down by the growth of Mosses upon the surface or Stonecrops are allowed to ramble over them. To construct a rockery of the size of the one at Kew solely of the proper material is, of course, expensive, and we are led to think the authorities were hampered in their design by insufficient means. After six years of wear and tear it is very evident tree stumps are a failure. In the course of time we shall without doubt have one side of the rockery as beautiful as the other. In spring, summer, or autumn the rock garden is the most delightful spot at Kew. It contains most of the rarest alpines, and the beautiful Rock Pinks hang over the ledges of the stones as we might expect to see them in their high native home. Remove the unsightly fungus-breeding tree stumps, and we shall have a garden of the richest beauty and interest.

Rose-edged Picotee Nellie.—I am glad "J. C. C." has not regretted my recommendation to find a corner for Nellie. This variety with me, besides being a prolific, is also a sound grower, so that the layers after being taken off all grow steadily on into vigorous plants. I have myself rather to counteract a tendency to rank growth and probable loss of refinement in the flower by keeping Nellie on very plain diet. As to its hardiness, I have had last year's plants, with the layers left attached, remaining in the open ground during the whole of last winter without the slightest protection, and with no further attention afterwards beyond the usual sticking. The growth has been very vigorous and the bloom good. In my case, I have to do with a dry atmosphere and a made soil of light loam resting on gravel. In a wet climate and cold, heavy soil I should not expect Nellie to do so well. In such case I should try to rectify these evils by raising the bed a little, or by mixing with the soil some vegetable ash or lime rubbish.—M ROWAN.

Anemones.—The fine weather lately experienced has brought these into bloom, but I find that young plants are much more precocious than those that have been planted a couple of years or more. The best early bloom is, I find, furnished by plants that are about eighteen months old. The seed was sown too late to admit of the plants showing more than a bloom or two at the most, and in such a case they seem to more quickly feel the influence of autumn rains and produce flowers of fine quality. For this reason it is well to raise young plants yearly, both as a means by selection from the finest flowers to improve the quality and to advance the blooming season as much as possible. Now, when the outdoor garden is very bare of bloom and so many hardy flowers have for some time showed traces of bad weather, it is refreshing to turn to the Anemones with their richly-coloured blooms standing up so boldly from a carpet of foliage which is as fresh and green as Parsley itself. It takes a lot of bad weather to injure the foliage of Anemones. Although the blooming season of Anemones is a long one, the plants, of course, exhaust themselves in time, and young specimens in a mild winter will often have almost finished blooming by spring. It is, therefore, well to keep a portion of the old stock to come in later, and if some are taken up and kept dry before being planted until those in the ground begin to show leaf, the Anemone season will be considerably prolonged.—J C. B.

Reversion to typical colours from white-flowered varieties.—The coloured engraving in last week's GARDEN reminds me to inquire where does the seed of these fine white Foxgloves come from? The market must be supplied from some quarters where the Foxglove is not found wild, for from many packets of seed I have bought and raised I have never had one come untrue to the description, though if I save seed from the purest white flowers of Foxglove in my garden a very large percentage of the plants revert to the common purple type, which is abundant as a wild plant in the neighbourhood. I find that most white varieties of wild flowers continue to come true from seed if they grow in a place which is out of reach of pollen from flowers of the same species having the normal colour. I have grown, for instance, the white variety of the Moth Mullein and of the Musk Mallow from seed saved in my garden for more than ten successive years without any variation in colour, neither species growing wild very near the garden; but having at last introduced into the garden plants of the typical colour, I have never since that time been able to depend upon the seed of the white flowers coming true. In some species, white-flowered varieties, however vigorous, fail to produce

seed. For instance, blue Scilla bifolia as well as its variety S. taurica seeds abundantly and the seeds grow readily, but the white variety, which is quite as vigorous in its growth and increases fast at the root, never produces any seed in my garden. On the other hand, the white varieties of Ajax Daffodil as well as the white Hoop Petticoat generally produce plenty of good seed.—C. Wolley Dod.

POTTING CARNATIONS.

I agree with "R. D." as to the desirability of potting Carnations as early in the season as possible. I do not think the middle of February any too soon, for the Carnation is by no means one of the most vigorous rooting plants we have, and requires more time than most flowering plants of a popular character to fill the compost with fibres. It is far better to put the layers in smaller pots for the winter and shift into blooming pots a month earlier. Last year my layers were potted up in November, which is late, but by using quite small pots and a rather light sandy soil they were fairly root-bound by the middle of February, at which time I put them into 6-inch pots, and I never had them do so well. I find Carnations are fond of a layer of Moss on the drainage. On turning my plants out of the pots I found the Moss full of very active fibres, and I shall certainly employ this material again. Good drainage is, in the case of the Carnation, most important. Among growers of this plant, a custom, I believe, prevails of putting the plants into large pots, so as to allow of layering in them. I have seen plants in 8-inch pots that could no more than have filled a 5-inch pot with roots by blooming time. Such a practice involves the exercise of much care and skill in watering, and a Carnation that has once been overdosed with water assumes a poor, crippled condition from which it never recovers. As Carnations are not generally layered until they have done blooming, I see no advantage in this method of culture, but rather the reverse, as if the plants are turned out of the pots into good free soil, most of the labour of watering is done away with, and the layers root much better, owing to the contact of the roots of the plants with fresh soil. That, at least, is my experience. I should never again keep plants in their blooming pots when layering them.

The French use what are termed *godets de plomb* for layering pot Carnations. These are made of thin lead that can be turned round the stems in form like a sugar paper. They contain enough soil for the plants to root into, and can easily be attached to any portion of the stems. For layering tall-growing kinds these are convenient, but such kinds when turned out of the pots can be inclined at an angle that brings the shoots near enough to the soil to layer them with facility. Take the old Souvenir, for instance. I have this year layered about a thousand of it in that way, and have a fine lot of stuff with balls of roots large enough to fill 2-inch pots at once. "R. D." says that 10-inch pots are generally large enough. Has he tried what can be done in 6-inch pots? Many of my Carnations were in 5-inch pots, and they were admired by all who saw them; I never had finer blooms. Many tell me that they cannot get on well with pot Carnations, and to all such I say, Do not go beyond 6-inch pots for them. I feel convinced that this size is large enough for all but the very strongest growing kinds, that is, if but one plant is put in a pot. When large pots are used the compost is apt to get sour before the roots fill it. It is always easy to give liquid manure when the plants begin to get root-bound, and watering can be done with greater freedom.

J. C. B.

Nicotiana Colossea.—A fine-foliaged plant. In the last number of the *Revue Horticole* the above-named plant is described by one of the joint editors of the periodical, M. E. André, in the following terms:—

This remarkable plant originated as a chance seedling among some seeds received from Brazil, and is only provisionally named, as it has not yet flowered, and till it does it will be impossible to determine what it really is. It was first raised from seed by M. Maron, and a plant grown in the park of St. Germain-les-Corbeil is thus described. An annual out of doors, but perennial when grown in the greenhouse, it produces a single stem of great robustness, attaining in a single season a height of from 6½ feet to 9 feet. Its foliage is of great size, the leaves being 3 feet 3 inches in length and almost 20 inches broad. They are shaded with reddish violet in their young state, and develop into a deep shining green; their stems are very stout, flattened out, and red on their upper surface. The whole plant has a very imposing appearance, and reminds one of the fine Wigandias, but is somewhat more compact in habit. This is the second year this noble plant has been grown in the open air in France, and seems to have no special requirements save a highly manured soil to nourish its extremely rapid growth and protection from high winds. Whatever its name turns out to be, it should be a valuable acquisition for sub-tropical gardens.—W. E. G.

TORTUOSE WHITE TRUMPET DAFFODILS.

"It seems to me about time that that little matter of "G. H. E.'s" criticism last year was buried and some Daffodils planted on its grave." Such were the words of the Rev. Mr. Engleheart to me last season when writing for some white moschatus; meantime giving me the preference of his confidence, with this addition: "I want true cultivated bulbs, as I know you will give them, but if I write to —— he will say they are cultivated, when I know very well he cannot grow them."

I did not dream that "G. H. E." would again enter the lists as a champion of all that is pure in white-flowered Daffodils. If I did, I would not certainly have troubled the readers of The Garden or occupied your valuable space. However, as he says, "the subject is capable of further exposition," with which I thoroughly agree, provided he sticks to the white Trumpet section and its Kew trial. "Without the aid of some able spiritualist," I still hold that Sarnian Belle, Colleen Bawn, or either of two other twisted forms, all planted here at present, have just as much right to the typical standard of the old masters (Haworth included) as Leda. I in person, as a member of the Daffodil committee, took the same Sarnian Belle to London in April, 1887, in order to have it named, at which meeting Mr. Engleheart attended, and he knows perfectly well how the "ineffectual, long-suffering, poor committee" refused to allow me to open my box of blooms beyond the registering of Little Nell. I had no remedy left, with my one man, one vote, against frightful odds and its one man, one power, so I immediately wrote the co-stockholders of Sarnian Belle and give you their reply: "Yours of April duly to hand, and we note your remarks *re* our white cernuus Daffodil. Do you really believe it sufficiently distinct to be worth naming? Many thanks for the trouble you have taken and gone to in sending us blooms for comparison." Surely this bit of private action—and I wish there was more of it—on the part of an isolated member of the "ineffectual, long-suffering committee" has been my work, and if this fortunate three-starred fair one has got noticed, she certainly must give an Irishman credit for gallantry and redemption, apart altogether from trials, afflictions, and royal burial-grounds set apart for Irish Daffodils as I saw them interred at Kew.

No doubt they are a "bothersome class of plants," and I believe the same ill-starred Leda has caused much turmoil; possibly, but for her evil appearance at South Kensington in 1886, we should never have had Kew trials; neither should we have had expeditions to Spain and Portugal, searching out the origin of species (evil, I was going to say), as it is not the first time the "white swan" caused mischief with the "Origin of Species" and evil, if we read up ancient history and Mr. Engleheart's dead language. To return, no man knows better than he does of the existence in quantity of miniature forms of yellow Daffodils, such as nanus, minimus, and minor; and how varied they are in a wild state both in size and shape. Why should we not have this variation in pigmies as in giants? I saw some at South Kensington with the honorary secretary, the seeing of which, and no other, causing me to curtail the list of this section. For a very different reason I have curtailed the list of double Daffodils, simply as the committee take no interest in them; and when Mr. Engleheart tells me there are no distinctions in any form of single Trumpet Daffodil when it produces "from seed" double flowers, my little lot of distinct doubles, kept now for private research, shall be put into the limbo of waste simultaneously with his Andover seedlings (double forms), which he brought repeatedly to South Kensington for credentials, when most of that body were as children in small clothes; until then, I shall have my opinion as regards double Daffodils.

Spurius coronatus.—How could I tell in 1884 what this was, no more than the entire Daffodil committee; we were all in darkness then.

Irish King.—My first intention with this was to call it Golden Dragon, until some imaginary person adopted Yellow King. This flower is now registered Ard-Righ, and Mr. Engleheart will have to change his labels. I thought we settled the history of the Irish King two years since.

Bishop Mann and Butterfly are distinct outside the Daffodil committee.

Golden Plover and Tanist.—In order to illustrate the fact that I do not want to increase names, I have now put both into one pigeon-hole.

White variiformis and tortuosus minor I shall adopt until some member of the Daffodil committee, or some more enlightened botanist than its collected body, convinces me through the columns of The Garden that we have yet found the real Musk-scented Simon Pure.

Bicolor minor.—Mr. Collins's original name fo Mr. Maw's nobilis. I go for the same issue and the combined opinions of the more intelligent outside the "ineffectual body," and I shall refuse to call it Redouté's plant. For a season, no doubt, we all went for the unity of the spirit in calling this beautiful child of the mountains noble! but are now diverging, and "variiformis" is our ultimatum. What is noble of Redouté or various of Parkinson remains to be settled by a future generation; this one will never do it at its present rate of progress.

Princeps is just as varied as either of the former, and in maximus and giant proportions there are several stocks, and selections in the hands of growers, about which I may talk another time.

White minor.—It would be really wonderful if Mr. Engleheart did not get this plant (*sub rosa*) after the searching and raking poor Ireland got, and the attention the Irish subjects received after the memorable sitting and appeal to the country (Kew) of April, 1886. I do not speak politically, but how strange! All went playing April fool on Irish soil together. Certainly in Irish "whites" this treasure should be "missed" at Andover.

Minnie Warren.—If taken to the first conference, April, 1884, as a "white nanus," found in Ireland and in quantity, Mr. Nelson's "one bulb" would not have been the *rara avis* of that assembly. This on the part of Mr. Engleheart is positively sour Grapes. "The wise as they grow older are increasingly aware that there are more things in heaven and earth (and certainly in Ireland) than are dreamt of in their philosophy." This is perfectly true, and it "needs neither sticks," stones, nor "a live spiritualist" from the grave to prate of the whereabouts of Paul Engleheart Carnation, and how it was common for years in the cottage gardens of the county of Cork. I should have mentioned this long since to the readers of The Garden, but dreaded a multiplicity of names and confusion, positively injurious to trade, and the plant has as good a claim to be found in Ireland as Bishop Mann's Daffodil in England.

As regards "irritating the Saxon and the alien," all I dread in this respect, after Mr. Engleheart's mention of my surname fifteen times in his long *critique*, is that his action now and at a previous time may be construed into a fancied co-partnership between us; justifiable indeed, as there was a case before the London magistrates not long since when two opponent traders were constantly castigating each other, until at last opposing factions

from the street found themselves in court, but to their amazement were made wiser, as the seeming opponents were the very best of friends and actually co-partners. I do not aspire to either the friendship or co-partnership business mentioned, but as a sincere lover of flowers and hardy plants apart altogether from trade, I hope I shall always please myself as to what is truthful and right judgment among them, and when in error confess it. Yet as a member of the Daffodil committee, I know I shall always be "one man, one vote" outside the influence of individual one man, one power, and plurality of votes inside "this ineffectual and long-suffering body"—a body whose work the floral committee of the Royal Horticultural Society could probably better perform. W. B. H.

Temple Hill, Cork.

*** We allow Mr. Hartland to say in his own way what he wishes, and hope this Narcissus controversy will cease till the forms in dispute are shown in flower.—Ed.

Sternbergias.—My experience this autumn with these plants has been similar to that recorded by "K." (p. 456). S. lutea and S. angustifolia have both failed to flower. The bulbs appear to be perfectly sound, and last year they flowered freely. Our soil is a heavy loam, but well drained, and I can only attribute the non-flowering to the same reasons as "K."—excessive rain and unripened bulbs—for evidently the size of the bulbs makes no difference to the flowering.—J. W. Odell, *Pinner.*

—— I see by a note in The Garden (p. 406) that these bulbs are not giving satisfaction in England this year. My garden at present forcibly reminds visitors of spring when they see all the beds clothed, as they imagine, with yellow Crocus, beneath which are Daffodils for a spring display. The bulbs were grown on a south border last summer, and a light put over two large beds to exclude rain. I did the same with Iris stylosa. I fear it will be a bad year for Christmas Rose blooms, the summer being over-wet, and I do not know how the Daffodils will act. Ard-Righ is 1 inch above the soil already. Leucojum æstivum I am sure could be got to flower in December if the bulbs were grown in a warm climate. It is 18 inches high here at present and the flower-buds appearing. I will lift the clumps and report result. Another bulb that would also force well for Christmas bloom is Narcissus Trewianus minor.—W. B. H., *Cork.*

Lemoine's hardy hybrid Gladioli from seed.—I have just heard from Mr. C. B. Powell, of Southborough, Tunbridge Wells (to whom our gardens are indebted for the beautiful hardy hybrid Crinum which bears his name), of an extraordinary instance of precocious blooming of a batch of seedlings of these Gladioli in his garden, which, I think, cannot fail to interest the readers of The Garden. It also greatly enhances the value of these beautiful and most easily cultivated plants, which should be in every garden. Mr. Powell saved the seed in October, 1887, and did not sow it till the end of April or beginning of May of the current year, when it was placed in a slight hotbed with a light over it till the first leaf appeared. Since that time the seedlings have had no attention, save to give them water regularly. In September six or seven of these tiny seedlings showed flower-spikes, though they cannot have been larger than a small Pea in size, being barely four months old. These spikes would have opened their first flowers in the first week of October, but were unfortunately caught by the rather sharp frosts on the 1st and 2nd of that month, which greatly retarded their expansion and almost destroyed them, but having been protected with a sash, they have recovered, and are now in flower, each spike bearing from eight to ten flowers and blooming within six months of being sown.—W. E. Gumbleton.

Saxifraga ligulata and its allies.—It does not seem to be generally known that these attractive plants are readily forced. There are many varieties in our gardens now, and when well managed with a view to keeping the foliage fresh and intact, they present at flowering time a charming picture, and form a welcome addition to the ordinary greenhouse flowers in general use. We prefer plants that have been previously in pots, as the roots are confined and the plants themselves more compact. We simply plunge the pots out of doors during late spring and summer, and lift towards the end of October or November for use the following spring. In the absence of specially prepared plants, however, compact clumps may be lifted from the ordinary borders, now being the best time, removing old leaves, &c., and potting them in good rich compost. They may be allowed to stand outdoors, and taken in to the heated pit as they may be wanted, allowing about six weeks or so for their full development. In cases where the previous year's plants are being used, we simply make up for fresh compost in liberal waterings of liquid manure as soon as root action has started, and this we find beneficial, not only in strengthening the leaves, but in bringing out the colours of the flowers. When the flowers begin to expand the plants should be removed to a cool house, the colour of the flowers being thereby heightened. The same plants may be used for years without potting, and will give an excellent result by liberal feeding.—K.

NOTES ON HARDY PLANTS.

Dodecatheon integrifolium.—I do not know why this kind should lose its stronger roots at their junction with the thick part of the crown, but I have noticed the fact for years, and without asking others to accept my views, I may express them and ask those interested to watch. All the Dodecatheons are very fond of moisture, and in dry, light soils the plants have the habit of drawing themselves deeper into the soil in search of it. D. integrifolium has shorter, but more fibrous roots than either the Meadia sorts or the stronger species, and they run immediately under the surface, not going straight down like those of the others. I fancy that it is caused by the pulling of one set of roots against the opposite set in dryish soils that the brittle and thin-necked roots are severed at their junction with the crown. Then the frost will surely strain a plant mechanically whose roots are so near the surface, otherwise this species is a good grower, yet we know that it is the scarcest of the cultivated kinds, and when we consider that it is the most beautiful of the genus we should endeavour to master its cultivation. I believe the remedy is to plant in soil of a holding nature and to mulch with Cocoa-nut fibre. I think so, because one clump I grow with Cypripedium spectabile, where it enjoys these conditions, never suffers like plants otherwise treated.

Polygonum sphærostachyum.—This dwarf and brilliant-flowered Dock is fast coming to the front. For two years I have grown it in pots, and longer in the open. All have flowered well, but I was puzzled not to find the corresponding quantity of roots in the pots that one might reasonably have expected to see belonging to a healthy plant. I have just lifted a plant four years old from the spot where it had stood three years and flourished all the time; in fact, it is the parent plant by seed of nearly all my stock. Two curious features were noted: the very small amount of black and nearly Erica-like root fibre and the peculiar form of the root-stock, rhizome, or tuber. The age was exactly represented by joints and swellings, as in the case of the German Iris. The root, however, grows in the perpendicular position, the bottom being the leading or growing end, just as in the case of the Trilliums and some of the strong Ferns, such as Osmunda regalis, only with this plant the habit is more distinctly marked in degree. The plant does best in a moist soil, but this root habit shows that it gets deeper and deeper every year, and it may be a part of its successful treatment to lift it at times and bring it nearer the surface. Last year I tried to propagate the plant by breaking the roots of two-year-old plants at the joints, and both back and leading tubers have grown. It is important to know this, I think, because I find the spikes of rich carmine flowers only yield seeds when the summer is very warm. Though I have had flowers from May to October, there is not a single seed this year. It is hard to convey an idea of the unusual colour of the flowers, which are densely and symmetrically arranged in spikes 3 inches or 4 inches long on stalks a foot high, but those who know the rich carmine hue of the finer form of Primula rosea may realise it from the close likeness. The plant is perfectly hardy. I should like to see a mass of it in a boggy dip of rockwork.

Biota corymbosa and Aster corymbosa, with two others, I believe, are all names that apply to the same plant or species. It was under the first name that the plant was sent me some years ago by the late Rev. H. Harpur Crewe. There are three other facts, however, of more importance anent this composite than its redundancy of nomenclature. First, as an Aster, it is one of the earliest and white, and it is one of the showiest summer border subjects that could be named. There are two distinct forms of it—one 3 feet to 4 feet high, with a more erect habit, bigger foliage, and yellowish green stems; the other, and infinitely superior kind, is only about half the above stature, habit bush-like and divaricate, and, best feature of all, it has glossy blackish purple stems. The third fact worth note is that from its rarity—in these parts anyhow—it is practically a new thing, though really a very old one indeed. I am glad to say that it is now being brought into notice.

Alpine Pinks.—At this season these are more especially in danger of being devoured by slugs, which seem to take up their winter quarters under the thick tufts of foliage for the double purpose of convenient grazing and shelter. On the other hand, it is to be feared that, owing to the reduced attractions of the garden and approach of inclement weather, we relax our efforts in keeping down our garden enemies. A little trouble, timely taken, might save many a valuable alpine plant, and no better time than the present could be named. On a still day scatter about and over the plants wood-ashes in a white and dry state, and repeat twice before Christmas. This simple dressing will prove advantageous, and certainly the slugs will either die or shift their quarters. I make the ash from green wood and use it when cold. J. Wood.

Woodville, Kirkstall.

Old-fashioned Tulips.—I was pleased to see Mr. Douglas writing approvingly of these, as I think they are well worthy of a prominent place in the flower garden, as in days gone by. In gardens of the old style that were remodelled to suit the requirements of tender bedding plants, these Tulips were generally to be found in great plenty. I remember one in particular, where great masses of them made a fine show. I should say that the original bulbs had been planted twenty years or more previously, and had that garden never been altered, they would in all probability be in good bloom and condition at the present time. We cannot afford to lose sight of a bulbous plant that will remain in good condition for a number of years, needing nothing in the way of culture worth mentioning. One great merit of these Tulips is their indifference as to soil. I have seen them doing well both in the heaviest loams and in almost pure sand. What I have so much admired in them is the great strength of the long elastic flower-stems, that bear the showy blooms so boldly, and yet, whilst bending to the storm, never seem to succumb to its influence. These old Tulips are truly weather-proof.—J. C. B.

SHORT NOTES.—FLOWER.

The French Society of Acclimatation recommends the cultivation of Crocus Hausknechti, a Persian species, for the production of saffron, on account of its superiority over the common C. sativus generally cultivated in some parts of the Levant for this purpose.

Christmas Roses dying.—My Christmas Roses growing in light sandy soil make very good growth in the spring, but before the summer is over black spots appear on the leaves and leaf-stalks, and they gradually die away. The roots go black and die in the same way. Can some reader in The Garden suggest a remedy?—G. C.

MM. Vilmorin-Andrieux recently exhibited before the National Horticultural Society of France the fourteen varieties of Gladiolus gandavensis, which

long experience shows to be the latest blooming of the innumerable varieties grown in the neighbourhood of Paris. They are named: Abricoté, Atlas, Beatrix, Coquette, Docteur Fontan, Gallia, Médicis, Etna, Mimos, Rossini, E. Souchet, Eugène Scribe, Sceptre de Flore, and Ambroise Verschaffelt.

NOTES OF THE WEEK.

Pear Beurre Superfin.—This, from a gathering of Pears sent by A. Barker, and consisting of Nouveau Poiteau, Conseiller de la Cour, and Winter Nelis, is the best, being juicy and of a rich pleasant flavour.

Iris Vartani.—Flowers of this come from Messrs. Barr and Son, of Tooting, who write that it is planted outside in a gritty sand and loam, and simply sheltered by hedges from strong winds; beyond this it has no other protection. This Iris would do well on slightly sheltered rockeries.

The Gardeners' Royal Benevolent Institution.—We understand that a legacy of £50 has been bequeathed to this institution by the late Mrs. Sarah Cameron, widow of the late Mr. George Cameron, for many years head gardener to the Duke of Richmond at Goodwood Park, Sussex. He was a life member of the institution, and died in 1870.

Marie Louise Violets.—I enclose a few flowers of Marie Louise Violets from a cold frame, in which the plants have been for about three weeks. The blooms were gathered from one-year-old plants which had been grown quite in the open in the kitchen garden. —D. T. Fish.

*** Splendid blooms of this sweetly, but strongly scented Violet.—Ed.

Asparagus decumbens in flower.—Mr. Greenwood Pim, Monkstown, Dublin, sends flowering sprays of Asparagus decumbens with the following note: "I enclose a couple of fragments of Asparagus decumbens, which perhaps you may think worthy of notice in 'Notes of the Week' on account of its freedom of blooming. My plants have stems of considerable length, and all are as thickly covered with flowers as the bits sent."

Doronicum plantagineum excelsum.—Messrs. Collins and Bros., Waterloo Road, have forwarded flowers of this fine hardy plant, to show how persistently it blooms. They write that through the spring and summer it has been crowded with flowers, and even now (November 26) it appears anxious to extend its flowering for some time to come—that is, if if we may judge from the numerous buds ready to expand.

A note from Kent.—White and yellow Marguerites are as bright as ever, and there are still plenty of scarlet Cactus Dahlias. Among Roses, Hybrid Perpetuals are giving the best blooms, with the exception of Mme. Berard, which here is sometimes good at Christmas. Tagetes pumila is a mass of bloom, and outdoor Chrysanthemums were never so good. The Agapanthus is still bright when viewed from a distance. Altogether this is an extraordinary season.—H., *Sandwich.*

Cotoneasters upon the Grass.—These pretty shrubs are most welcome at this time of the year when their crops of berries enliven the outdoor garden. We have seen them rambling on banks, trained upon low walls, and in a variety of positions. At Danny Park we recently noted some large masses isolated upon the turf in a way we had not seen them used before. The great tufts, studded all over with glowing fruit, had an admirable effect in comparison with the large clumps of Pampas Grass which grew close by. The example is one worthy of imitation.

Tecoma capensis.—To most gardeners this plant is known as a greenhouse scandent shrub which very rarely flowers, and even at its best is a comparatively poor thing; but in the Enfield nursery of Messrs. Hugh Low and Co. it proves itself a really first-rate winter-flowering plant. A batch of well-grown little specimens in 4-inch pots, each with five or six shoots about a foot long and covered with healthy pinnate foliage, each shoot bearing a head of brilliant scarlet flowers as fine as those of Æschynanthus grandiflora, shows how useful it is. Nothing could be prettier or more out of the common than these plants, and at this time of the year they have a special value. The treatment which has resulted in these pretty little specimens was of the simplest, viz., early struck cuttings, temperature, position, &c., such as suit Bouvardias, a good ripening by exposure to air and sunshine in autumn and restricted root space. Thus treated, T. capensis proves a delightful little pot shrub.

The Tree Tomato (Cyphomandra betacea).—You will be glad to know that the Tree Tomato is fruiting freely in this neighbourhood, and I have much pleasure in sending, by same post, a few fruits for your inspection. They were grown and ripened in an intermediate house. When in flower the perfume was most agreeable, and when its cultivation is understood it will, I doubt not, become popular. —R. H. Vertegans.

Devonshire cider Apples.—The awards have just been made at the Industrial Exhibition now being held in Paris in connection with the manufacture of cider and perry. The first prize (diploma and gold medal) has been awarded to Messrs. Robert Veitch and Son, of the Royal Nurseries, Exeter, for a collection of Apples suitable for making cider. These Apples were collected from cider districts, and included all the standard varieties, as well as some new sorts raised by leading cider makers. The second prize for cider has been awarded to Mr. Charles Hem, of Exeter, as also another prize for Apples used in the process of manufacture.—*Devon and Exeter Gazette.*

Mildness of the season.—Evidence of the unseasonable, but pleasant mildness of the weather is seen in the following list of flowers, all of which are in blossom, some of them abundantly, in my garden, this 25th of November: Blue Violets (several sorts), Pansies, blue Periwinkle (the small variety), Chrysanthemums, Primroses (various colours, including the common yellow and one or two doubles), Polyanthuses, Primula japonica, Daisies (double red), Harebells (Scotch), Pot Marigold, yellow Jasmine, a Rose or two, a Crocus, and a few sprays of Scabious and Potentilla. Foliage of variegated Nettles and Periwinkles, Ferns, Thymes, Rockfoils, &c., abundant and in good condition. Cloth of Gold Crocus throwing up strongly in a warm corner.—Wm. Simmons, *Essex Road, Enfield.*

—— In addition to Chrysanthemums, a great many other things, notably the Laurustinus bushes and hedges that I have never seen in better condition, are in bloom. The blue Veronicas are aglow with bloom; while Marigolds, Marguerites, and other common border flowers are covered with flowers. Amongst the dwarf subjects, the blue Violets, Daisies, and Primroses are in bloom—more like April than November. Jasminum nudiflorum is also in flower. The season has been exceptionally favourable to the growth of all these plants, as they have not suffered from drought throughout the entire season; consequently the foliage is extremely luxuriant, and as long as we escape wintry weather there will be plenty of bloom out of doors. —J. G. H.

—— Owing to the mildness, many plants are already beginning to blossom. Saxifraga Burseriana var. major has some blossoms fully expanded; they are large and very pure, being of snowy whiteness. I noticed in the York Nurseries even some of the Symphytums in full beauty, including S. caucasicum, S. orientale, and S. tauricum. These Symphytums are fine plants for shady positions, growing as they do in almost any kind of soil.—R. P.

—— The mildness of the weather, so unusual at this season of the year, has produced quite a profusion of flowers on the wild Primrose in the woods in this neighbourhood. A few straggling flowers are often seen at this season of the year, but at the present time basketfuls can gathered in a few minutes. Auriculas and Primroses in the garden are also full of bloom. Tea Roses have been plentiful out of doors up to the present time, and yesterday (Nov. 28) I gathered some crimson Hybrid Perpetuals which reminded me more of June than November.—A. Barker, *Hindlip.*

Stephanotis flowers from Beckenham.—I send you a small box of Stephanotis flowers gathered from a plant that is growing in a span-roofed house which is about 40 feet in length The specimen has been in bloom for five months, and will continue for another month in beauty. It is pruned every January, and the temperature of the house is kept at from 40° to 45° during the winter. On January 27, 1884, we had 27° of frost and the thermometer registered 37° in the house, but no injury resulted. This treatment may be interesting. As soon as growth commences, flowers appear at every joint.—J. May, *Oakfield Gardens, Beckenham.*

*** Beautiful flowers of the Stephanotis, and showing that Mr. J. May's treatment is correct. This climber is frequently grown in far too high a temperature.—Ed.

Lilium neilgherrense.—We have had all three of the species of Indian Lilies in flower this year, viz., L. nepalense, which created a little sensation when exhibited by the Messrs. Low and Co., L. Wallichianum, shown about the same time by Mr. T. Ware, and also flowered recently at Kew, where L. neilgherrense is now flowering in the large temperate house, a group of plants each bearing a large flower making a good show. The stem is 18 inches high, clothed with scattered leathery leaves; the solitary flower is horizontal, the tube being narrow, 8 inches long, greenish yellow; the limb is 5 inches across and composed of three outer segments, each 2 inches wide, and three inner segments 2 inches in width, the apices reflexed; colour creamy white, greenish in the throat. The stigma is large and the anthers are 1 inch long. If the bulbs are planted in a 5-inch pot, using a sandy soil, and then placed in the frame during summer, this Lily is sure to flower in autumn. It lasts a long time when in bloom.

Passiflora princeps (racemosa).—This plant is flowering yet, notwithstanding its having commenced in July. It is the best of the scarlet-flowered kinds, P. vitifolia being much shyer, whilst P. kermesina requires warm stove treatment. The same temperature and position as suit Tacsonia Van Volxemi will suit P. princeps. The racemose arrangement of the flowers of the latter is exceptional amongst Passion Flowers, and the individual blooms are almost as large as those of P. cærulea, but are salmon-scarlet in colour. There is a good hybrid between the two last named, and which is grown at Kew as P. cæruleo-racemosa. It has the habit and inflorescence of the latter parent, is a very profuse flowerer all through the summer, and the colour of the flowers is reddish purple. P. princeps is a good stove climber, but it grows and flowers perfectly when planted out in a sunny position in an ordinary greenhouse.

Hippeastrum (Amaryllis) aulicum.—This is an old garden plant of the best kind, but it is rarely seen now-a-days, except in botanical collections. It is flowering finely now in one of the stoves at Kew, and is therefore deserving of attention as an early winter-blooming species. The leaves precede the flowers, the scape is 2 feet long, and bears two flowers, each of which is about 6 inches long and 4 inches across the mouth, deep crimson with a greenish star at the base. It is evident from the Kew plants that there are several varieties, the best being robusta or superba. This is grown well by Mr. Moore at Glasnevin, and also by Mr. Bullen at Glasgow. The autumn-flowering kinds, of which H. reticulatum is the type and principal parent, would gain considerably in strength and colour as well as in leaf characters if some of the blood of H. aulicum was infused into them. It is a native of Central Brazil, and was introduced in 1819.

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SLINDON HALL.

Close to Slindon, one of the prettiest villages in Western Sussex, stands Slindon Hall, a large and noble old house that has stood several centuries. The exact date of the erection of the original Slindon Hall is not known, but it is supposed to have been built by one of the archbishops in the thirteenth century. Stephen Langton, the celebrated primate, died here in 1228. The old mansion afterwards passed into the hands of the Kempes, by one of whom it was rebuilt early in the reign of Queen Elizabeth. Additions have since been made, and as centuries rolled by various families have resided here, till coming down to more recent years the Countess of Newburgh made Slindon her home. At her death Col. Leslie became the owner of this, one of the oldest Sussex houses. The house, which is well shown in the engraving, is delightfully situated, and commands views of land and sea rarely equalled. Our picture shows the front of the building with a broad expanse of lawn, than which there is no simpler or nicer foreground to a house. If this were more generally regarded we should see less of the confusing and beauty-destroying formalities which modern ideas create. On the opposite side of the house to that shown in the engraving there is a similar expanse of lawn, while upon the outer margins stand native trees in groups and groves, cool and shady, yet not too dark and dense to prevent the Grass from growing beneath. About the grounds are many old trees covered with Ivy. The trees, chiefly Spruce Fir, upon which the Ivy grows have long since been strangled to death by the tenacious grasp of its encircling folds. Beyond the lawn and grounds is a small, but well-timbered park.

The glory of Slindon, however, is in its Beeches, which are renowned throughout the county, and we might say England, too, for certainly such a wood of this tree as that at Slindon does not exist elsewhere. It is a feature no words can adequately describe.

The Beech, as we generally see it, is a noble tree with a short stem, supporting a ponderous head with enormous spread of branches. At Slindon, Beeches thrive remarkably well, the soil being a chalky one, but in this wood every tree has a stem clean, straight, and tall, the shortest being quite 40 feet high, and some of the tallest nearly 70 feet. A carriage drive winds through this wood. A tree known by the name of the King of the Wood stands nearly in the centre, and worthily deserves its title. The ground everywhere is covered with the leafy accumulation of centuries, and Nature, true to her purpose, has adorned the spot, for the curious snuff-coloured Bird's-nest Orchis (Listera Nidus-avis) thrives, but is hardly distinguishable upon its dusky bed of leaves.

Beneath the veil of leafage, light, even on the brightest day, is subdued, and the very gloominess is awe-inspiring; but we were also fortunate in seeing this wood as the sun was setting. The charm produced as its oblique rays shone under the canopy above cannot be described. An history of this wood would be of interest, but even that would not explain or account for the towering habit of every tree. The stems have not been branch-pruned, and thus induced to grow straight and tall, and although close planting would have that tendency, these trees are not so close but that many have made stems girthing 6 feet to 8 feet for a considerable length. However, conjectures will serve no useful purpose, but the Slindon Beech wood remains unique, and we can but hope that it may long stand in its unrivalled grandeur and glory. Everywhere, Slindon seems to be a place favoured in every way by Nature. The landscape is so beautiful as to demand mention. The downs behind, the sea in front, and the woods and fields on either side combine to make a wonderful picture.

Not far from the house, at the top of a hilly field, is a flint erection called Nore Folly; but even if the building on Nore Hill was a "folly," the Countess of Newburgh who erected it had an object in view, and that none other than to enjoy the wonderful landscape.

The land scene, magnificent as it is from Nore Folly, is even surpassed by the extensive sea view. Here, on a clear day, the sea-coast towns from Brighton to Portsmouth are seen, one after another, in a winding and often broken, but complete view; whilst the glistening cliffs of the Isle of Wight appear to be rising out of the sea.

The flint arch and rustic room constituting the building above-named were often visited by the Countess, and it is evident, therefore, that she was an ardent lover of Nature.

Notes upon gardening at Slindon sink into insignificance after the two main features already enumerated, and as nothing very elaborate is done in this way, no mention need be made except of the good kitchen garden, which is extensive, well managed, and evidently as old as the place.

In Slindon House our forefathers handed down an erection fit to stand for centuries as a



Slindon Hall, Sussex. Engraved for The Garden from a photograph by Messrs. J. Russell and Sons, Chichester.

useful as well as monumental example of skill, care, and forethought; but we fear this cannot be said of many of the domed, pinnacled, and over-decorated examples of nineteenth century architecture.

KITCHEN GARDEN.

GARDEN WALKS.

KITCHEN garden walks are unavoidably used during all sorts of weather, and I hold that utility rather than appearance should be the principal consideration when they are first constructed. It must be conceded that a well-formed and carefully preserved gravel walk, with perhaps a neat Box edging, is very pleasing to the eye; but in how many instances will such walks bear the strain of traffic or fail to rise up after frosts or rains? Good binding gravel is often very scarce, and those walks with a loose surfacing of either pea gravel, ground stone, granite, or sandy material are much more suitable for the pleasure grounds than they are for the kitchen garden. In very many instances the latter has a rather sharp slope in a southerly direction, and in this case loose walks, or any with badly binding surface material, are liable to be much injured by heavy rains, the greater part of the surface being washed to the bottom of the garden, choking the main drains and otherwise doing harm to the surroundings. It is quite disheartening to repair such walks only to find the next downfall of rain repeating the old mischief, and in all such cases something different should be done in order to remedy the evil. Much may be done with the aid of brick gutters on each side of the well-rounded path, and if rounded paths are objected to, those more flatly made may have either grips or raised obstructions formed across them, either bricks on edge or a strip of good Oak being suitable for this. If these are disposed at intervals of about 60 feet apart they materially lessen the rush of water and save the gravel. The water, thus turned out of its course, ought to be run direct into drains near the sides of the walks, and at each grip or obstruction a small grating-covered brick cesspool should be formed. If these are kept properly cleared of the sediment that rapidly accumulates in them, the drains will not get choked for many years. In this manner a walk may be kept in good condition as far as appearance is concerned, but yet not available for wheeling over or much traffic perhaps at a time when most needed, nor will any such measures long preserve rather steep walks such as we have several of. After repeated experiments with the best materials obtainable, short of cement, we have arrived at the conclusion that asphalte walks are by far the cheapest as well as the most durable, and in addition they can be used in all weathers. These are sometimes objected to on account of the smell that emanates from them in hot weather, and they are supposed to be injurious to the roots of fruit trees growing near to them. There may be some reasons for these assertions, but all other objections are fanciful and not worth noticing. During the first two summers the sunshine does soften these asphalte walks, and the smell may be somewhat objectionable, while the water that runs off newly-made walks is liable to be impregnated with tar, and certainly does injure Box edging, but I have seen no ill effects accrue to fruit trees that may be near the walks. As it happens, much depends upon the way in which such walks are formed. If the tar is not well boiled at the outset or prior to mixing with the ashes, or if too much of it is used in proportion to the sifted ashes, it fails to set properly and may never answer well. An asphalte walk if formed with properly mixed materials applied to a thickness of not less than 2 inches, and duly faced over with fine spar ground, or fine gravel, or even sand, will set firmly in the course of a few weeks. It will be only slightly affected by hot sunshine in after years, remain intact for a long time, and never present an unsightly appearance. Such walks can always be used, and heavy wheeling will not wear them out very quickly. They are best formed in the summer, or, as in our case, in August and September. The ashes from the stoke-holes ought to be saved especially for the purpose, and in most instances sufficient will be collected in one year to mix with gas-tar to cover one long walk every summer. That was the plan we adopted till all the kitchen garden walks, as well as those among the houses and pits were covered. Asphalte walks are also frequently made to order by those in charge of gas-works, and this is the simplest, if not the cheapest way out of the difficulty. Ordinary well-made walks are most suitable for covering with asphalte, these usually being well drained and solid. If quite new walks are made the bottoms of these should be slightly curved or rounded off from the centre, and be covered with not less than 9 inches of rough stones, brick ends, or clinkers, this being faced over with about 3 inches of common gravel, on which the asphalte can be spread. A smooth and strong surface cannot be formed on an uneven or very stony bed, and if the old walks are lightly broken up prior to applying the tar mixture, the coarsest of the stones must be raked off. Once made, these walks are no further trouble—weeds, if we except Dandelion, which I have seen push through a comparatively firm surface, not making any headway, and an occasional sweeping up ensures a tidy appearance at all times.

It is only the main walks, or those near the walls and passing through the centre of the garden, that are so treated. In large gardens smaller intersecting walks are also necessary, and these may be kept in good order with the aid of clinkers and ashes. Such walks, well made, are frequently more durable, or at any rate more fit to walk on, than are the majority of those formed of gravel. They need not be more than 30 inches wide, and ought to be laid up rather above the ordinary garden level. A depth of not less than 9 inches of clinkers, roughly broken, should first be formed, on this being placed a thin layer of finely-broken clinkers, finishing off with 2 inches of ashes. These being duly levelled, should be well watered and then well rolled. Thus treated the surface will bind surprisingly well, and it is only after severe frosts that it becomes soft and liable to rise. Even quite broad walks made of clinkers and ashes are preferable to any constructed of stones and inferior gravel, and are not nearly so liable to be overrun by weeds. Capital walks are frequently made of ground lime and gravel in mixture, but I have had no experience with them. They answer well in the pleasure grounds where tried, but whether they would be so serviceable as asphalte in the kitchen garden remains to be proved.

Where there are broad borders on each side of a central kitchen garden walk wholly given up to flowers, I much prefer to dispense with any hard material, believing a turf walk by far the most appropriate and enjoyable. Supposing the site is well drained and the ground made very firm and level, a closely-mown turf can always be used for walking over, there being no more damp to the feet than gravel. In summer time turf walks are pleasant to walk upon, and materially add to the beauty of the borders. There are only few such to be met with, but there is no reason why the number should not be largely increased, especially seeing how numerous herbaceous borders in the kitchen garden have become. W. I.

POTATO CULTURE UNDER GLASS.

A DAILY supply of young Potatoes is looked for in most gardening establishments from the beginning of March, and is quite as indispensable in the dining-room as Asparagus, Seakale, and French Beans; therefore, no time should be lost in getting the first batch of the most forward tubers of the good old Ashleaf Kidney type either into boxes of leaf-soil or singly in 3-inch pots in the same kind of soil to start them gently into growth, or, it may be, to thicken as well as increase the growth some of the early lifted tubers may have already made. With this object in view the boxes or pots containing the Potato sets should be put into an early vinery or Peach house near to the light to prevent the tubers making a weakly growth. Meanwhile, if there is no hot-water pit at command for the production of young Potatoes, a cold pit affording depth for a thickness of 3 feet or 4 feet of new leaves and soil, as well as 15 inches head-room for the plants to complete their growth without coming in contact with the glass, should be got ready for planting the Potato sets in when they have made about 2 inches of growth. The leaves should be trodden firmly together, making allowance for the same settling down a few inches within the next month or six weeks. This done, put a sprinkling of rotten manure over the leaves, following this with a thickness of 6 inches or 7 inches of light garden mould in which to plant the Potatoes in rows 1 foot apart and 9 inches asunder in the row. Disturb the roots as little as possible in the process of transplanting, and set the plants the same depth in the bed of soil as they were in the boxes or pots. We prefer the latter, because the tubers or plants grown in them experience no check through being transplanted. When the haulm has made 5 inches or 6 inches of growth put 3 inches or 4 inches thick of soil between the rows and plants. Give plenty of air on all favourable occasions, the object being to induce the plants to make a sturdy growth. This should never be lost sight of, not only in the forcing of vegetables, but also in that of every other subject. Potatoes thus grown are not likely to require much water at the roots, but should the soil get dry, which under the circumstances it is not likely to do during the winter months, sufficient tepid water should be given to moisten the soil. A sufficient covering of mats, or whatever protecting material may be at hand, should be put on at night to exclude frost. In order to maintain the supply of young Potatoes from the beginning of March until they can be dug from sunny borders out of doors, towards the end of June pits should be planted at intervals of three weeks—more or less frequently according to requirements. It is true, young Potatoes may be placed on the table at Christmas by ripening off some of the tubers in June and planting them in some spare pit or frame about the middle or end of August. But if a regular supply should, as is generally the case, be expected from the time the first dish is sent to table, it is advisable for the cultivator to wait until he is able to continue the supply, whether it be Potatoes, Asparagus, French Beans, &c. Potatoes being forced in hot-water pits will require water more frequently at the roots than those grown under the conditions indicated above.

The supplies obtained from under glass should be supplemented early in June with produce from plantings made early in February in improvised frames placed on south borders, and in which the haulm can be protected from frost with old sashes, shutters, hurdles, mats, &c. Those who do not possess the accommodation referred to above may secure supplies of young Potatoes three weeks earlier than they could from plantings made in the open by forming the rubbish heap, consisting principally of garden refuse, into a kind of hotbed, about 3 feet deep and as wide and long as circum-

stances permit. Place thereon 6 inches or 7 inches thick of light garden mould, and then plant it with any good early variety of Potato, in rows about 15 inches apart and 9 inches in the row, protecting the haulms from frost with garden netting, doubled half-a-dozen times, and supported by short forked sticks, rick cloths or any other material. This latter planting should not take place before the middle or end of February. H. W. Ward.

KITCHEN GARDEN NOTES.

Celery.

This has been unusually good from the outset. As a rule, the white varieties do not equal the red or pink-stalked Celeries, but this season they have been solid, crisp, and mildly flavoured. The best in this respect are the selections from the Dwarf Incomparable, while the larger growing Wright's Grove White has also done well. With ordinarily good cultivation there ought to be few failures, but favourable as the growing season has been, there is already abundance of Celery that will be long past its best before midwinter. Both white and red varieties are, in several instances that have come under my notice, fast bolting or running to seed prematurely, and the present mild weather will, in all probability, induce much more to start. Raising the plants very early in strong heat, these necessarily being weakened at the outset and checked in growth later on, are frequent causes of bolting, and dryness at the roots, especially when they are well established in the trenches, will have the same effect. The rainfall during the summer and early autumn months was by no means exceptionally heavy, and possibly many cultivators took it for granted that the Celery was getting a sufficiency of water, when, in reality, the plants badly needed a good soaking. If in a dry state when moulded up, the chances are that the roots are even now in want of water. At any rate only the very heavy rains that recently fell in most parts of the country would have penetrated to the trenches, or when it was too late to check this unfortunate and exceptionally early bolting. Frosts may check this running out of the hearts and lifting and relaying in mould would have the same effect. Our Celery at present is in a very satisfactory state, but the mild weather favours the increase or ravages of slugs. A free use of soot to a certain extent protects the Celery, and any well surrounded either by fine ashes or burnt clay is not much interfered with. The latest planted is still growing strongly, and final moulding up will be deferred as long as possible or until severe frost is imminent. Where no kind of protection is afforded the Celery there is greater need for very careful and complete moulding up than would otherwise be the case. If much foliage is left above the soil a moderately severe frost will cripple this and decay will spread downwards only too quickly. Whereas when only the tips of the leaves are left uncovered the decay is much longer in reaching the stalks, and the foliage will if uninjured by frosts keep nearly or quite as long in a semi-blanched as in a green state. The ridges of soil formed about the rows ought to be brought to a rather sharp point and well smoothed, so as to throw off as much rain and snow-water as possible. Stewed Celery forms a good variety on the dining-table, and ought especially to be introduced at this time of the year. Later on Seakale, Asparagus, and other forced vegetables may be available, and then there will be less need for Celery. Celeriac or Turnip-rooted Celery is also useful just now, the roots if well cooked being good as a vegetable or they are excellent for flavouring soups.

Ridging Soil.

The practice of throwing up the surface soil into ridges is largely adopted in some districts, and there are some who are firmly convinced it has a beneficial effect. As far as the strong yellow loams in the Weald of Kent and some parts of Sussex are concerned, however, it is a very doubtful proceeding, and there are numerous other districts in which it would be unwise to resort to ridging. Where the soil is naturally of a heavy or retentive character that portion forming the ridges may be rendered more fertile and finely broken down by the action of frosts and other influences, but this does not compensate for the cold and badly saturated state of the trenches or furrows between the ridges. It is into these that the greater portion of the rains and snow water finds its way, rendering the soil very unsuitable for the somewhat delicate tap roots of root crops or the root fibres of various other vegetables. Ridging is altogether unnecessary in the case of naturally light or free-working soils, many of which had far better remain undug till nearer the time they are cropped. Stiff clayey soils, whether double dug or only stirred one spit deep, ought to have the surface laid up as roughly as possible, and after this has become well pulverised advantage should be taken of a dry time to dig it again, thus bringing to the surface many lumps of soil that will also become thoroughly broken up in a few weeks.

Early Tomatoes.

Growers for market strive to raise plants either in the autumn or as early in January as possible in order to have an early start, two or three weeks' gain making a material difference in the value of the crops, and compensating for any extra trouble taken. Private growers also do well to produce crops equally as early. Many raise their stock of plants from cuttings, these being already well established singly in 3-inch pots and kept either on shelves in slightly heated houses or in heated pits, and afterwards transferred to their fruiting quarters early in January. If clean, healthy cuttings are available, it is yet possible to strike them, especially if they have been well exposed to the light, soft growth being the most liable to damp off. They may be about 5 inches long and dibbled either singly in the centre of a $2\frac{1}{2}$-inch pot or thinly round the sides of a 5-inch pot, any light, loamy soil being suitable. A hand-light or propagating frame over a gentle and rather dry bottom-heat is the best position for the cuttings. They ought to be very carefully watered, and sufficient air admitted every morning to well dry both the foliage of the cuttings and the glass, as neglect of this detail is an almost sure precursor of damping off. After the cuttings are struck, those in small pots may be given a shift into 5-inch pots, and those in larger sizes be potted off singly. All should be kept growing steadily on a shelf near the glass in gentle heat. It is also possible to raise seedlings now and thereby gain a fortnight at least on those obtained by sowing seed early in January. New seed should be sown thinly in pots or pans and lightly covered with fine soil. Set on or plunged in a mild hot-bed, the seed soon germinates, and before the seedlings are far advanced they ought to be placed in a good light position or near the glass in heat. Where they are at all crowded, thinning out should be resorted to, and no attempt to pot them off ought to be made before they have formed two or three pairs of leaves. Dwarf Orangefield and Large Red are the best for very early crops. W. I. M.

Clamping Potatoes.—In "S. D.'s" timely article (p. 463) on "Lifting and Storing Roots," I think he scarcely gives clamps or pits the credit they deserve for Potato storage. My experience is that when made in the form of a long, narrow ridge, in a good position and well covered, a clamp is the best possible place for Potatoes in winter. I have never noticed the strong earthy taste complained of, nor should I ever fear it in Potatoes taken from a well-made clamp. I also find that sprouting does not take place so early in our pits as it does in a Potato house which is entirely in the shade and soiled overhead to a good depth; in fact, the house is an artificial cave driven into a high bank. In this house the tubers had to be gone over twice during the season before planting time this year, while those in the pits remained almost dormant till within a week or two of that time, and the seed tubers were sent to the ground without having any shoots removed. In an ordinary spring they would doubtless have sprouted earlier and required some attention, but the prolonged cold weather we had this year retarded them. In making the clamps we take advantage of a border sloping sharply to the north, and so secure good drainage and a low temperature. The pit is made about 4 feet wide and 10 inches deep, of any length, and running north and south. The tubers are stored in ridge form, commencing with the latest kind, if more than one is to go in a clamp. A good thickness of Bracken or straw is placed at the end of each sort. When all are in position they are covered with enough Bracken to keep them from greening and allowed to remain so for a few days if the weather is fine and till all danger of heating is over. There is little fear of this if the clamp is not too wide and the tubers are dry; then all is covered with the soil that was thrown out in forming the pit. I recommend Bracken for covering in preference to straw, especially if it has been stacked for two or three months, as it can then be cut out in flakes that will resist a lot of wet, and will not soon get mouldy. Nearly all our Potatoes have lately been treated as described above, the only occupants of the house being those for present use and a few Dahlia roots.—J. C. Tallack.

POTATOES AT THE ROYAL AQUARIUM.

Rarely indeed have finer and handsomer samples of Potatoes been exhibited at any time than were the leading collections at the recent show at the Royal Aquarium. Messrs. Hughes and Wiles, both of whom come from the neighbourhood of Banbury, seem to have fallen into the very best Potato-growing locality in the world, for not only in one year, but in all years they seem alike invincible. It is unfortunate there should be so much likeness between the sorts shown by each, and it would add to the interest seen in their exhibits if in the class for twelve dishes, for instance, the twenty-four dishes included a greater number of sorts. Mr. Hughes, who in the class for twelve dishes and for six dishes stood first and second, seemed to have the pick of the samples, his tubers showing good size with wonderful quality, whilst Mr. Wiles preferred a size larger, rather big in fact, but, all the same, wonderful samples. Only the finest soil, light, sandy, deep, and rich, could in such a season as the past produce such grand tubers, and Banbury would seem to be quite as much a Potato as it certainly is an Onion paradise. Mr. Ellington, who is also a good Potato exhibitor, but from a different district, had beautiful samples, but, compared with Mr. Wiles, distinctly small. Still, on the whole, his collection showed the next highest merit. There were plenty of good samples in other classes, for the competition was unusually good, but none that were other than second-rate as compared with the winning collections. One fact, however, was very evident in connection with the tubers: we saw very few of the medium-sized sorts and of the better table quality. It seems to have been a big-tubered season, and late robust kinds predominated generally. It is therefore not a matter for surprise, as it tallies with general experience. The chief misfortune is that some fine sorts, which would otherwise have been relegated to obscurity, were brought out to do duty, but in the matter of quality they are this season about as bad as bad can be. The sorts shown by Messrs. Hughes and Wiles included Abundance, a very fine, flattish white round of great excellence; Satisfaction, also a large, flattish white round of handsome form; London Hero, white round; Prolific, Chancellor, white kidney; Reading Ruby, Adirondack, Mr. Bresee, Queen of the Valley, Reading Giant, Edgcote Purple, Purple Perfection, Reading Russet, Snowdrop, Best of All, and The Colonel. Mr. Ellington had eight of these kinds in his twelve dishes, with Favourite, Beauty of Hebron, Market Favourite, and White Perfection. Judging by these returns, it would seem as if the season had favoured a very limited number of varieties only, and those strong growers. That such should have been the case may result in a more general planting of these late strong growers next year, and although a wise precaution, because these robust growers are always less diseased, we may yet have a favourable Potato season next year, and if so, the earlier ripeners, which include some of the best quality in Potatoes, might turn out exceptionally well. The

absolute uncertainty which hangs over our seasons prevents us from making special preparation to meet their requirements beforehand. Still it may prove a safe forecast to aver that we shall not have an exceptionally cold, wet summer next year, and if the temperature and rain be of the average, no great harm may come to the Potato crops. So severe were the effects of the disease in many gardens, that stocks of tubers were almost destroyed, growers being driven to the necessity of getting new stocks entirely. No doubt they will derive considerable benefit next year from taking so wise a course. A. D.

Trees and Shrubs.

THE DOGWOOD.

(CORNUS SANGUINEA.)

THREE or four weeks ago, when loaded with its usual wealth of shining black berries, few native shrubs had a more distinct and pleasing appearance than the common Cornel or Dogwood.

Perhaps the deep ruddy berries of the Guelder Rose (Viburnum Opulus), another native shrub, had much to do in setting off the bright ebony hue of the Dogwood, for it was no uncommon sight in many a Kentish lane and copse to find specimens of both plants growing side by side and in full fruit-bearing at the same time.

In our search for foreign berry-bearing trees and shrubs, I think that two or three of our native wildings have been overlooked, and no two better examples of such could be named than the Guelder Rose and the Dogwood. Here, however, it may just be well to mention that the commonly known Guelder Rose, or what is usually grown in our gardens, produces double flowers at the expense of fruit, and this is why so many persons get confused when shown a fruiting specimen of the plant. True it is that the normal or native Guelder Rose does not produce flowers nearly so showy as those of the garden form, though to those who can appreciate single blooms they are of particular interest, and often find their way amongst choicer flowers to the room or study. When loaded with big bunches of the brightest coral berries the native form is indeed one of our handsomest fruit-bearing shrubs.

The Dogwood, under exceptionally favourable conditions, attains to goodly proportions, one plant in particular which I noticed lately having reached a height of fully 12 feet, while its long and lithe, twiggy branches extended for fully the same length. To say that this pigmy tree was loaded with fruit gives but a poor idea of the appearance it presented, every twig being finished off with a flat bunch of shining black berries, the deep green of the leaves showing them off to perfection. Bitter though the berries be, yet they are greedily devoured by birds, and this is almost to be regretted, for it renders the plant's beauty, like that of the Guelder Rose, almost ephemeral.

The warm chalky soil of mid-Kent must be peculiarly well suited for the culture of these two plants, for nowhere have I seen such huge specimens or those with a greater abundance of flower and fruit. Generally they are to be met with in copses and along hedgebanks, but usually I have noticed them where the soil is warm and sandy and where chalk occurs at no great depth.

For church decoration, at the harvest thanksgiving, we, this season in particular, found both the Guelder Rose and Dogwood of great value, and used them in large quantity.

Propagation of the Guelder Rose is simple, for cuttings root freely enough if placed 3 inches deep in sandy loam about mid-September. Here, however, recourse to such a system is quite unnecessary, for the plant springs up freely enough from seed. This may also be said, with slight modification, of the Dogwood. A large specimen of the Guelder Rose growing at the head of one of the lakes here has been particularly attractive of late, and caused many a visitor to gaze with astonishment at the wealth of ruddy fruit with which almost every twig was tipped.

No two plants look so well in company as the Dogwood and Guelder Rose, the refined contour of the former with its dark fruit and medium-sized pleasing green leaves offering just sufficient contrast to the pinky berries and roughish, big-growing foliage of the other. Our northern friends have no idea of the beauty of these two native shrubs as berry-bearing plants in the south of England.

Holwood Park. A. D. WEBSTER.

Desfontainea spinosa.—We have a plant of this here which my employer tells me has been planted in a south border for nearly thirty years. It has received no protection in any way, further than being sheltered by taller shrubs from the north and north-east. The shrub in question is 5 feet high and nearly 3 feet in diameter at 2 feet from the ground. It has been in flower ever since last July. It has at the present date (November 20) forty blooms on it. It has never flowered so profusely as it has this past summer. Can it be owing to the wet season or from the drought of the previous summer ripening the wood well?—C. S. H., *Hurstgreen, Sussex.*

White Alder (Clethra arborea). — This is very different from the North American species of Clethra, which are quite hardy deciduous shrubs, as it forms a small tree of an evergreen character, in general appearance a good deal like an Arbutus. It is a native of Madeira, and though in especially favoured localities the tree will pass some winters in the open air, it is, thus treated, never seen at its best, so that it may be regarded strictly as a greenhouse, or rather conservatory, shrub, as it is well suited to associate with Oranges, Myrtles, &c. This Clethra is often known as the Lily of the Valley Tree, from the resemblance that the spikes of blossom bear to those of that popular perennial. It flowers during the dull autumn months. Irrespective of blossoms, it is, however, a very ornamental Evergreen, and one that only needs to be protected from frost during the winter. It is of easy culture, and cuttings of the young growing shoots strike root readily during the summer months.—T.

The Spindle Tree.—The glory of the garden at present is a group of three large Spindle Trees, which are planted on a bank and overtopping by several feet some Box and other Evergreens which grow around them. They are fine specimens, reaching nearly 20 feet in height, and are just in the position to suit them, for the Evergreens hide the naked stems, and all that is visible of the trees is covered with bright coral-like fruit, unique alike in form and colour. Beautiful in any light, they are particularly so when the sun shines full upon them. This Spindle Tree is a fine subject for planting in rough shrubberies, where it is left entirely unpruned so as to take on its natural habit, for the pruning-knife or hook spoils it. Any soil seems to suit it, but the position should be sufficiently open to allow of the wood becoming fairly well ripened. It is especially useful where birds are plentiful, which is the case here, for though the Rowans, Barberries, and Haws disappeared as if by magic, and the Holly berries are fast going, the bright capsules of the Spindle Tree are left untouched. In my opinion, the common Spindle Tree is better than its variety, latifolius, though this is also very fine when allowed to develop itself in its true character, which is seldom the case, so far as my observations go.—J. C. TALLACK.

The Purple-leaved Ivy (Hedera Helix atropurpurea) is at this season remarkably rich, as the leafage is of quite a purplish tint. This variety, judging from a vigorous specimen on a moist shady wall in the Royal Horticultural Society's Garden at Chiswick, is a handsome, useful, and distinct Ivy.

ARBUTUS UNEDO.

SOME fine bushes of this striking shrub, the Strawberry Tree of Ireland, can now be seen in good form in the grounds of Gunnersbury Park, Acton. One peculiarity about this shrub is that it bears flowers and ripens fruit at the same time. The points of the branches are now laden with pendulous racemes of flowers, which are small and bell-shaped, and they are succeeded by round, bright-coloured fruits somewhat resembling Strawberries, hence its name, and these ripen slowly and remain long on the tree; and thus it is that green and ripened fruits, as well as flowers, can be seen upon the tree at the same time. In his interesting book on fruits Mr. Leo H. Grindon states: "Would that the Arbutus were as good to the palate as to the eye. It is Strawberry Tree, alas! only in name, although the crimson harvest is made available in Spain and Corsica for the manufacture, by distillation, of a simple wine." But what a useful subject it is when in fruit for autumn and winter decoration. Nothing in the way of berries can be brighter than those of this Arbutus. They have a bright tint of orange-crimson, and are valuable for house and church decoration. In some Chrysanthemum exhibitions classes are provided for baskets of autumn foliage and berries, and a charming feature they make, but it is rarely that the berries of Arbutus Unedo are found among the subjects employed. Those who have been privileged to see the Strawberry Tree growing wild about the shores of the Killarney Lakes can realise its effective beauty in the landscape. But then it can scarcely be a tree indigenous to Ireland, as its culture appears to be confined to a certain district in the south of that country. One writer remarks that "the tree is a native of the whole of the south of Europe, and in all probability it was introduced from Spain to that part of Ireland at a very early period, when commercial intercourse was extensively carried on between Spain and the people of the south of Ireland."

But it is a tree of ancient lineage, for Ovid speaks of it as "The Arbutus heavy with its warm ruby fruit," and tells us that in the Golden Age the fruit afforded food for man. This fruit is called Unedo, and Pliny is said to have given it this name because it was so bitter that he who ate one would eat no more. It is also stated that it was held sacred by the Romans.

At Gunnersbury the trees are on the banks of the ornamental water, and, notwithstanding their asserted susceptibility to frost, they do not appear to suffer in any way. I have seen fine specimens growing on dry elevated spots, and it is said to do well in a calcareous soil. R. D.

Cryptomeria elegans.—The most remarkable feature of this Conifer is the great change in the colour of the leaves from the pale green of the summer to the bronzy crimson of the winter months, when it forms a very striking object. It is especially adapted for gardens of limited extent, for though said to reach a height of 100 feet in Japan, its rate of growth in this country is not rapid. I have been very successful in striking cuttings of this Conifer on a sheltered border under a hand-glass. The cuttings were not the little bits generally chosen for the purpose, but branches a foot long. By taking such cuttings they were, when rooted, already good-sized plants, but with no other Conifer did I succeed so well as with this Cryptomeria. One thing that should be especially borne in mind in the case of Cryptomeria elegans is that owing to the weight of foliage it is very liable to be blown over by heavy storms unless secured to a stake, so that, especially when from 6 feet to 10 feet high, it should be secured in this manner. The better known Cryptomeria japonica is also represented in our gardens by two or three distinct varieties, among which may be noted Lobbi, which is altogether more compact in habit than the type, forming a tree of narrower outline and of a much brighter and deeper green colour. As a specimen

plant it is, generally speaking, superior to the type. C. japonica nana is a thick tufted bush, seldom seen more than a yard high, and it takes years to attain even those dimensions. Where small-growing shrubs are desired, it affords variety and is always bright and cheerful. C. japonica spiralis is little more than a curiosity, the leaves being sickle-shaped, and so closely encircling the branches as to appear arranged in a spiral manner throughout their whole length. The branches of this are weak and slender, so that it always needs support. Another curious variety of massive growth is araucarioides, which has short leaves, but it is seldom seen in a flourishing condition. All the Cryptomerias thrive best in good soil not too dry and in a somewhat sheltered position. The wood of Cryptomeria japonica is much used in Japan for a variety of purposes.—H. P.

Cratægus crus-galli salicifolia.—The ordinary Cockspur Thorn and two or three of its varieties are of quite a tree-like habit, but this kind differs widely from any of them, for the leaves are narrow, the branches almost spineless, and the whole plant grows in a horizontal direction, so that if grafted standard high, as is generally done, it assumes quite a table-like head, which in time acquires considerable dimensions. It is a tree that when judiciously placed will be sure to attract attention, but, like all of so pronounced a character, it must be used sparingly. There are one or two good specimens in the Brompton Cemetery, and although perhaps not the most suitable of graveyard trees, they are certainly very distinct from anything so employed. The more vigorous varieties of the Cockspur Thorn, such as ovalifolia and arbutifolia, form handsome, medium-sized trees, which flower after the bulk of the Thorns are over, and in autumn their handsome deep green glossy foliage dies off brightly tinted.—H. P.

Golden Retinosporas.—Among the smaller-growing Conifers with golden foliage the Retinosporas occupy a prominent position, for there are several distinct varieties, and all of them are of comparatively easy propagation, and will do well under conditions such as the golden Arbor-vitæ would refuse to grow in a satisfactory manner. This is the reason that we see some of these golden Retinosporas in pots much oftener than any other Conifers, and, indeed, when employed for furnishing windows, balconies, or similar unsuitable spots, they are generally remarkably bright and cheerful, though, of course, not for one moment to be compared with a thriving specimen when planted in the open ground. The best known of the golden Retinosporas is pisifera aurea, a free, much-branched, rather dense-growing kind, with the whole of its young growth of a beautiful rich golden colour. Of course, in common with all other coloured-leaved shrubs, the position in which it is grown has a good deal to do with its golden tint, as where shaded, the foliage is much greener than when well exposed to sun and air. Some of the brightest I have ever seen were growing on the Sussex downs in a heavy, but well-drained soil. R. plumosa aurea is rather more upright in habit than the last, and the young shoots are of a light golden yellow, which gradually changes to green as the season advances. Retinospora obtusa is represented by a couple of varieties which are both very pretty and quite distinct from each other. The first R. obtusa aurea is rather an upright growing variety, with foliage of a deep golden hue, especially during the growing season, while the second, gracilis aurea, is, as its name implies, of a loose, graceful habit of growth. Besides this, it never attains the same depth of colour as the other, for though the young growths are yellow they become much greener as the season advances. These two varieties of R. obtusa are more particular in their requirements than the forms of R. pisifera and plumosa, and their propagation is far more difficult; for while both R. plumosa and pisifera are two of the easiest of all Conifers to strike from cuttings, such a remark will not apply to R. obtusa. The last to be noted of the golden Retinosporas is the pretty little R. tetragona aurea, which forms a dwarf compact bush of very slow growth, and is far more suitable for the rockwork than for any other position. It needs to be planted in a sunny spot, as then the colouring will be intensified. The bright golden yellow of its foliage changes during the second year to deep green. This distinct Retinospora originated several years ago in the nursery of Mr. Barron at Borrowash, near Derby.—T.

Golden-leaved Privet.—This, which is a variety of the Oval-leaved Privet, must be included wherever bright-foliaged shrubs are required during the winter months, for it is one of the most telling features of the garden at this time of the year, the plants now being almost a mass of gold, for the yellow variegation extends from the margin inwards till nearly the whole leaf is of that tint. The sharp frosts generally experienced later on, however, destroy some of its beauty, but with the return of spring the plants quickly push forth new leaves. It is very easily struck from cuttings (more readily indeed than the variegated varieties of Ligustrum japonicum), and can be shifted about without danger, for the plants generally form large clusters of roots. For winter bedding this Privet is well suited, as it can without injury be shifted when no longer required.—T.



Phymatodes albo-squamata. Engraved for The Garden.

Ferns.

W. H. Gower.

PHYMATODES.

This genus, which contains many handsome Ferns, and which for the most part are of a robust constitution and coriaceous in the texture of their fronds, belongs to the Polypodium group, the Polypodium Phymatodes of Linnæus being the typical species. The disposition of its veins, however, at once excludes it from that genus, as it is at present understood, and brings it near to Pleopeltis, from which, however, the genus Phymatodes is principally distinguished by the smaller veins being more netted, and by the absence of the scales which usually surround the sori of Pleopeltis.

Phymatodes are highly ornamental plants, some from their hardiness being admirably adapted for the cool house fernery; others thrive best in heat. Some make elegant specimens for covering rockwork; others display their beauties to the greatest advantage when grown as basket plants and suspended from the roof; whilst several thrive well in a Wardian case. These plants should be grown in peat and loam, with a little sand added. The soil should be made firm and the creeping rhizomes pegged upon the surface, to which they will soon adhere by their roots. Phymatodes enjoy a liberal supply of water all the year round. The following kinds are amongst the best of those which have been introduced in a living state, and all are well deserving cultivation.

P. albo-squamata, the subject of our illustration, is one of the very prettiest when grown so that its fronds hang down. It is one of the few species which we have with pinnate fronds. The rhizome is somewhat woody, and densely clothed with large, dark brown chaffy scales. The fronds are arching, sometimes attaining to a length of 2 feet. They are pinnate, the pinnæ being coriaceous in texture and shining dark green on the upper side, where they are sprinkled with a profusion of small white dots, which give rise to its name. It comes from the Philippine Islands.

P. Griffithiana.—This plant is still, I believe, rare in cultivation. It was introduced from Khasya by the late Messrs. Rollisson and Sons, of Tooting, but I have only seen it with simple fronds, which are produced from a slender, creeping, scaly rhizome; the fronds are leathery in texture and of a somewhat glaucous green, sori large, a single row being on each side of and situated close to the midrib. It thrives in a cool house fernery.

P. nigrescens, sometimes named P. saccata, is a bold and handsome Fern from Java. It somewhat resembles in general appearance Phlebodium aureum, from which, however, it may be readily distinguished by the large protuberances on the upper side. The fronds are from 30 inches to 3 feet in length, the dimensions being from 6 inches to 10 inches long, and upwards of 1 inch wide, and the colour light glaucous green. It thrives well planted out on the rockwork in a warm fernery, but as the fronds are spreading and somewhat drooping, it should be grown in an elevated position.

P. glauca is a very handsome plant of somewhat recent introduction, through Mr. William Bull, of Chelsea. I have not seen it of any size yet. The young fronds are usually simple, but as they become

divided the segments appear to be sharp pointed; the colour is of a bluish green. It is a very handsome species, and a native of the Philippine Isles.

P. PUSTULATA.—This is a very common Fern in New Zealand, where it is said to climb lofty trees, ascending them by its creeping rhizome. The fronds are of two kinds, pendent, and from 3 inches to 18 inches in length. The small fronds are simple, gradually becoming lobed and pinnatifid; sori prominent. The fronds are very elegant, and rapidly clothe the stems of Tree Ferns or rockwork, and they are very fragrant, thus rendering them useful for cutting.

P. BILLARDIERI.—Another common New Zealand Fern, valuable for decoration in the cool fernery or for a basket. It will thrive well as a basket plant in a warm window of the dwelling house. It is similar in general appearance to the last-named plant, but is larger in all its parts, and the colour of the frond is glaucous; sori bold and sunk in the frond.

P. LEIORHIZA.—This is a bold-growing species from Nepal, and thrives best in stove heat. It has a stout creeping rhizome and pinnate fronds from a foot to 4 feet long, and bears about twenty pairs of pinnæ, each being about 8 inches long, and bright shining green in colour. It is of an erect habit of growth.

P. LONGISSIMA.—This is a fine basket Fern for a warm house, and is of a very distinct character. The fronds are from 2 feet to 4 feet long, and of spreading habit. It has always been a scarce Fern in cultivation, and comes from India and the Philippines.

P. INCURVATA.—This is a bold-growing Fern, with leathery fronds of a deep green hue on the upper side, beneath lighter; the barren frond is spreading; stem, ebony black; the fertile frond, however, is erect and pinnatifid, usually bearing two pair of pinnæ and a terminal one. It comes from the Indian Islands and is rare in cultivation.

P. VULGARIS.—A bold, free-growing plant, widely spread in the Polynesian and Malayan Islands. It is the Polypodium Phymatodes of Linnæus. Several other forms, such as terminalis, pettidea, longipes, &c, which approach near this, are said to be varieties of vulgaris, but they certainly maintain their distinctive characters under cultivation, and therefore are entitled to distinctive names.

EPIPHYTAL ADDER'S-TONGUE FERNS.

A READER who a few years ago returned from a sojourn in Madagascar says—

When in the island of Madagascar, I saw long, deep green Ferns hanging from the trees like strips of ribbon. Can you tell me what they were, and could I grow them in this country?

I have no doubt but the Fern referred to was Ophioglossum pendulum. I have never seen the fronds more than from 4 feet to 5 feet in length, but have been told they do grow as long as 12 feet or more, varying from 1 inch to nearly 3 inches in breadth, the texture being fleshy and the colour deep green. The fertile spike, produced from a short footstalk, is pendent, and from 3 inches to 6 inches in length. This is the plant, I imagine, you allude to, and it can be grown in this country, if the roots are carefully removed from the tree on which they are found and sent home quickly in some light, damp material. This plant did exist in a living state in the Fern collection at Kew, and if at all convenient you should make a journey there to see it. You could make certain if I am correct in my surmise.

O. intermedium is also another species of this section (which Presl distinguishes by the name of Ophioderma). It was first found in Borneo by Mr. Thomas Lobb, and up to the present day would appear to be a scarce plant. In texture it resembles O. pendulum, but its fronds are erect and scarcely a foot long, the fruiting spike being furnished with a longer peduncle and situated near the end of the frond. These are two very interesting plants, and they well deserve more recognition at the hands of Fern growers, as being relatives of our common Adder's-tongue which is so plentiful in most wet meadows in this country. I shall be glad to hear if you are successful in obtaining this plant from Madagascar in a living state.

W. H. G.

Adiantum Pacotti. — I have frequently been asked the origin of this Maiden-hair Fern, but have never been able to give a correct answer. I recently, however, noted some nice examples of this plant in Mr. Smee's garden at Wallington, which I was assured had been raised from a plant found amongst some imported plants of Cattleya Sanderiana, so that its home is fixed in the cool parts of the mountain ranges of South America. This is a beautiful species to grow with the Odontoglossums, and will be found very useful for cutting from.—W. H. G.

Ceratopteris thalictroides (*F. W.*).—Yes, it is quite natural for this plant to die in the autumn, as it is of annual duration only, but if you have any of the young plants which are formed upon the sterile fronds, they should be placed in strong heat, and have abundant supplies of water through the winter. If you have none of these, preserve the old fronds during the winter months, keeping them wrapped in paper in a dry place. In spring shake the spores over some boggy place in your house, and in all probability you will speedily have a stock of young plants come up. This is an excellent plant for shallow water in the summer time, and should be more largely grown. Its habit of decay every year is not sufficiently understood, and, therefore, many lose it during the winter season, and hence it remains scarce.

ROSE GARDEN.

T. W. GIRDLESTONE.

TEA-SCENTED ROSES.

IN planting Roses the claims of the Teas should receive special consideration. There are so many soils where they will flourish, while other Roses will not grow to advantage; there are so many uses to which their flowers may be put for which the blooms of numberless other Roses are quite unsuitable; and there are so many times and seasons at which their buds and blossoms are forthcoming when other Roses are entirely flowerless, that the Tea-scented Roses should receive attention from growers who are planting Roses even on the smallest scale. At once the freest and the most beautiful in form, the most perpetual, as well as most refined and delicate in colour, the least subject to mildew, red rust, and other Rose pests, the Tea-scented Roses as a class probably possess a greater sum of excellence than any other group of Roses, and now that the superstition about all these good qualities being counterbalanced by a lack of hardiness has been broken down, the cultivation of Teas is annually extending in all directions, and deserves to be encouraged and fostered by every possible means.

It used formerly to be considered that there were many districts, in the midlands especially, too bleak and cold to admit of any possibility of the successful culture of Teas out of doors, but by careful experiment and by the employment of the seedling Brier stock, these districts have been simply reduced to the vicinity of large and smoky towns where few Roses of any sort will survive, and none are seen at their best.

It is not long since a note signed S. Reynolds Hole appeared in these columns (p. 122) in confutation of the fallacy that Teas out of doors are liable to destruction in winter, and as the Dean of Rochester's experience relates to that part of the country which used always to be regarded as hopeless for Teas, it will be worth while to quote from his latest utterance on the subject the following remark:—

> As one of the first who grew these, the most beautiful of all Roses, exclusively out of doors, and this for years in the clay soil of a midland county without any loss whatever even in the terrible winters of 1880-1-2, I would assure the amateur novice that Tea Roses budded low on the Brier, and well covered with farmyard manure during the time of frost, will bloom as abundantly as other Roses, having the advantages which all Roses ought to have of situation and of culture.

Thus, with the best possible authority for the practicability of growing Teas out of doors on clay land in the midlands, it may be confidently stated that they may be so cultivated anywhere in this country; for it is notorious that they thrive in the far north of England and Scotland, as well as in the south, east, and west, to say nothing of Ireland.

Any soil, moreover, will answer, whether it be the heavy clay so common in the midlands and west, the rich red loam of Herefordshire or Devonshire, the sandy, gravelly beds often found in Norfolk, the deep peaty sands of Berkshire, or the light and often shallow soil of the chalk downs of Surrey—on all alike, with care and good culture, beautiful Teas may be grown.

The best stock for Teas, as for all other Roses, is probably almost everywhere the seedling Brier, although for very shallow soils as above chalk, the Brier cutting, which is also a very valuable general stock, may possibly be better adapted, for the roots of the seedling Brier always want to go straight down into the soil, while those of the cutting grow and spread out more horizontally.

It is often recommended that plants of the Tea-scented Roses should be heeled in in some sheltered place during the winter, and only planted permanently in the spring; but plants so treated, although with care they will do well enough, will not produce nearly such fine flowers as may be obtained from trees planted in the autumn. From the middle of October to the end of November is the best time to plant Roses, and for Teas in particular there is no time in an average season better than the second week in November. As soon as the trees are planted it will be advantageous that the beds should be covered with a good mulch of long stable manure that has not been long stacked; and in case of hard frost a handful of fronds of Bracken should be twisted in among the branches of each Rose tree. This Bracken should be stored in some place close at hand where it can be kept dry until it is wanted, as it should never be used until there is an immediate prospect of severe frost, and if it can be removed as soon as the frost is over, so that the plants be not unduly muffled up in mild weather, so much the better.

In the spring, pruning should not be effected until rather late—about the second week in April. The manner of pruning seems singularly unimportant, and this is another reason why the Tea-scented Roses should be considered essentially the beginner's Roses; for whether the plants be cut annually down to the ground, or whether they be left practically unpruned, they will still flower freely, so that a novice cannot anyhow destroy his chance of a crop of bloom by pruning the plants wrongly. Perhaps the best plan for general purposes is to cut out in April only those parts of the shoots that have been injured or discoloured by frost in the previous winter.

Considering, then, that beautiful Tea-scented Roses may be grown in many soils where other kinds of Roses can only be made to yield first-rate flowers with infinite pains and labour, that it is a practical impossibility to prune them so as to prevent their blooming, and that they are more incessantly productive of flowers than any other Roses, it cannot be too strongly urged upon beginners in Rose culture that they should plant Teas; and, although the best varieties are pretty well known, it may be useful to enumerate a dozen that are invariably admired, and are also vigorous and free-blooming. These are, Marie Van Houtte, lemon-yellow, bordered with peach; Anna Olivier, flesh-white, with rosy orange base; Hon. Edith Gifford, pure white, with flesh-tinted base; Madame Lambard, variable bright rose, with yellow base; Souvenir d'un Ami, pale rose; Caroline Kuster, pale yellow; Jean Ducher, salmon shaded with orange-yellow; Rubens, pale blush; Perle des Jardins, clear yellow; Catherine Mermet, pale rose; The Bride, a sport from the preceding, almost pure white, with lemon-tinted base; and Innocente Pirola, creamy white.

If more plants be wanted, let several of each variety be planted, rather than more varieties, to begin with; if fewer be needed, let the first half-dozen only be included; let dwarf plants on seedling Brier or Brier cutting stocks be grown, and let the planting be effected at once.

FORTUNE'S YELLOW ROSE.

Notwithstanding that much has been written about this beautiful Rose, there are still many who do not appreciate it as its merits deserve. Conversing with a gardener some weeks ago on the subject of Roses, the variety now at issue was referred to. He said that "it was not worth growing, being," he continued, "comparatively worthless except for button-hole purposes." Now, nothing could be more absurd than a remark like the above. I am well aware that when fully expanded the bloom has but little beauty; yet it is questionable whether we possess a more useful Rose when in the bud state than Fortune's Yellow. It will compare favourably with even the favourite Maréchal Niel. In the first place, it is equally as attractive and useful for decoration; secondly, when grown for market it is quite as remunerative—in fact, in many cases more so than Maréchal Niel, inasmuch as it can be cultivated at considerably less risk, even though each individual bloom does not realise quite so much. Referring to its adaptability for market purposes calls to mind how very rarely it is seen in a market grower's establishment. During the past year I have visited many market gardens, some of which made a speciality of Rose growing, yet, strange to say, but very few growers appear to think Fortune's Yellow worthy of a place. That there is a demand for it has been proved, yet why not satisfy that demand when its culture is so simple? A friend of mine has a remarkably fine plant of it in his greenhouse. It is planted out, and when in full growth covers nearly the whole of the roof. Usually it commences to bloom in April, and for some weeks is one mass of buds. The majority of them, however, are cut daily and consigned to market, where they realise as much as 3s. and 4s. per dozen blooms. When the tree has done flowering it is generally pruned, and from that time until the following year nothing in the way of pruning is done with the exception of thinning out the weakest shoots in autumn. The tree referred to is planted in a rich compost consisting of loam, horse manure, and bones. Every spring, just before growth commences, a good top-dressing of a similar compost is given, and this, together with an occasional watering with liquid manure, greatly assists the blooms. Although I have seen it do fairly well in the open when planted against a south wall, it is by no means a suitable variety for that purpose; but for indoor culture it is unsurpassed, and those who possess a cool greenhouse cannot do better than grow it. C. C.

ROSES.

To get out of the running, or rather the reading of or writing to The Garden for a few weeks is rather a serious matter I, therefore, hasten to get rid of arrears and to get once more abreast of the Roses and their masters. Fortunately at this season the arrears do not accumulate very rapidly; hence my chief and first duty is to square my views on the winter protection of Roses with those of Mr. Girdlestone.

This is not so difficult as it may seem, for almost all the difference between us turns on the questions of the time and amount of protection. For Mr. Girdlestone's ingenious selection of different growing shoots on the same Rose tree or bush, and their various degrees of hardiness, hardly affect the general principle laid down in the phrase that the longer and later Rose plants bloom the more tender they—that is, the plants—become. That principle can hardly be controverted, as it has been demonstrated by the hard and cruel fate and sudden deaths of tens of thousands of Roses over and over again. These substantial facts are hardly affected by mere fanciful selections of ripe and unripe shoots in the same plant. The mere fact of the late growth and bloom renders the entire plant more tender—that is, more liable to injury or death from any excess of cold than if all the shoots had been already so fully matured as to render the late blooming impossible.

Neither can I accept the presence of those late-blooming shoots as proof that the main growth or wood for next year's blooming is already matured. No; Rose trees are one and indivisible, so far as the circulation of their food and fluids are concerned; and separate branches can neither be torn off from the roots or root-stock and nurtured apart to support our theories, however clever and plausible the latter may be. Experience abundantly confirms the soundness of these views. Tea and other Roses often develop those strong shoots that yield very late, and consequently most welcome blossoms. But such shoots are by no means mere safety-valves for the disposal of a superfluity of food and fluid. On the contrary, they act more like force pumps, stimulating every vital function of root, stem, and branch to the uttermost, and filling the semi-mature branches with more food than such could have procured without their aid. In a word, the vital powers and forces of the entire plant are expanded and intensified in the exact ratio of the energy of these late shoots, and the entire Rose bush or tree partakes more or less in this accession of energy. Hence it is a most common experience among the Roses in the late autumn to find, after these strong shoots have been flowering for some time, that the weaker and more mature shoots will also burst their buds and make a rush for bloom, in which unseasonable effort the frost mostly nips them in the bud.

Doubtless the leaf crowns on growing shoots, were those leaves only mature and hard, would prove some protection. Unfortunately, they are mostly green as Leeks and almost as soft as Spinach, and thus become an easy prey to the first sharp bite of the frost. But giving credit for the full protective power of Rose leaves, bitter experience proves that it is not sufficient. Now the green leaves themselves need protecting, unless they are to be blighted and withered up by the first bitter wind or biting frost, and I have yet to find a better means of assisting Roses through our severe winters and yet more trying springs than a light covering of Bracken. This protection is at once light, dry, and mobile, and no one, so far as I am aware, has ever recommended such a heavy smother of it as should result in a stuffy death for the Roses. The greatest merit of Bracken is that it yields a maximum amount of protection with a minimum of shadow, and it is the latter rather than the former that weakens and injures Roses.

The whole matter, therefore, turns on time and amount of protection. My advice is, protect with a light hand, and do it early, leaving buds, &c., if desirable, almost free. The buds, however, thrive under a slight covering of Bracken during cold weather, and the additional warmth often enlarges their size and enhances their beauty.

The protection often proves almost as useful in keeping Roses on walls, &c., cool as in keeping them warm; for what excludes cold also shuts out heat—to use common expressions—and by these compound processes Roses protected early enjoy a more uniform temperature and are consequently less violently excited, and therefore less liable to injury than those protected later or not at all.

Doubtless, were we sure of the weather and had a staff of labourers sufficient to meet its ever changing temperatures, Mr. Girdlestone's advice to protect and uncover with every fall or rise of the thermometer would be best for the Roses. But as this is wholly impracticable in most roseries, the advice already given by me to protect early and lightly and leave such protection on the plants from October to April is, on the whole, consonant with sound principles and generally successful practice. D. T. F.

CHRYSANTHEMUMS.

CHRYSANTHEMUMS PLANTED OUT.

Those who do not care to grow Chrysanthemums unless they can obtain blooms of high quality are, of course, prepared to face the labour and expense which the best method of pot culture entails. But there are plenty of flower lovers who, either for want of time or perhaps inclination, are content with more modest results. Their aspirations being limited to the production of plants that have good decorative value, or to securing an abundance of flowers for cutting, a much simpler system of culture may be pursued. In the first place, there is no need for the labour and attention that striking cuttings involves. When my plants have done flowering I cut them down close to the soil and lay them in thickly in a frame. There they get abundance of air except when there are sharp frosts, and in very hard weather a mat is put on. One watering, just to settle the soil round the roots, is given, no more being needed all through the winter. By spring, strong suckers push up, which by March have several pairs of leaves. They are then stopped and the stools are carefully pulled to pieces, when each sucker will be found to be fairly well provided with roots. These, dibbled in several inches apart in light, sandy soil, are kept close for a week till they strike root, and then gradually hardened off until they are capable of bearing several degrees of frost. The hardening must, however, be carefully done, not exposing them to cold cutting winds, or the foliage will turn yellow and die off. In the meantime beds 4 feet wide are marked out and the soil turned up roughly so that it gets well sweetened. About the end of April the lumps are broken, and some sand and a mode-

rate amount of rotten manure added and well incorporated with the soil, which is then ready for the plants. If possible, a showery, mild time is chosen for planting. The young plants are then lifted, and will have nice balls of fibrous roots which must be carefully protected from the influence of the atmosphere. Three rows are put in each bed, setting the plants 2 feet apart in the rows.

Should the weather be dull, they will in the course of ten days get sufficient hold of the ground to enable them to bear bright sun later on, that is, if they are kept well watered and for a few days, on change of weather, are well sprinkled in the middle of the day. If, however, the weather should be dry and bright, it is better to protect for a time from hot sun with canvas. It is, however, seldom that much of this is required, for the plants are so abundantly provided with roots, and Chrysanthemums bear removal better than most things of a soft-wooded nature.

From this time until the plants are ready to put under cover but little attention is required. An occasional soaking of water when needful will keep them going. This is very different from the constant watchful care that pot plants demand, the watering twice or three times a day, and the frequent applications of manurial stimulants to keep them healthy. Although the Chrysanthemum is naturally of a vigorous, enduring nature, and much more easily cultivated than many soft-wooded plants, it very quickly feels, when the roots are confined in pots, any error in the treatment. A deficiency in the supply of water or poverty in the soil, for a short time only, will cause, later in the season, that partial defoliation that too frequently characterises Chrysanthemums in pots. But planted out there must be great neglect for this to take place. With but ordinary attention the plants will be provided with such a mass of verdure that only first-rate culture can obtain in pots. There is a freshness and vigorous appearance about Chrysanthemums that have been grown in the open ground that one seldom gets in any other way. Staking and tying must, of course, be done as required, and a mulch of some fibrous material will be found to still further reduce the labour in watering. A word of caution should be given in the matter of manuring: do not make the soil very rich, or it will cause a too rank growth that does not ripen well. With the soil in fairly good heart the plants will be sure to grow freely enough, as they have so much more of it for the roots to run in. Needless to say, the position should be fully exposed to the sun.

If the plants when lifted are put in pots, the latter should only be large enough to contain the roots comfortably. Finely-sifted, light sandy soil that can be worked in among the roots should be used, and a good watering given at once. If the roots do not become dry, the plants will sustain no check; but they must be put where the sun cannot get at them until they strike fresh root, especially if they are potted up in the early part of September just as the buds are beginning to swell freely.

The plants will do very well for a week or two under a north wall or hedge. Great care must be given to watering, for if they flag in the least some of the foliage will go bad and the good appearance of the plants will be lessened, and the flowers will not come so good in quality. I grow a good many Chrysanthemums in this way for cut bloom, and as I want them as late as possible, I do not generally get them under cover before the middle of October.

The greater portion of them I do not pot, but plant them in well-sweetened soil in a roomy house. They come up with balls so large that four of them fill a wheelbarrow, and as I take the greatest care to keep the roots fresh, they seldom require shading, although the house faces the south. They never suffer for want of water, and twice in the day, if needful, they are well syringed. In the course of ten days the roots begin to work into the new soil, and the buds swell away without check. There is no way that will give a lot of bloom for cutting so easy and certain in its results, and to those who require bloom in quantity I can recommend it. Houses that may be empty in winter may be easily filled with plants in bloom, and even where pot plants are grown planting out may be employed as an easy way of increasing the amount of cut flowers. A great quantity of the cut bloom that goes into Covent Garden is grown in this way, and gives quite as profitable results, even if the flowers realise but half the prices that they do from pot plants.

J. C. B.

Catalogue of the Chrysanthemum Society.—In The Garden, p. 488, "H. P.," writing under Chrysanthemum Elaine, speaks of Empress Eugénie not being mentioned in the descriptive list of incurved varieties in the catalogue just issued by the National Chrysanthemum Society, although the same is bracketed equal first in the selection of the best thirty-six. At page 17 of the catalogue, Madame de Sevin and M. Délaux appear in the selection of the best forty-eight Japanese, but not in the descriptive list. The like with regard to White Christine at page 21, and Marguerite Solleville and Duchess of Edinburgh at page 25, although the first-named is not in the descriptive list of reflexed, or the two latter in that of Japanese Anemones. I wrote in September to the secretary of the society, pointing the above out to him, and my letter was handed to the revision committee, and Mr. Lewis Castle wrote me that these varieties should not be in the list, and in the next edition they will, of course, be omitted. It would be well for growers who hold the present edition of the catalogue to strike these out, so as to avoid any confusion. The preparation of such a catalogue as the present must have been a work of considerable magnitude, and it can but be expected that a few trifling errors would appear in the first edition.—George Wall Duek, *Chard*.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemum Amy Furze.—This is a beautiful variety, which, I see, the National Society has finally placed in the Japanese reflexed. In size, I am afraid it will have no chance against such companions in that class as Criterion, Jeanne Délaux, Phœbus, or Elaine. It was very telling as shown here on the 13th ult.—W. J. Murphy, *Clonmel*.

Chrysanthemum flowers damping.—As at Torquay and Clonmel, complaints of flowers damping are general here, although it does not appear to have set in quite so early. It, no doubt, arises from two causes—unripened wood and the extremely wet weather we have had this month. I do not find my plants any taller than usual, nor have the varieties Madame Clemence Audiguier or Elaine damped, but all the flowers of several plants of Edouard Audiguier are gone. At the same time, I should observe the leaves are not in any way affected.—Geo. Wall Duek, *Chard, Somerset*.

Chrysanthemum Avalanche.—E. Molyneux inquires in The Garden (p. 436) in reference to the system of blooming of this variety with different growers. I had a plant which formed two main stems, which I allowed to grow on, and as it was not very vigorous, I flowered it in an 8-inch pot. One stem gave a very fine crown bud, which developed a fine bloom about three weeks ago. The other has three terminal flowers, which will be late and small. For the November shows the crown bud alone seems in this variety of any use, and this applies generally to all Japanese.—W. J. M.

Chrysanthemum Princess of Wales.—There seems to be some dissatisfaction at the low position, as determined by the number of votes of the committee given to this variety in the new catalogue of the National Society. It would be impertinent in me to criticise such voting, but our local experience, which was confirmed in Dublin, was this year different. In a competition for the best bloom at the show, we had no difficulty in selecting Princess of Wales out of some thousands for the premier position. Mrs. Heale came next. I admit that another year, however, the result might be different. This experience, I see, coincides with that of Mr. Molyneux.—W. J. M.

Garden Flora.

PLATE 677.

TUFTED PANSIES.

(WITH A COLOURED PLATE OF QUAKER MAID AND JACKANAPES.*)

The two Pansies represented in the coloured plate belong to an interesting and beautiful class whose merits are insufficiently recognised in gardens generally. They are called Violas by the florists, but inasmuch as there is no reasonable ground for this specific distinction we have adopted the above name, which expresses in a simple way their distinguishing characteristic. This neatness of growth is in many varieties combined with profuse flowering. The flowers, moreover, are usually of soft and quiet hues, while some have a delicious perfume. Unfortunately, we rarely see them in gardens, and when we do they are generally used for spring bedding, which is perhaps the most unsatisfactory way of realising their charms; for it often happens that when they are at their best the beds have to be cleared and made ready for their summer occupants. Tufted Pansies, even in a hot season, last a long time in beauty, and in such a season as the past they keep up a succession of bloom throughout the summer. The show Pansy makes a few long, straggling shoots, and produces but a limited number of flowers whose colour contrasts are often crude and harsh. The many strains of seedlings advertised are a little better, as they grow and flower more freely; but even they soon become shabby, the production of seed-pods materially shortening their period of beauty. From experience, however, we cannot find a single failing in the beautiful class under notice, and before it all other classes sink into comparative insignificance.

The tufted Pansies grow with amazing rapidity, spreading into handsome masses which become sheets of flower. The plants produce no seed, hence never become weakened, but the flowers are always sweet and fresh. In a cut state they are useful and beautiful, and the plants are benefited by the cutting, which conduces to the sending up of more shoots to take the place of those cut off. We find the plants benefit by having their shoots cut with the flowers, and shallow glasses filled with little bunches in their respective colours are infinitely more beautiful than mixtures of several kinds of flowers.

There are many places in gardens where Pansies might be grown in a simple and bold way. Their quiet colours seem in harmony with everything around, and the less formal their arrangement the more beautiful the result. A newly-planted group of Roses with Pansies beneath is a simple natural picture that might well be enjoyed for at least one season; but this is only one of the many ways that may be readily adopted, and different places offer various opportunities. The tufted Pansies are perfectly hardy and strike readily from cuttings,

* Drawn for The Garden by H. G. Moon, July 12, 1888, at Gravetye Manor, Sussex. Lithographed and printed by Guillaume Severeyns.



TUFTED PANSIES QUAKER-MAID & JACKANAPES

but the mode of propagation we prefer is by division. Strong tufts may be divided into numerous pieces, each with some roots attached, and these, if planted firmly and well, are very successful. October is the best month for planting, as the young plants continue rooting and commence to grow early in the spring, and thus by the time warm weather comes or drying winds set in, they have rooted sufficiently. The difference between autumn and spring-planted groups is so marked, that, at any rate in the south of England, planting should never be deferred till the last-mentioned season.

Jackanapes is so hardy and free and so distinct with its rich brown upper petals and the yellow lower ones that it makes a telling feature in the garden. Quaker Maid is a delicately coloured kind. When the first flowers open they are of the faintest lilac hue, and the shades gradually deepen as the days lengthen. The creamy white Countess of Hopetoun and the soft yellow variety Abercorn Gem have already been figured in The Garden for April 16, 1887.

Other good kinds that should be in every collection are Ariel, light mauve, shading to white; Elegans, mauve; Azurea, blue, distinct and very beautiful; Bessie Clark, lavender; Archie Grant, deep plum-purple; and Countess of Kintore. Mrs. Gray is a charming variety with white flowers, many of which become flaked with blue. Skylark, though not a self, is pretty, the yellowish white flowers having an irregular belting of blue. Ardwell Gem is the best yellow, and remarkably tufted in habit, the soft yellow flowers being very sweet-scented. The varieties enumerated comprise the cream of a class which should figure prominently in the future, now that there is a fast-growing demand for sweet and beautiful flowers.

GARDENERS IN AMERICA.

To the Editor of The Garden.

Sir,—I am almost weekly in receipt of letters asking when is the best time for English gardeners to come to the United States, the wages paid, the chances of success, &c. Will you allow me to say through The Garden that the best time for a gardener to emigrate is in spring, so that he shall arrive in New York, Philadelphia, or Boston (or any of the large cities of the north) during the month of March, or at the latest April. Hundreds for want of this knowledge come every season, many of them in our hot and dry summer, when everything is at a standstill, and again in midwinter when everything in the Northern States is frozen solid, so that months often elapse before any work can be obtained. For be it known that the florists and nurserymen here employ comparatively few experienced gardeners, so that when out of a place the nurseries here cannot be resorted to as in Europe. That America is a better field for young and energetic men of our craft there can be no doubt, but men who have failed in Europe from insobriety, want of ability, indolence, or any other cause that prevents them from getting on in life, had better stay where they are, or their fate is likely to be worse here than there. Young, intelligent, single men, however, from twenty to thirty years of age, arriving here at the proper time have a fair chance of bettering their condition. Such men as assistants to head gardeners—and as a rule they had better begin as such—get from £3 4s. to £5 a month and board. Head gardeners, who have been a year or two in the country, get from £8 to £12 per month, with house, firing, &c., and in a few cases £18 to £20 per month, but these are rare. It is dangerous for a gardener to come with a large family of small children, for these encumbrances are considered even more objectionable here than with you, because, as a rule, places are smaller and the gardener's lodge nearer the employer's house. But gardeners of middle age having a family grown up are safe, because the young folks are almost sure to get employment at fair wages. But as there is no certainty that anyone can get employment immediately on landing, none should come without money enough to guard against four or five weeks of enforced idleness.

P. Henderson.

Fruit Garden.

W. Coleman.

COBS AND FILBERTS.

Throughout the interesting and by no means brief discussions, pamphlets, and papers which have been published, I do not recollect having read a single line in favour of the Nut, and yet large sums of money go out of the country annually for these indigestive articles of commerce. This being so, it is quite evident that the masses must and will have an inferior Nut from abroad if they cannot get a full supply of Cobs and Filberts. Not that these by any means exhaust the list of species and varieties which find their way into British ports, but being indigenous to our soil and the only two likely to be of any use to the heavily handicapped grower for market, the remarks I am about to offer will be confined to them.

Cobs and Filberts hitherto have been almost, if not entirely, confined to Kent and one or two of the adjoining counties, but I see no reason why they should not be grown upon suitable soils and sites in many other districts, especially when their value in proportion to weight and bulk is favourable to transit at railway rates which are now literally killing long-distance growers of Pears and Apples.

Taking Kent as the headquarters of Nut culture, one might travel through Essex, Herts, Berks, Worcester, Hereford, Gloucester, and Somerset to the extreme west, and in each county he would find scores of acres of light, warm, hazelly loam capable of producing Nuts of the finest quality worth from 9d. to 1s. per lb., and being so easily managed, I think all readers of The Garden might lend a helping hand to landlords and tenants by suggesting the formation of Filbert gardens.

In wooded districts where the Hazel Nut has covered hundreds of acres for thousands of years the best nuts are gathered from bushes fully exposed to the sun, with shelter from north and east, where the soil is deep and warm and free from stagnant water. It is not, however, of these that I wish to speak, as Cobs, Bonds, Cosfords, and Filberts are as far superior to them as our finest dessert Apples are to Crabs and wildings. The Hazel Nut, nevertheless, being the type, I must bring it forward to show where the better varieties are most likely to succeed. Next as to

Cultivation.—I have said they are easily managed; moreover, they are easily raised from seeds, layers, grafts, or buds, but generally from suckers, when the trees are left alone and allowed to form stools so often met with in old-fashioned, and what the men of Kent term neglected, gardens. Bush or stool trees produce good crops, but the young beginner having a few of these old stools to fall back upon, should plunge at once into the more scientific mode of culture by detaching all the suckers, sizing and transforming them into independent plants. November, in fact any month during the season of rest, is suitable for detaching suckers, but as these do not attain a bearing state under three or four years, they should be planted out in nursery lines a yard or so apart and a foot to 18 inches from plant to plant according to their size. Here they may be allowed to grow under proper manipulation, such as disbudding and heading back, precisely as nurserymen manage clean-legged Currants and Gooseberries, until they are well furnished and fit for permanent planting. Fruiting bushes, of course, can be obtained from the trade, and being very cheap, those who really wish to crowd as much as possible into one short life should invest at once; meantime, they may prepare the sunny nook, be it only an acre, by deep trenching and setting out for a Nut garden pure and simple, or for the Nuts to form a sub-crop with bush fruits or choice vegetables. It is not, however, a good plan to plant orchard trees with Nuts, as the latter do not attain a large size, whilst the others keep progressing, and in due course shut out sun and air so essential to fine flavour, not only in Nuts, but in all fruits worth cultivating. Currants, Gooseberries, Raspberries, and Strawberries, on the other hand, never get too large, and coming quickly into profit they help the rent and cost of labour. A fair distance to plant is 18 feet from row to row, running north to south, and half that distance from plant to plant, that is with the view to the introduction of intervening rows of bush fruits and Strawberries. Excluding these, the Filberts may be placed 9 feet apart each way, when constant tilth and freedom from weeds being important, this culture may be secured by the growth of early Potatoes or annual crops most profitable in the neighbourhood.

After management.—Having selected a situation above the range of damp frosts, and the bushes having been a year planted, the first important operation will be disbudding and pruning. The ideal bush I may say should contain from five to eight shoots starting from a clean suckerless stem 1 foot or 18 inches from the ground. The foundation of the bought tree will have been formed in the nursery, and the first year's growth will have converted it into a compact bush much resembling a Currant or Gooseberry. The latter we should spur back to each of the main stems, but seeing that Nuts are chiefly borne on the weak laterals, these must be left intact for the present, otherwise the crop will be sacrificed by premature pruning. A general thinning and shortening of the leading shoots may be performed at any time after the leaves fall, and the ground may be manured and dressed, but the wood best furnished with male catkins which sometimes come in January should be retained, as these will be required for fertilising the small inconspicuous female flowers in March, and then the pruning may be finished. The weak twigs best furnished with Nuts, of course, must be left intact, but those which have borne catkins only must be cut close home to a single bud for a relay of laterals for another year. But why prune at all, when old neglected bushes literally break down under their load of Nuts? Well, anyone who is quite ignorant of pruning and whose garden is extra warm may, perhaps, succeed best by leaving to Nature what he does not understand, but others less fortunate as to situation must prune, first, to let in light, warmth, and air; second, to keep the bushes within bounds; and last, to ensure perfect maturity of the wood and Nuts. Well-managed trees on suitable soils live to a good age, and sometimes become too fertile, producing any quantity of female flowers, but very few male catkins, without which Nuts cannot be expected. In the event of this happening we have sometimes got over the difficulty by going to the nearest Hazel coppice for a quantity of branches laden with male catkins which have been distributed amongst the Filberts, and we have secured a good crop. Having endeavoured to impress upon the would-

be planter the importance of selecting a warm situation on a loamy soil, I may say the most regular crops and those of the finest quality are obtained from tillage land into which solar heat and warm rain can pass freely; hence the advisability of a small beginning and cultivating thoroughly. Another important matter is the avoidance of too many sorts—not that all the varieties put together would number more than a score, but then a score bushels of one sort, if good, would command more attention, and most likely realise a better price than one bushel each of twenty sorts, a fact which will at once justify my saying start with the Red, White, and Purple Filberts, the thin-shelled Cosford, and the prolific Cob. Try the others, and increase those which succeed best.

Gathering and keeping Nuts and Filberts, next to growing them well, is an important matter, deserving more attention than it sometimes receives. In wooded districts squirrels and mice sometimes hurry on the gathering, but in the absence of these marauders they should not be plucked until the Nuts are ready to fall out of the husks. When this stage is reached a dry day should be devoted to gathering, and the Nuts, especially Filberts, should be spread out in a dry, airy room to shrivel the husks before they are put away for future use. Some pack them away in air-tight jars with or without salt, one of the most destructive articles that can be used, as the kernels become damp and give with every change of weather. Others submit them to the fumes of sulphur to thoroughly dry the husks and destroy the germs of mould, but sulphur must be used with great care, and I greatly question if this bleaching, in never so slight a form, does not impair or destroy the delicate flavour. Thorough drying, of course, is imperative, and once this process is complete, the Nuts may be stored in clean, sweet, air-tight boxes or earthenware jars, which must be kept in moderately dry store-rooms. Here I have adopted this plan, avoiding all salt, sulphur, or other additions, and Filberts packed last year in a large, air-tight flour-bin standing in my Grape room are still fresh and excellent.

Cordon Plum trees.—According to promise, I send you a list of Plums I have found to succeed well here: Rivers' Early Prolific (a good early sort for dessert or cooking), Old Orleans, Prince Englebert, Gisborne's, Belle de Louvain, Guthrie's Late Green Gage, Kirke's Purple Gage (a good and handsome Plum for dessert), Red Magnum Bonum, Victoria, Diamond, Bryanston Gage, Pond's Seedling. Washington I find rather a shy bearer, but a very handsome Plum. No collection is complete without Coe's Golden Drop. Imperiale de Milan is one of the latest, and only fit for cooking. Some are on walls facing south-east and west, and all do equally well. As I get more wall room I intend to plant more cordons, as they are easily managed and can be protected from birds, which are a pest here, as we are surrounded by woods.—G. Jupp, *Brantridge Park, Balcombe.*

Frontignan Grape.—Mr. Sheppard says, in a recent number of The Garden, that this Grape almost always shanks. I was surprised to see such a statement, as I have had it growing with Hamburghs for some years, and have never yet observed the slightest tendency to shank. It is possible that the roots of this Grape enjoy warmth, and that shanking only takes place when they are in outside borders. I have but one Vine of it, and this is on the back wall of a very light house facing the south. It has been there nearly twenty years, but as the house is a tolerably wide one, most of the roots are in all probability inside. I should, however, mention that the black Grapes with which it is associated rarely show signs of shanking, so that either the soil or the situation, or perhaps both, are suitable. There being nothing on the roof, the house gets very hot in sunny weather, and this may also be a factor in its welfare. The Frontignan, as regards flavour, stands before the Muscat of Alexandria in my estimation, and for this reason I keep a Vine of it. There is, I think, a particularly rich, but refreshing flavour in this old Grape that one fails to find in black fruiting kinds. If Grapes were grown for eating alone, putting appearance on one side, the Frontignan would hold a tolerably high position among indoor Grapes. If Mr. Sheppard had said that this Grape invariably cracks, I could have agreed with him, for I do not remember to have seen a crop of it in which this defect was not visible in a more or less degree. In the north of France the Frontignan is largely grown on open walls, and I remember that in a garden of which I had charge this Grape cracked badly.—J. C. B.

CAPRICIOUS GRAPES.

There is, as usual, a good deal of useful and practical information in the notes that have recently appeared in The Garden on the above subject, and we must agree with much that is said therein. Still, I cannot help thinking that one or two correspondents are rather disposed to exaggerate the requirements of at least three varieties. Many gardeners, though unable to boast of perfectly ventilated and heated houses, inside borders, first-class soil, and an unlimited supply of water, &c., are yet supposed to put presentable Grapes on the table. The above essentials may be necessary to the production of exceptionally fine fruit, but very good Grapes can be grown when the majority of these accompaniments are absent—at least I speak personally in the matter of Mrs. Pince, Gros Colman, and Madresfield Court. My Vines are planted in an outside border 20 feet wide, and which is annually cropped for one half the width with some early summer salading or early Potatoes. Very little was done to it in the way of special preparation, and knowing the subsoil would never retain any stagnant water, I did little in the way of drainage. The making of the border may be briefly summed up as follows: A mixture consisting of chopped turf and lime rubbish in the proportion of 6 to 1 was prepared, the top soil of the border (not previously used for Vines) removed to a depth of 12 inches for one half its width, a trench 3 feet in depth and the same in width taken out at the end, and the border trenched throughout, adding as the work progressed sufficient of the prepared soil to bring it up to a few inches above the old level. Six inches of brick-bats, well rammed down, were placed at the bottom of each trench and covered with an inverted sod before the soil was filled in. The border gets an annual mulching of about 3 inches of long stable manure, but has received nothing else in the shape of external aid, either in the way of manure or water, except one good soaking in the summer of 1886. This may seem rather a bold statement, but it seems to me that too much stress has been laid of late on the extraordinary requirements of some varieties of Grapes, so much so, that if all the essentials recommended were requisite, the cultivation of the king of fruits in variety would be limited to a very few. The two houses for which the above border was made are a second early and a late house, and are planted the one with Black Hamburgh and two Madresfield Court Vines, the late house being planted with Gros Colman, Mrs. Pince, and Lady Downe's. The houses are not typical of the perfect vinery either in the matter of heating or ventilation. They are heated by flues, whilst every other top-light is a fixture. The Vines, which are on the single rod system, are carrying twelve, fourteen, and sixteen bunches each. I enclose average bunches of Gros Colman and Mrs. Pince. They want another fortnight to do them justice, but I think you will pronounce them, in bunch, berry, and colour, good enough for the majority of tables.—E. Burrell, *Claremont.*

*** Remarkably fine samples of the Grapes referred to.—Ed.

187 kinds of Pears in a private garden!—A gardener from a small place in Kent tells us that his master thinks a varied collection of Pears best, and grows 187 kinds. Of course, he never has a stock of good Pears. This, with the state of many nurseries and gardens, shows how necessary it is to make a stand against this foolish and ruinous mistake in fruit growing.

STANDARD PEARS FOR BRITAIN.

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
13. COMTE DE LAMY.

Early Pears.—Citron des Carmes, Doyenné d'Ete, Williams' Bon Chrétien, Beurré Giffard, Jargonelle, Seckel.

Cooking Pears.—Catillac, Uvedale's St. Germain, Gilogil, Bellissime d'Hiver.

Perry Pears.—Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chaseley Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield, Butt, Holmer, Red Pear, Rock, Bosberry Scarlet, Lumberskulls Marden.

Our readers will remember that last year we raised the question of the needless number of Pears, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on Pears of the highest quality.

FRUITS UNDER GLASS.

Strawberries.

If plants intended for early forcing are still standing out in the open air, they should now be cleansed by dipping in sulphur water and placed in cold, airy pits where they will be safe should frost overtake them. Frost will not hurt the crowns, as we always find plants that have received a decided check from dry autumn frosts throwing up the best trusses well in advance of the foliage, but the continuous and steady rain so much needed having saturated the balls, their expansion by congelation may damage the pots to a considerable extent. Where early plants are started in Peach houses and vineries, the pots should be well scrubbed and the apertures opened before they are placed upon the shelves, a position they may occupy with advantage for at least a fortnight before the houses are closed for forcing. Being so thoroughly moist, they will require very little water at first, and syringing may be deferred until the Peach trees or Vines receive atmospheric moisture, but on no account must the balls be allowed to shrink from the sides of the pots, as this inlet of air produces a check from which these moisture-loving plants do not quickly recover. The general stock of plants should now be plunged to the rims of the pots, where they will require neither water nor shelter unless the weather be very severe, when mats or shutters may be placed over them. If a heavy covering of snow is not beneficial, it does no harm, but serious injury is sometimes produced by a great mass of Nature's best of all

protectors pressing the mats down upon the crowns. This, then, should be carefully guarded against, first, by plunging the pots with their rims a few inches below the edges of the planks used for forming the temporary pits; and second, by the formation of a lattice-work of scantling capable of sustaining a great weight. If this provision has not been made no time should be lost, as it is much better to plunge the pots in a sheltered place and forego covering altogether than to run any risk by trusting to makeshift supports. One of the best Strawberry forcers I ever knew, Mr. Henderson, late of Cole Orton, never protected a plant, but plunged his stock quite over the rims of the pots in a bed of coal ashes at the foot of a very high wall, whence he took batches direct to the pits and houses.

Plums.

Houses devoted to Golden Drop, Late Rivers', and other extra late varieties of superior quality will now be clear of fruit and ready for the little winter pruning they may require. If well pinched through the growing season, this operation will be a very light affair, but still the trees must be dressed over before they are washed, and the spurs at the same time may be well thinned with a sharp penknife. Plums under glass always make such a profusion of spur wood, and being remarkably free setters, the fruit may be greatly improved both in size and quality, whilst the stronghold of insect pests is thrown open by annual spur-pruning. When this fertile stage or age is reached they do not make much growth, but, notwithstanding this tendency to stubbiness, all border trees should be worked round as soon as the crop is over, when a little fresh compost worked into the trench will keep them vigorous and healthy for a great number of years. The best compost for these trees is a free calcareous loam, lime rubble, burnt earth, or old road scrapings thoroughly mixed and tightly rammed when moderately dry. Poor loam with these correctives can be made quite rich enough without the aid of manure, but if very poor a dash of bone dust may be added, and animal manure in either case must be used for mulching purposes. It should be well known that all stone fruit trees, indoors and in the open air, do best in a strong, resisting soil, hence the necessity for using it when dry, and ramming until it is as firm as the old pasture which supplies it. If pot trees have to be overhauled or young ones lifted and potted for keeping up the stock, no time should be lost, neither is time lost, as these late varieties are more frequently retarded than forced; consequently they have a long resting period before them. As pot trees always set and swell the crop best when the roots have taken possession of every lump of compost, they should not be over-potted late in the season, but they may be liberally mulched with rotted manure and well fed with diluted liquid throughout their season of active growth.

Early Plums.

If the buds upon very early varieties intended for forcing are getting plump and forward, no time should be lost in cleansing the trees and pots, as it matters not how soon they are placed under glass. Few fruits, the Cherry excepted, are more impatient of heat and confinement in a close atmosphere, hence the importance of making an early start and giving them an abundance of time, in a temperature ranging from 45° at night to 55° by day, to fill up and gradually develop their flower buds. The 1st of January is a good time to commence forcing Plums, as the season then improves with their progress, but being so precocious and excitable, the same set of trees may be filched of a fortnight's rest from year to year at the beginning, always provided we pay it back again at the end of the season. The very early varieties, unfortunately, are not the best; consequently those who insist upon quality still depend upon the early Gages, De Montfort, Angelina Burdett, Jefferson, and Kirke's for their first dishes, and as these require plenty of time, a gradual change of their season is a decided advantage. Choice mid-season varieties again for succession or coming in long before fruit can be obtained from the open air may be grown in lobbies or corridors, anywhere in in fact where they can have a couple of cubic feet of soil, plenty of water, and an abundance of fresh air. Many people grow the semi-double Chinese Plums and Cherries for the early decoration of their conservatories and greenhouses, but they are neither sweeter nor more beautiful than a Jefferson or Green Gage when in full flower, and yet they are rarely met with, simply because clean, straight standards established in pots might be yielding delicious fruit when the former are rusticating in the reserve ground.

Cherries.

Having written rather more than I had intended about Plums, I have said all that need be said, at least for the present, about Cherries, as the two run so closely together, not only as to soil, treatment, and forcing, but also as to their division into early and late sections—the first for adding valuable dishes to the dessert in April and May; the second for giving monster drupes in the late cold orchard house, the only place in which they are quite safe, and can be protected from damaging rain and destructive birds until they reach maturity.

Peaches.

Where the trees in early houses are confined to inside borders and fermenting material has been freely, but judiciously used, this, aided by the mild weather, will have started the buds without the assistance of fire-heat. This very important point, the movement of the sap, having been secured, the hot-water pipes must be moderately warmed to maintain a steady temperature ranging from 45° to 50° through the night, and 50° to 56° by day when the weather is dark, dull, and cold, whilst a few degrees higher will do no harm under gleams of sunshine. Ventilation, at these low figures even, must not be neglected, as trees started with a constant circulation of air develop stout, bold flower-buds which generally set well; whilst those from which the shoots emanate are preserved from getting too forward, as so often happens when the trees are young and the fruiting wood tends to grossness. Established trees, on the other hand, which have been forced for a number of years will not only stand sharper forcing, but their season being changed, the buds will commence swelling about the same time although no heat is given to them at all; hence the advantage of treating them well and cropping lightly. Another very important point in early forcing, be the trees young or old, is keeping the roots in their proper position. If very near the surface, and an abundance of active healthy fibres or feeders are working within the influence of gentle warmth forced into sound calcareous borders which have never been dry, the air temperature and atmospheric moisture being right, bud-dropping, of which so many complain, will be reduced to a minimum. It is, of course, too late to correct these evils this year, but, knowing that the usual questions will soon be coming in, it is not too late to request the young beginner to make notes, or to assure him that bud-dropping amongst stone fruits and bad setting amongst Grapes may be prevented by keeping the roots well up to the surface in sound, well-drained, and thoroughly moist borders. Returning to our calendrical directions, I may say the syringing of the trees, walls, and other surfaces must be conducted in a moderate and proper manner, care being taken that the buds have time to get dry before nightfall. In days gone by two or three syringings every day were considered necessary, even in winter, but by confining the roots to inside borders and charging the house with warm moisture from fermenting material, these chilling douches can now be dispensed with; consequently the aridity which followed drenching is avoided. To follow up this modern method of forcing and dispensing with dry fire heat, the fermenting material should be regularly turned over and replenished with fresh supplies from the reserve as often as may be found necessary. Oak or Beech leaves answer best, as they give off a mild, regular heat, or, lacking these, well worked and frequently turned stable manure may be used, care being taken that the ridge is formed where the stronger heat cannot injure the roots. If Strawberries in pots are introduced, their proper place is a shelf near the top of the house, and convenient for syringing without wetting the trees when the latter are in flower. The first insect enemy we have to encounter in the Peach house is green fly, and fatal is the result where its destruction is neglected. The best preventive is mild fumigation with tobacco paper when the trees and Strawberry plants are quite dry. The appearance of the first fly must be the signal for the introduction of the fumigator, but whether the fly be perceptible or not the house should be well smoked just before the flowers begin to expand.

Succession houses.—The trees in these should be detached, pruned, and cleansed as opportunities offer and bad weather puts a stop to outdoor operations. Although relieved of all superfluous wood immediately after the last Peach was gathered, the trees, now the leaves are off them, will require dressing over with the knife, and they must be well washed twice over with warm soapy water or a solution of Gishurst compound, 4 ozs. to the gallon of water. Well-worn paint-brushes are the proper tools for this work, and the proper way to use them is as follows: With the young shoot resting on the palm of the left hand, ply the brush with the right, working constantly outwards towards the tip, and with sufficient force to remove scale, the only enemy which renders washing necessary. When the trees are dry, repeat the operation, always drawing the brush away from the centre. Scrub the old wood and paint this part with Gishurst, 8 ozs. to the gallon, thickened with clay, if scale has been troublesome. We sometimes hear of extraordinary concoctions being used, but any well-proved insecticide, worked into an adhesive body that will stick to the branches, produces the desired effect. When the trees are quite dry and the trellis has been washed or painted, arrange all the main branches first, then lay in the young wood full length, allowing 5 inches or 6 inches for each shoot, and do not neglect covering the old stems and branches, as fine limbs are sometimes destroyed by sunstroke. When all is finished top-dress the borders with a little fresh loam and old lime rubble, see that they do not feel the want of water, and ventilate freely until the time arrives for forcing.

Latest houses.—As the trees in these structures and wall cases are kept as backward as possible, there is ample time for pruning and training, two operations which we always hold for giving employment in bad weather. If the houses are clear of plants, the ventilators may be left open by night and day to prevent the buds becoming too forward until all danger from spring frosts has passed away. No amount of frost will hurt a tree under glass so long as the buds are quite dormant, but once they commence swelling, as sometimes happens in mild winters, a certain degree of care becomes necessary, and then the all-important object—extreme lateness—is sacrificed. In many gardens late Peach houses are converted into plant stoves through the autumn months, and no great inconvenience is felt, provided the plants are nearly if not quite hardy. Tea Roses, for instance, choice Rhododendrons, Japanese Azaleas, late bulbs, and a host of things which might be left out at a pinch, here find an excellent home, as they are secure from snow and heavy rain, whilst a liberal circulation of air is beneficial, unless the weather is of a most wintry character. Carrying the point still further, the late Peach house or Peach case may be stocked with Veitch's Autumn Giant Cauliflower and the self-protecting Broccoli, with Endive and Lettuce and a good stock of curled Parsley, of which few gardeners have too much throughout sharp winters. In borders close to the front lights, towards the end of September we generally plant a few rows of the old Czar Violet, and find the enormous flowers they produce invaluable for setting up loose after the shorter-stalked varieties in the frames are over in the spring. My object in making these remarks, I need not say, is to show the owner of late Peach houses how he may make them extremely useful all the year round without forcing or coddling the legitimate occupants when they should be resting.

W. C.

COLOUR IN APPLES.

Colour has two special qualities—it signifies beauty, and it has a market value. Colour also generally indicates ripeness, but not flavour or eating quality. Many a kind remarkable for its flavour shows little or no colour, but still that kind is always best where such colour as it gives, whether it be of red, yellow, or brown, is most fully developed. Colour is, therefore, both an indication of ripeness and of thorough maturation, for many fruits may have become ripened even without being fully matured. We have had plenty of fruits this year ripe, yet lacking in full development. The season has been wanting in maturing power and the fruits have suffered; hence, whilst in favoured localities some few have shown very good colour, in the majority of cases colour is wanting. If we wish to see colour in Apples produced simply as an element of beauty, it is difficult to excel in that respect a well-cropped tree of Duchess' Favourite, or, as sometimes called, Duchess of Gloucester. This is perhaps one of the richest coloured of Apples, because its hue is bright and the fruits are fully suffused. If we want colour as a marketable commodity, we can hardly hope to find it more valuable than in Worcester Pearmain, because quality of a fair kind and colour go together. If we want colour as an indication of quality, we shall not find it more thoroughly exemplified than in Cox's Orange Pippin or Margil, both deliciously flavoured fruits and always best flavoured and softest fleshed in fine rich-coloured fruits. We do not usually class pure golden tints under the term of colour, but it is certain that such kinds as Yellow Ingestrie, Golden Noble, and Golden Spire—all in good seasons remarkable for depth or richness of hue—have good market value; indeed, it is doubtful whether even the blood-red Worcester Pearmain possesses a higher value in the estimation of market purchasers than does the pretty conical, golden-hued Ingestrie when samples are good and skins are clean. The largest coloured Apple shown at the recent Chiswick congress was King of Tomkins County, exhibited by Mr. Rivers and grown under glass; outdoors this popular Canadian variety was this season very poor. House culture seems to have this summer given about the same favoured conditions of climate which the Canadian growers possess in good seasons. It is a grand-looking, richly-coloured fruit, but is hardly likely to make any reputation under British culture. Mère de Ménage seems to have been the next largest coloured variety, in some cases richly coloured, as it usually is, but it only shows rich form and colour when produced on cordons, espaliers, or bush trees on the Paradise. As a standard tree it is almost valueless. Next in size, also showing good colour, was Tyler's Kernel, previously mentioned in The Garden for its beauty, a variety sure to make a good market reputation. Then came the richly-hued Bismarck, as wonderful a cropper as it is beautiful and good. Then Herefordshire Beaufin, a good deal like Norfolk Beaufin; Cox's Pomona, Tewkesbury Baron, very much like Cellini Pippin; Hollandbury, generally rich in colour; Emperor Alexander, fairly good colour; Red Hawthornden, occasionally of fine colour; Brabant Bellefleur, Baumann's Reinette, Hoary Morning, Sops-in-wine, Tom Putt, Crimson Costard, and Annat Scarlet, the latter not unlike Quarrenden, but larger and later and remarkable as being full of colour, though grown at Dalkeith, Scotland having furnished little of colour in Apples at the recent congress. With very rare exceptions all choice dessert Apples were this year deficient in colour. Mr. Crump was almost the only exhibitor of Cox's Orange Pippin, who had really ruddy-hued samples. Madresfield must be exceptionally favoured with sunshine to secure such brilliant hue. Even his Ribstons were well coloured and some other kinds less known. I have made a selection from the hundreds of dishes of Apples shown of a dozen sorts generally well coloured, but hardly one of them will take high rank for quality; none the less, nearly all of them have good reputations as dessert sorts. Duchess' Favourite, previously mentioned, was perhaps the deepest coloured generally of small Apples. Then came Worcester Pearmain, Devonshire Quarrenden, Red Astrachan, Scarlet Pearmain, Colonel Vaughan, Scarlet Crofton, very much like Fearn's Pippin; Summer Thorle, Fearn's Pippin, Duchess of Oldenburg, Lady Sudeley, and Tibbett's Pearmain. In scarcely any other case was it possible to find any amount of colour in the dessert Apples. Then it was evident that some districts gave more than others, as, for instance, Kent and Sussex both gave richer hues on the whole than other districts, but Middlesex, Herts, and Worcester followed hard, although in all cases sparingly. One Apple which usually gives colour, Mr. Gladstone, was absent, owing to its season being over. There is such value in colour in Apples that it would be worth while if those who have time and patience would endeavour to engraft some of the rich hue and remarkable productiveness of Duchess' Favourite or Worcester Pearmain into Cox's Orange, Ribston or King Pippins. Some very beautiful kinds might be evolved from out of such parentages, whilst the addition of really good quality to our first early Apples would also be a great gain. With some deep-coloured early sorts the only reward of growth seems to be found in acceptable colouring and consequent beauty of the fruit.

A. D.

ORCHIDS.

ORCHIDS AT HEATON HOUSE, CHESHUNT.

For several years about the middle of November I have had the pleasure of inspecting Mr. Partington's Orchids at this place, under the care of Mr. Searin. The Phalænopsids, grown in a moderately-sized span-roofed house, are the



Phalænopsis grandiflora.

principal feature. It is pleasant to record the fact that these plants have improved in vigour year by year. The Moth Orchids are said to thrive best in a saline atmosphere, and to afford this supposed desideratum, salt is scattered freely about the house. The floor is composed of rough gravel, and three times during the year salt is scattered thickly over it. There is also a layer of the same kind of gravel spread over the stages upon which the plants are placed. This gravel is washed in salt water about twice a year. Of course no salt is allowed to come into contact with the roots. The atmosphere must be slightly saline all the year round, and be in accordance with the known habitats of Phalænopsids, as the plants seem to grow with greater vigour near the sea-coast than they do inland. My own belief is that Mr. Searin's treatment of the plants in other respects has more to do with their satisfactory condition than any supposed invigorating effects of the evaporation of salt in the atmosphere. In fact, the cultivator hits the exact treatment for a certain class of plants; all the surroundings seem right for them, and because they do better than anyone could have expected, we wish to know the reason. My own opinion is that it entirely depends on ventilation and atmospheric moisture with the right temperature. I noticed a similar case of wonderful growth in Phalænopsids in the garden of Mr. A. Sillem at Sydenham. I happened to call there in October last, and found that under new management the Phalænopsids had grown with the most remarkable vigour during the previous twelve months or so. A plant of P. grandiflora was pointed out to me that had made six leaves during the past season. Two plants of P. amabilis had each made four leaves, all of large size. Indeed, some of the largest leaves I ever saw were on some of Mr. Sillem's plants. A single leaf of P. Sanderiana was 5½ inches by 12 inches. In this case the result was not due to any salt in the atmosphere, but to a different course of treatment, which may be sufficient to make all the difference between success and comparative failure. When success has been attained, it is a pleasant task to record it, and in Mr. Searin's case it has been apparent for many years. Mr. Searin stated that the largest number of leaves he had form on one plant in a season was three on P. amabilis. At the present time the house is filled with flowering plants, the spikes being of great length and the flowers of large size. Some of the spikes were 4 feet in length, and one plant of P. grandiflora produced two spikes, which in the aggregate bore 108 flowers. The following items may also be interesting: P. Sanderiana had fourteen leaves on one plant, some of them of large size. A plant of P. grandiflora had eleven fine leaves, the largest 13 inches by 4 inches. One leaf of P. grandiflora was 15 inches by 4½ inches; P. speciosa, 14 inches by 3½ inches; P. Schilleriana, 14 inches by 4¾ inches.

The cool house is a small span-roofed structure, but it contains some old-established and very vigorous specimens. The two distinct sections of Odontoglossum crispum are represented. The type with small flowers and rather narrow petals is not thought of so much value as the broad-petalled type by Orchid growers; but each section has its own distinctive qualities, and both ought to be represented in every good collection. The narrow-petalled type flowers in the winter, and produces long-branched and more graceful spikes than the other form, which flowers later in the spring and early summer months. Some of the spikes had several branches on which might be counted as many as fifty flowers, and they do not pass away in a week or two, but will last in excellent condition on the plants for a period of two months. Some specimens had as many as six spikes growing out from one root-stock, with many bulbs and several leads, of course. In my own practice of potting these Odontoglossums and other cool house Orchids, I use about equal portions of good fibrous peat and clean Sphagnum. Mr. Searin uses a larger proportion of peat, which is used in even greater proportion for Dendrobiums.

In the Cattleya house are some very excellent examples of Vanda cærulea. The plants are attached to teak rafts suspended against the side of the house; they are of large size, and were producing numerous fine spikes. In a warmer house I noticed a handsome specimen of Angræcum sesquipedale showing six spikes, a truly handsome plant.

J. Douglas.

Trichosma suavis Tautziana.—This is the first variation we have observed in this sweet and handsome plant, and as it appears to be constant it becomes a valuable addition to the autumn-blooming Orchids. In this variety the petals, without

being diminished in size, are coloured with flaked stripes of brownish crimson, and the petals appear to have become lips, as in the case of Dendrobium nobile Cooksoni. A spike of flower of this striking and charming novelty has been sent by Mr. Cowley, who has charge of the Studley House collection.

Masdevallia tovarensis.—Quantities of this species, whose flowers rival the snow for whiteness, are now very conspicuous in the nursery of Messrs. Laing and Sons at Forest Hill. This is a plant which deserves general cultivation, flowering as it does through the winter months when white flowers are doubly valuable. It thrives best under cool treatment, but does not like so low a temperature as the majority of its congeners, and on this account many growers fail with it.

Cattleya labiata.—This rare Cattleya was lately flowering with Mr. Hall at Brixton. This, the true species, is still rare, and has not been met with by recent collectors. The plant now flowering, however, in various collections round London does not appear to be so richly coloured as the species first named by Lindley. It differs from Gaskelliana and its varieties by resting for some little time after growth is completed before sending up its flowers.

Anæctochilus.—There is some hopes of a revival of these beautiful-leaved Orchids. I see now and then some few species in collections, notably in "My Garden" at Carshalton, and I wonder that Mr. Smee does not set about collecting them and show us how to grow them. Some few species are to be found in Mr. Williams' nursery at Holloway, and in Mr. Laing's at Forest Hill. It is really a disgrace to English Orchid growers that these superb plants have been allowed to slip out of cultivation in the manner they have.—W. H. G.

Bark ria elegans.—A splendid variety of this lovely Orchid is now flowering with Mr. White, of Winchmore Hill, producing dense racemes of large and handsome flowers, the rich deep crimson blotch on the front of the lip being very conspicuous. Barkerias are deciduous plants, and require to be grown cool. They thrive best on bare blocks, and enjoy an abundance of light and air through the growing season, during which they require very frequent waterings, but through the winter months little is necessary.

Lælia autumnalis atrorubens.—This fine form now appears to be thoroughly established in our collections, and it is a much superior variety to the form of this species which was in cultivation twenty or more years ago. I have received fine blooms from numerous collections, and all are tolerably true to the plate of this variety which appeared in The Garden, April 24, 1880. The flowers are some 4 inches across, the sepals and petals being of a rich purplish crimson, which is continued down to the base, but the colour towards the base becomes slightly paler; the lip is also deep crimson-purple in front, the side lobes white. It is a welcome addition at this season of the year, and the flowers last long in full beauty.—W. H. G.

Cypripedium Leeanum superbum.—Flowers of the largest and finest form of this plant we have ever seen come from the Cambridge Lodge collection at Camberwell. Dorsal sepal very large, rounded, inflexed at the summit, pure snowy white, with numerous purple dots, which are densest near the centre, and form a somewhat continuous stripe, a small portion of the central part at the base being emerald-green; petals slightly decurved, undulated on the upper edge, with a distinct central band of tawny red, and bearing numerous smaller dotted veins of the same colour; lip bright shining brown, the interior profusely dotted with brownish purple.



Phalænopsis grandiflora, showing habit of plant.

This form is so striking that, in our opinion, it really deserves the name of maximum. It is a hybrid between C. Spicerianum and C. insigne Maulei, and has been obtained from a distinct source.

Lycaste Smeeana. — This may familiarly be called a summer-blooming L. Skinneri, the flowers, however, being smaller and lasting up to the present time. I saw a particularly fine form of this plant at Mr. Smee's establishment. The flower is of the same waxy consistency as Skinneri, the sepals and petals being oblong-ovate, spreading, and pure white, the petals smaller, standing forward over the column with recurved tips; they are also white, profusely dotted with specks of pink; lip three-lobed, the front lobe narrow and pointed, rosy crimson with a white border, side lobes bright rosy crimson, the thickened plate on the disc white. I do not think this is a new introduction, but it has been in the country some years. It is valuable as being a late summer and autumn bloomer, and thrives under the same treatment as L. Skinneri.—W. H. G.

ODONTOGLOSSUMS IN THE OPEN AIR IN 1888.

I have been cognisant of the fact for some time that these plants were grown in the open air by Mr. Smee at Wallington, in Surrey, but I thought the summer months we have passed through without summer weather would have deterred him from the experiment this season. Such, however, was not the case, although the time for the open-air sojourn was curtailed, some three months being the time allotted them, commencing from July. The plants are placed upon stages elevated a short distance above the water, of which there are many streamlets from the river Wandle, which runs through the garden. Those plants in baskets and upon blocks are suspended over the water, and the state of these plants at the present time is everything that could be desired. They have formed fine large bulbs, and their leaves are rich deep green in colour, not hat brownish green, which, I think, is brought about by cold winds, and which I consider so very objectionable. Many of the plants are showing flower-spikes, and the majority are producing two spikes from each bulb. A fine form of O. luteo-purpureum was in bloom, and its flowers show no deterioration either in size or colour.

These experiments of Mr. Smee show well what little artificial heat is really necessary to maintain Odontoglossums in health and vigour. One thing, however, I learnt in looking over this collection of plants which had been subjected to open-air treatment was, that the flower-spikes appeared to be more tender than the growths. This was well exemplified by several examples of Oncidium crispum which were grown with the Odontoglossums. These Oncidiums threw up their flower-spikes, and were allowed to remain outdoors until the end of September. The spikes have opened their blooms under glass, but instead of being large, as I believe they would have been had the plants been removed soon after the flowers appeared and allowed to finish up indoors, the whole spike, as well as the side branches, appear to be stunted and much shorter than might have been expected, and shorter than they certainly would have been under glass. Few people have such a position as Mr. Smee for these experiments, but to those who have, and have the faith and courage to act similarly, I would certainly say, do so. Any plants, however, which show their bloom-spikes, I would advise being removed at once under glass in order to allow the blooms to become fully developed, as I think there can be little doubt but that this is the critical time.

W. H. G.

Cœlogyne ocellata and its variety maxima are now very gay in numerous collections round London, and, probably, also in the country. The pure white of its sepals and petals, and the large, rich, deep yellow eye-like spots on its white lip render it very attractive, and although much neglected for some years, it is deservedly becoming popular. It is a plant from Northern India, and therefore thrives best in the cool house, thus rendering it available for everyone having this structure.

Masdevallia Davisi.—This pretty and distinct species, introduced some years ago by the Messrs. Veitch, has somewhat suffered in public estimation from its small flowers, notwithstanding the charming colour, which is rich deep canary-yellow.

Judging, however, by some flowers of this species which have come to hand from Mr. Buchan, of Southampton, and a form recently seen in "My Garden" with Mr. Smee, want of size, which I believe is due to cultivation, is likely to be overcome. The plant is a native of Peru, and enjoys quite cool treatment.—W.

Barkeria Lindleyana.—This species, in company with B. elegans, is now blooming with Mr. Smee, and a very charming pair of plants they are. The flowers of Lindleyana are large, of a rosy purple, the centre of the lip white, bearing three raised ridges, which are sparingly dotted with chocolate; the column is also bordered with dots of the same colour on a white ground. Barkerias are deciduous plants, and should be grown cool with an abundance of light, and during the growing season plenty of moisture. Barkerias succeed best on bare blocks or in small baskets with little else but a few pieces of charcoal.

Cattleya porphyroglossa.—This very rare and handsome species is now flowering in the collection of Mr. F. Horsman at Colchester, and is well deserving the attention of growers of these plants. It is the first time I have seen the plant, and I was much struck with its beauty and distinctness. In general appearance the plant may be likened to C. bicolor, and the scape bears several flowers, which, however, have more resemblance to those of C. guttata in shape. The sepals and petals are spreading, deep madder-red in colour; lip three-lobed, the side lobes pure white, rolled over the column. The front lobe is small and of an intensely deep bright amethyst-purple. It is a native of Brazil.—W. H. G.

Calanthe curculigoides. — This very rare plant is now flowering with Mr. Buchan at Southampton. It is a long time since I have seen this species, and I do not think I have ever noted such a fine variety as this. It belongs to the evergreen section, of which C. veratrifolia is the most familiar type. The raceme is dense and many-flowered, the sepals and petals being orange-yellow, and the small lip deep crimson. Thirty years ago I had a very fine example of this plant in the Kingston collection, and have rarely seen the species since. It used to produce its flowers in the summer months, but if it can be grown to bloom at this season of the year, it will become doubly valuable.—H.

SHORT NOTES.—ORCHIDS.

Lælia autumnalis atrorubens.—This is a magnificent variety, and one of the finest Orchids in bloom now. The flowers are large and rich rosy purple.

Cœlogyne fuliginosa.—There is a large plant of this Orchid in bloom at Kew. It is growing on a Fern stem, and is carrying an abundance of comparatively large buff-coloured flowers, with the lip ridged with black.

Masdevallia polysticta is not particularly showy, but it is very free-flowering. The small flowers are white, freely spotted with chocolate, the sepals being lengthened into moderately long greenish yellow tails.

Barkeria Lindleyana.—This beautiful and graceful Orchid is blooming freely at Kew. It has a slender stem, about 2 feet long, carrying a few richly-coloured flowers. Those who require the Orchid house to be as gay as possible in autumn should grow this Costa Rica species.

Bletia verecunda.—This Orchid was introduced as far back as 1733, from the West Indies and Mexico, and grows about 3 feet in height. The flowers are rosy purple in colour, and produced in somewhat dense racemes. A specimen at Kew is in full bloom at the present time.

Liparis spathulata.—A large plant of this uncommon Orchid is a mass of bloom at Kew. It is also blooming with Mr. Roberts, Gunnersbury Park Gardens. The flowers individually are insignificant, but the pendulous cylindrical racemes are by no means inconspicuous. The scent of the flowers is strong, and to many would be objectionably so.

Lælia anceps Prothercœana.—This variety takes rank as one of if not the very darkest variety of anceps, and was, I believe, named from the collection of Mr. Horsman at Colchester. The flower is large, the sepals and petals being wholly deep rose-purple, the lip of an intense deep claret colour. Flowers of this fine form come from Mr. Buchan.

Lycaste plana Cumminsi.—This is a very pretty variety of an old plant; it has the madder-red sepals and petals of the form originally figured by Lindley, but here the similarity ends, the large white petals being freckled with pink, whilst the lip is deep crimson. It is a showy plant and lasts long in flower. This form is named in compliment to Mr. Smee's gardener.

Books.

THE ORCHID ALBUM.

The November number of the above work contains:—

Cattleya Gaskelliana alba.—This is a white-flowered form of this variable plant, and is very handsome. In addition to its being different from any other form of the labiata type it flowers at quite a different season, and as white flowers are just now so exceedingly popular, it will remain a coveted prize.

Calanthe masuca.—A fine figure of this plant, which was flowered by the late Messrs. Rollisson, of Tooting, as long ago as 1842. These evergreen Calanthes are deservedly popular, and several new kinds have been introduced of late years.

Odontoglossum eugenes.—This is an excellent figure of a supposed natural hybrid introduced by Messrs. Veitch. The parents are supposed to be O. Pescatorei and O. triumphans; the sepals and petals are white in the centre, bordered with yellow, and heavily spotted and blotched with chestnut-brown; lip white, blotched with chestnut-brown, and marked on the disc in a similar manner to Pescatorei. It is an extremely beautiful plant.

Disa racemosa.—This is a very handsome figure of a beautiful, small-growing species, which produces a raceme of rosy purple flowers, each of which is some 3 inches across, the dorsal sepal being helmet-shaped and gibbous; indeed, in shape it is a perfect miniature of the better known and much admired D. grandiflora. These Disas do not appear difficult to manage if treated rationally, and well deserve extended cultivation.

Propagating.

Trees and shrubs.—A good many of our own hardy shrubs and some trees are propagated by cuttings put in during the autumn and winter months, and where they are inserted in the open ground, the greatest measure of success can reasonably be hoped for from Evergreens put in during October and November, and deciduous kinds inserted at all events not later than Christmas. The cuttings are frequently not put in so early as this where the object is to economise labour, as with the bad weather that may reasonably be expected later on, they can be made under cover, tied up into convenient sized bundles, and laid in till the weather is favourable for inserting them properly. A good deal of the success or otherwise of the work will depend upon the selection of the cuttings, which should consist of clean, well-ripened shoots, as they not only strike more readily, but grow away more freely when rooted than the stunted or distorted ones. At the same time, the very stout, partially-ripened shoots should be rejected, for they do not root so well as those above recommended. Unless there are any exceptionable circumstances, a very good length for the cuttings is from 1 foot to 15 inches, quite two-thirds of which should be buried in the soil. In fashioning the cutting, a very good plan, if possible, is to leave a heel at the base, but this cannot always be done; still, a good eye should be left at the bottom of each cutting, and the top part of the shoot where not fully ripened should be rejected. The spot chosen for the insertion of the cuttings is an important consideration, and it should as far as possible be fairly sheltered, but at the same time it must be absolutely free from overhanging trees, or any that are in close proximity thereto and likely to send their roots into the soil occupied by the cuttings. The soil should where possible be of a fairly sandy nature, but still not such as gets dried up during the summer. Should the soil, however, be very stiff and heavy, a little sand may be put in each row of cuttings, and this will greatly assist the formation of roots. An important item is to see that each cutting is inserted firmly in the ground, and in order to do this the spade should be inserted almost perpendicularly and then drawn towards the operator, thus leaving an upright wall of soil on one side, against which the cuttings may be placed. Then, previous to the refilling of the soil, a little sand may if needed be sprinkled along the bottom of the trench, when it will surround the base of the cutting, and after this is done the soil may be replaced and trodden firmly, thus fixing each cutting thoroughly in position. The soil must then be turned over, another row put in, and finished as before till the space is filled or the supply of cuttings ended. In the case of very hard weather it is a good plan to shake a little litter over the cuttings, as if frozen too deeply they are liable to be loosened by the frost. Such a method of propagation is available for a great number of different subjects, while some, such as the Willows, a few of the Poplars, and the Mulberries, will strike root from far larger cuttings if they are formed entirely of the old wood.

Rubus rosæfolius coronarius, which in a warm house is now prettily in flower, can be often increased by division, for in the case of an established plant it is sometimes possible to divide it up into several pieces, each with plenty of roots, but where this cannot be done it may be increased to almost any extent by cuttings, either of the roots or young shoots, put in during the early spring. In the case of plants that have flowered during the winter, and have consequently been kept in a warm structure during that period, they will furnish plenty of cuttings in the spring, and shoots produced under such conditions strike root more readily than any others if simply dibbled in pots of sandy soil and kept close till rooted. Again, if an established plant or two be shaken out of its pot in early spring and the main roots cut up into lengths of 1 inch to 2 inches, and treated as cuttings of the shoots, they will soon grow and form young plants.

Root cuttings.—This mode of propagation is available for many different subjects, hardy as well as tender, and in the case of outdoor plants the transplanting season is the time when suitable roots can be obtained, as when a plant is being removed it is often possible to take off a root or two for the purpose without in any way injuring the specimen. Among shrubby hardy subjects that are readily increased by cuttings of the roots may be mentioned the huge compound-leaved Aralia spinosa, the bold-growing Clerodendron trichotomum, and Bignonia radicans. Another of this latter class readily increased in this way is the Chinese Akebia quinata, and to all these may be added the uncommon Aralia Maximowiczi, some of the Daphnes, nearly all the kinds of Rhus, including the beautiful cut-leaved Rhus glabra laciniata, Kœlreuteria paniculata, Cydonia japonica, Desmodium penduliflorum, the Robinias, several kinds of Rubus, the Catalpas, Xanthoceras sorbifolia, and most of the Poplars, Alders, and Willows, but these last three are so readily increased by other means, that root cuttings are very seldom resorted to. Of tender plants may be mentioned the Bouvardias, which were at one time largely propagated in this way, but of late years cuttings of the young shoots are generally preferred. Many of the Acacias can also be increased in this manner, and it is also available for several of the Clerodendrons, especially the bright coloured C. fallax. Besides the above may be mentioned Pelargoniums, Petræa volubilis, Drosera binata, the Rice Paper Plant (Aralia papyrifera) and Trichinium Manglesi. Among herbaceous plants that can be readily propagated by cuttings of the roots may be named many Anemones, especially the different forms of A. japonica, Stokesia cyanea, Senecio pulcher, Arnebia echioides (the Prophet Flower), some of the Gentians, a few species of hardy Statice, and many Primulas, especially P. Sieboldi and its varieties. The treatment accorded to root cuttings will, of course, depend to a very great extent upon the character of the plant, for though some things will grow if put in a sheltered border, most subjects are the better for a certain amount of protection. In the case of hardy trees

and shrubs for the open border, the cuttings ought to be cut up into lengths of 4 inches or 5 inches, but when intended for the frame they need not be so large. In the open ground the cuttings should be put in at such a depth that the upper part is about 2 inches below the surface of the soil, but where protected it will be sufficient if the upper part is just covered, certainly not more than half an inch. Rather fine sandy soil, such as is used for cuttings, is very suitable for this mode of propagation, and all that is needed after the cuttings are dibbled into their pots or pans is to keep the soil fairly moist, especial care being taken not to overwater it. Several hardy subjects are all the better for a little heat in the spring. Besides the different plants above mentioned that can be propagated by this means may be noted the Gaillardias.

T.

Stove and Greenhouse.

WORK IN PLANT HOUSES.

Chrysanthemums.—There is so much difference in the time of flowering in the different varieties of Chrysanthemums, leaving the summer-bloomers out of the calculation, that by making a good selection there is no difficulty in having them in bloom from the middle of September to the middle of January. But late-blooming sorts must be chosen, and the plants require to be treated especially with a view to induce them to come in late. Now whilst the later sections are in bloom is the best time to choose the varieties that are to be grown next year, so that cuttings may be put in at once. The advantages of getting the plants struck early are so obvious as to be all but generally admitted. Tastes differ considerably as to the colours and forms of the flowers, but as there are now such numbers to select from, it is best for each to grow the varieties they like most. The early-flowering sorts will have done blooming long enough for them to have made shoots that will now be ready for striking. It is best to put the cuttings singly into small pots if only one plant is to be grown in a pot. Where two are to be grown together, each little pot should have two cuttings put in it. Ordinary loam passed through a fine sieve, with a little sifted leaf-mould and about one-fifth of sand, will form suitable material to strike them in. A bit of fibrous turf put in the bottom of each pot will be sufficient drainage, as when rooted the young plants will soon have to be moved into larger pots. A cold pit or frame from which frost can be excluded will do to strike them in, or the front stage of a greenhouse will answer. Wherever the cuttings are put the pots should be stood on moisture-holding material of some sort, such as sand or sifted coal ashes. Ordinary handlights are as good as anything to place over them. Give no more air than is found necessary to prevent the leaves damping and keep the soil quite moist, as the cuttings must not be allowed to flag. When kept close in the manner described no shade will be required. See that the cuttings, before they are put in, are quite free from aphides and mildew. If at all affected with the former, dip them in tobacco water. If mildew is present dust them with flowers of sulphur. And as the later flowering plants go out of bloom remove the tops of those that are required to produce cuttings, and stand them where they will get enough light and air to give the requisite solidity to the shoots. Plants that are to bloom after the new year comes in must not be crowded closely together, or they will lose many of their leaves. They should have plenty of air, with a little fire-heat in the day two or three times a week in damp foggy weather. Continue to give the plants manure water regularly. If full-sized blooms are looked for, the buds must be thinned more freely than was necessary with the early-flowering plants.

Hardy herbaceous plants for forcing.—Hoteia (Spiræa) japonica.—The elegant feathery plume-like flowers of this plant are such as to place it in the front rank of winter bloomers. It forces well, but should not be subjected to too much heat. When pushed on too fast the flowers come thin and weak, and are so soft in texture that they quickly flag when cut. The flowers are in the best condition when they are allowed to come on slowly towards spring. All the roots that are intended to bloom under glass, either forced or allowed to come slowly with little more than greenhouse warmth, should now be potted. Do not use larger pots than will hold the clumps without reducing the soil attached to them so much as to injure the roots. Any ordinary soil that is not too heavy will answer for potting these and other plants of a similar description.

Spiræa palmata.—This plant is nearly allied to the last-named, but the flowers are different in shape and colour, which in this kind is a bright pale crimson. The plant is also a stronger grower than the Hoteia. It will not bear forcing so early nor stand so much heat. It is best for flowering later on when the winter is further advanced and there is more daylight. The plants should now be potted. It will be better to use larger pots than required for the Hoteia, as the clumps need to be larger, without which they will not produce so many spikes of flowers.

Dielytra spectabilis.—When this elegant plant is well managed it flowers as well, or better, in pots than when growing out-of-doors, for its natural disposition to bloom early is such, that without protection the flowers are often injured or destroyed by late frosts. Plants that are intended to bloom in pots should have been prepared for the purpose by being grown on from small pieces for two years out-of-doors. Managed in this way their roots will not be too large to get into pots of moderate size. When the plants get older they will be found to have formed long, straggling, fleshy roots that cannot be got into pots of reasonable size. This plant must not be hurried with much heat, nor any attempt made to have it in flower too early. From the time the plants are started, even when not more than an intermediate temperature is used, they should be kept well up to the glass where plenty of light will reach them.

Solomon's Seal.—Although the individual flowers of this old-fashioned subject are not so showy as those of some plants, the elegance of its drooping sprays makes up for any deficiency in the matter of colour. Plants that are intended for pots should have been grown in an open place away from the impoverishing influence of shrubs or trees, the roots of which, if present, weaken them, so as to interfere with the flowering. Good-sized pots should be used, so that the roots will not have to be too much reduced in size. All the plants named should, when potted, be plunged in ashes or sand in a cold pit or frame, where they can be protected from frost, should severe weather come before they are put in heat.

Christmas Roses.—The best varieties of this, the earliest blooming winter plant, produce flowers little inferior to those of Eucharis amazonica. To have the plants in bloom at Christmas no forcing is required, as even in the open ground they are now fast coming in. But if strong masses are put in pots or boxes the flowers will come much cleaner and finer under glass than when in the open ground. If placed where they will get a little heat, say in a temperature of 50°, they will open quickly. Large strong plants that are out of doors may have handlights placed over them. In this way the flowers will be kept free from the soil that gets splashed on to them when exposed. With a mat thrown over the glass when there is an appearance of frost perfect flowers will be secured.

Ferns.—Sowing spores.—The spores of Ferns may be sown at any time of the year when they are sufficiently matured. Minute as the dust-like embryos are, some of them retain their vitality for several years if kept dry and allowed to remain on the fronds that have produced them. On the other hand, the spores on some species, if they are not closely watched, fall out and are lost; for though some kinds will vegetate freely from spores that drop from the plants in a natural way, others will not, and amongst these latter are some of the scarcest and most prized species. A few that may be named are the Gleichenias, Platycerium grande, Brainea insignis, and Cheilanthes dealbata, the most beautiful of all Silver Ferns; some of the Davallias, Goniophlebium subauriculatum, Lomaria zamiæfolia, some of the best of the Nothochlænas, Adiantums, and many other fine species, that are consequently less plentiful than the kinds that appear in quantity from self-sown spores. By sowing now, in the spring a season will be gained, as the little plants will have time to acquire enough size during the winter to admit of their being pricked off towards the end of spring. In raising seedlings of the kinds that require some care in getting them to vegetate, the principal thing to avoid is watering overhead. With this view the pots or pans in which the spores are sown should be stood in water, which will gradually be absorbed, so as to keep the soil moist enough. Drain the pots with crocks or other hard material, as without this the pots will draw up the water so fast as to become too much saturated. The material with which the pots or pans are filled should consist of peat, sifted or broken by hand so as to make it fine. To this add about one-fourth of sandstone, charcoal, or crocks, broken small, as well as a good sprinkling of sand. In filling the pots press the compost moderately firm; water freely overhead so as to close up all the interstices; allow some hours for the surplus water to drain off; then sow the spores, distributing them over the surface not too thickly; press them down gently with the hand. My practice with Platycerium grande is to watch the condition of the fertile fronds closely when the spores are approaching a mature state, and as soon as the edges of the cases begin to open, to lay a sheet of paper underneath, and then gently rub the spores out and sow them at once. In other cases I take the fertile fronds away from the plants when the cases begin to loosen and cut them into small bits, which are scattered evenly on the surface of the pans.

Seedling Ferns.—Plants raised from spores sown during the spring or summer that have not yet been removed from the seed-pan should be put into small pots. It is not well to allow the young plants to remain in the seed-pan until they get too large, as if this occurs the roots become matted together, so that they cannot be separated without breaking them. Seedling Ferns that are now moved, and also the newly-sown spores, should be kept through the winter in an intermediate temperature.

Large specimen Ferns.—Many kinds of Ferns that are not grown especially for cutting may have a portion of their fronds used for this purpose. They will give an acceptable relief from the limited number of sorts that are often employed for the purpose. When the specimens are getting larger than required, cutting, if not carried too far, is the best means of keeping them within bounds.

T. B.

Mesembryanthemum blandum.—I was pleased to see a note (p. 456) on the flowering of this Mesembryanthemum, for it indeed possesses many desirable qualities. I have had it in bloom throughout the winter, and the greater part of the summer as well, while its cultural requirements are of the simplest. This, combined with the fact that the blooms remain open throughout the day, places it in the front rank of this very interesting genus of plants. Succeeding as it does in an ordinary greenhouse, it is one of those subjects which might be expected to be more commonly cultivated, as the number of flowering plants for the autumn and winter months is, exclusive of Chrysanthemums, not great.—H. P.

New Ivy-leaved Pelargoniums.—After flowering all the varieties sent out by M. Lemoine last spring, I cannot say that they possess any very striking characteristics. By taking them in alphabetical order, the first on the list is André Theuriet, which seems to be a very weak growing variety, and in the colour of the flowers (a kind of violet-mauve) it much resembles the variety Bastien-Lepage, which is a strong-growing and very free-flowering sort. This is a very useful variety, but in colour it does not equal the older Alice Crousse. Gloire de Lor-

raine is a very double flower, of a bright cerise colour, tinged with scarlet in the centre; while the next, Lamartine, which is said to be an improvement on Emile Lemoine, did not flower sufficiently with me to state positively if such is the case. Veteran, a bold-growing variety, with bright carmine-scarlet coloured blossoms, promises to be a useful kind, as most of the bright-tinted ones are the most weakly in growth. What is wanted in this class is a good pure white variety.—H. P.

NIGHT SCENTED TOBACCO.

This fragrant flower illustrates the fact that a really good plant will always come quickly into favour, provided it offers no special difficulties in culture. It was mentioned in a note in The Garden, July 9, 1881, from Mr. W. H. Cullingford, Kensington, who appears to have been the first to bring it before the public. He received seeds from Hyères, and showed a splendid specimen at one of the evening *fêtes* of the Royal Botanic Society, when it was recognised as a valuable and distinct plant. No one has been deceived by the first appearances of this Nicotiana, as in every garden worthy of the name it is planted freely, and especially in suburban plots where comparatively few things can be made to do well. In its general habit and aspect it reminds one of N. longiflora, and produces a mass of creamy white flowers that are closed in bright sunlight, but open again as evening draws on. It is then that their spicy fragrance is strongest, and the bold, long-stalked flowers have a peculiar effect in the dim twilight. Nicotiana affinis is adapted for both the border and pots, and seeds may be sown thinly in spring in a pan of light soil. Place them in a warm frame, and as soon as the young plants are large enough prick them off into other pans or shift into small pots. From thence pot on as required, giving an abundance of air to promote a stocky growth. Clumps in the border look well, and a small bed of it on green turf has its attractions. Many put the plants out in the shrubbery border, and here they do moderately well if there is a fair amount of light and air. There are few better things for a small garden, as the plant is handsome even when out of bloom, but it continues to bear flowers throughout the summer. A large specimen in the conservatory, such as the one represented in the accompanying engraving, makes a change from the usual run of things to be found there, and smaller plants are indispensable in the greenhouse. In a few years' time, if we may judge from the present rate of progress, Nicotiana affinis will be as much grown as the Pelargonium.



A well-grown plant of the Sweet-scented Tobacco (Nicotiana affinis).

Francoa ramosa.—The excellent illustration of this beautiful plant given in The Garden, Nov. 17, should lead to its extended cultivation. I have often wondered why F. ramosa was not more generally grown, as it is when in bloom most beautiful. As far as my experience goes I have found it very easily grown, either in pots or in the open air. For many years I grew F. ramosa and F. appendiculata as pot plants in a cool greenhouse, and was rewarded by a fine display of bloom every spring. When arranged with other flowering and foliage plants Francoas are exceedingly pretty. The plants were repotted every year in good loam, leaf-mould and sand, giving them larger sized pots each time. Although Francoas may be easily raised from seed, I have found that the old plants when divided and repotted generally flower the most profusely.—C. C.

Hardiness of Eucharis grandiflora.—At Powderham Castle, near Exeter, there was at one time a good stock of this popular flower, but, unfortunately, the mite (or this at any rate was supposed to be the cause) gradually ruined every bulb on the place. All tried remedies having failed to induce a fresh and healthy growth, the whole stock was carried into a wood behind the plant houses in the pleasure ground, and there turned out of their pots—they were thrown away, in fact. This happened in the autumn of 1887, and no more notice was taken of them till quite recently, when they were found to be forming fresh healthy foliage. The greater portion of the bulbs had survived a rather trying winter and were rooting strongly. All have been potted up, and although they had not made much progress when I saw them, Mr. Powell has good hopes of their ultimate recovery.—W. I.

Calla æthiopica from seed.—For the benefit of "J. R" (p. 440), I can state that the seed will ripen sufficiently well in this country to germinate, but, unfortunately, nothing will be gained by the trouble taken with it. We have now in flower for the first time about one dozen plants that were raised from seed early in 1887. The seed being sown as soon as ripe and set in gentle heat quickly germinated, and the seedlings were kept steadily growing from that time till now. All are in either 7-inch or 8-inch pots and fairly strong, but the flowers do not differ in any way from those of the parent form. A stock of plants could be much more quickly raised from quite the smallest divisions, which if kept growing would be in flower even before our seedlings were, viz, during the early part of October.—W. I.

—— Your correspondent, "J. R.," is not likely to be rewarded for the trouble of raising young plants from the seed of Calla æthiopica. Some years ago I saved a quantity, which I sowed the following spring, hoping to get some variations, but out of a large number of seedlings not one was distinguishable from the parent plants.—J. M., *Charmouth, Dorset.*

Tillandsia Lindeni vera.—Though Bromeliaceous plants are very much neglected in this country, they nevertheless include among their number some beautiful flowering subjects, prominent among which stands this Tillandsia, whose flowers are additionally welcome from the fact that they are borne during the dull autumn and winter months. Irrespective of blossoms, it is at all seasons a very ornamental plant, for the rather narrow foliage is borne in a dense tuft, and recurves gracefully on all sides. The flower-stem, which springs from the centre of the tuft, is less than 1 foot high, and is covered with two rows of closely imbricating bracts of a beautiful pink colour, while from the axils of these bracts the flowers are produced. They are about 1½ inches in diameter and of a very rich

purple colour, while a succession is maintained for a considerable period. The bracts will retain their beautiful rich colour for months. There are other forms of Tillandsia Lindeni, but vera is the finest of all. Its cultural requirements are simple, the most successful mode of treatment being to pot it in good fibrous peat, with a slight admixture of Sphagnum and silver sand. Ample drainage is necessary, and care must be taken not to over-pot, as the roots are by no means numerous nor vigorous. Besides this, the treatment accorded to the general run of stove plants will suit this Tillandsia perfectly. It is increased by division, which needs, however, to be carefully performed. The better way is, when separating the offsets from the parent plant, to take care that each one has a few roots. The plants should be potted in sandy peat, and plunged in bottom-heat in a close propagating case till they become established in the small pots.—H. P.

LILIUM LONGIFLORUM HARRISI.

The value of this Lily as a pot plant cannot be over-rated, especially to those who have a demand for white cut flowers or for plants for conservatory embellishment. I have found that bulbs of Harrisi imported from Bermuda will bloom twice in the year; whereas those of longiflorum that have been grown at home will only flower once and under precisely the same treatment, as the following notes will show.

Circumstances demanded my growing a large quantity of white flowers for cutting. In the autumn of 1887 I potted all the bulbs of longiflorum, and needing more, I decided to purchase bulbs of L. Harrisi. These came to hand in October and were at once potted, three bulbs in a 9-inch pot, placed in a cold pit, and covered with Fern to keep the bulbs in a moist state, the lights being only put on to keep off very heavy rain or snow. In this state they needed no watering during the winter till they began to grow. They were kept in pits till the growth was well advanced, when they were removed to a cold house. After this they were placed in a vinery that was just started, where they remained till the Vines shaded them so much that they had to be removed to a warm, light house. My motive was to try to get them into bloom for Easter, but from the spring being so cold and late, only a few flowers opened. Harrisi and longiflorum were all treated alike, and all bloomed at the same time, although Harrisi had by far the best blooms.

When the blooms were cut, the plants were put into a cold pit and kept protected by night from frost till the weather was warm enough for them to stand outdoors. Here they received nothing beyond the usual watering. About the early part of July I observed that a portion of these Lilies was starting into fresh growth at the bottom, the old stems being still green. On examining them I found that all those that had begun growing again were the imported Harrisi. Although singular as this may appear, the old stems still continued green. When the old growths had turned yellow and the young ones showed bloom, the plants were cut down, top-dressed, and placed in a cold pit.

By this time the L. longiflorum had died off, and not one ever showed the slightest disposition to grow again, while the old stems remained. The bulbs of L. Harrisi were removed from a cold pit into a warm house, where they pushed fast into bloom and began opening about the first week in October. This second crop was better than the first, and both crops were cut in less than twelve months from the time the bulbs were received.

All were potted in the same kind of soil, viz., loam, rotten hot-bed manure containing a large portion of leaf-mould, and a portion of coarse road sand. When the growth was well advanced and the plants had plenty of roots, liquid manure was applied, increasing the strength as the blooms attained size. This Lily is most valuable for conservatory work, the strong upright stems, from 3 feet to 4 feet long, with from two to five of their lovely long white trumpet-like blossoms and deep green foliage, rendering it very ornamental. L. Harrisi should be grown largely, seeing it can be had in bloom at almost any season by potting and starting at the proper time. Recently I saw in a large establishment a batch of Harrisi the bulbs of which had been potted singly and stood in a cold place all the autumn. They were just starting into growth, and were expected to be in bloom at the beginning of the year. From the above observations I am inclined to believe that the very best results, and the twice blooming in the year are only obtained from fresh imported bulbs. J. C. F.

MARKET GARDEN NOTES.

With fine autumnal weather, work is still plentiful in market gardens. Housing all such crops as need protection is now pretty well completed, and the land is being manured and dug for other crops. Root crops, such as Beetroot, Carrots and Potatoes, have been put in stores or else in clamps in the fields until required. The season being mild, all kinds of green crops are plentiful and cheap. The main crops being cleared for market now are—

Autumn Giant Cauliflower, which is remarkably fine and plentiful. The quantity of this valuable kind grown increases every year, for while it is in season there is little demand for other kinds of the Brassica tribe. The reason of its superior excellence from field culture is that it gets firm fresh soil, plenty of space, and full exposure to sun and air. The result is that the heads are as firm as cricket-balls and as white as snow. The successional crops of this kind that are put out during a wide interval ensure a supply until the hardier winter protecting Broccoli are fit for use.

White Turnips are usually fine and good in quality, the moist season having promoted an uninterrupted growth, so that they are very mild in flavour. They are now being pulled for the market in quantity, the white-fleshed varieties being the only ones that sell freely. The Orange Jelly sells well later on in the season, but as long as the white-fleshed ones are plentiful they are preferred in the market.

Carrots are a fine crop this season, the abundant rainfall having caused them to grow throughout the season without any check. The roots are straight and free from forking, some of the samples recently lifted from open fields being fit for exhibition. James's Intermediate is the favourite variety for table use now.

Cabbage planting is still being largely done, the fine open weather enabling them to be put out in good condition. Plants put out early are growing freely, and promise to be an excellent crop. In this locality, where excessive cold is moderated by the close proximity to the sea, there is little fear of the early crops getting cut off by being overluxuriant, and every endeavour is made, by surface-stirring and dressings of soot, to promote growth so as to get them fit for market as early as possible. The early varieties, such as Early York, Early Rainham, and Wheeler's Imperial, are the sorts in most request, as they are cleared off directly they are large enough to pass for Cabbages.

Celery is now being marketed in excellent condition, the white varieties being most largely grown for early use, and the red sorts for winter and spring. The red varieties are now being moulded up to a good height, and the latest crops have a little soil put to them after being divested of small leaves and suckers at the base. This part of their culture is a most important one, as the suckers not only rob the main stem considerably, but detract from its solidity.

Cold frames, hand-glasses, and cloches are now filled with Cauliflower plants, Lettuces, &c., but up to the present they have been kept open, as the weather has been mild and genial. Stirring the soil and keeping all decaying leaves removed, and dusting with ashes or soot to keep slugs and other pests at bay, are the principal items of work in this department. Early Potatoes are being planted in frames and Radish seeds sown on the surface soil. Roots of Mint have been lifted for forcing, and large clumps of Rhubarb are being placed under stages or in any of the glass houses where a gentle warmth is maintained.

Apples of home growth are selling fairly well, for in spite of the enormous importations of foreign fruit the home-grown still commands the best price in the market. I have lately examined some of the foreign Apples, and although they are showy on the exterior, they are as a rule dry and lacking in the crisp juiciness so characteristic of English grown samples. If these foreign Apples were not dry, the losses of the retailers would be far heavier than they are, as after the rough handling they have received, scarcely one in a hundred is free from bruises, and unless sold quickly a great many of them decay.

The planting of Apple trees is occupying a good deal of attention just now, and my own impression is that they are the safest investment of any fruit we cultivate.

Pears are plentiful, but very cheap, and do not keep well; many kinds did not attain their full size and are lacking in flavour. The great drawback to Pears is that they must be sold as soon as ripe and certainly are not so reliable as Apples, although in this locality they grow well and crop regularly. Really good late Pears that will keep until Christmas are what we need, for, as a rule, the late sorts are very uncertain.

Bush fruits, Plums, Damsons, &c., are being planted under favourable conditions, and the interest that is being awakened in fruit culture will undoubtedly lead to better supplies of home-grown produce being forthcoming. It is now generally acknowledged that fruit trees must have undisputed possession of the soil they are planted in if they are to produce fruit fit for market. The surface roots must not be robbed by coarse vegetables or ruthlessly mutilated with spade or fork.

Gosport. James Groom.

Combretum purpureum.—In The Garden, Nov. 24 (p. 490), "H. P." states that he cannot find this plant mentioned in the "Dictionary of Gardening." It may, therefore, be worth while to point out that it may be found under the name of "Poivrea coccinea," and a reference to this latter name is given in the list of synonyms recently published in the appendix to the work. Though so often referred to, the plant is but too seldom seen; and I venture to suggest that a coloured figure would be very acceptable to readers of The Garden.—R. C.

Cyclamens failing.—May I ask your assistance respecting my Cyclamens, which are very unsatisfactory this year? I am disappointed, having taken more pains than usual with them. My plants consist of bulbs, one, two, and three years old. They were planted out on a prepared border with a north aspect in June, lifted in September, and potted in soil consisting of three parts loam, one of decayed manure and leaves, with sand added. After potting, I placed them in the front of a cool vinery and shaded them from the sun a few days. These plants try to grow, but the leaves wither away and very few of them will flower at all. Is it possible my soil does not suit them? or has the cold, wet summer we have just passed through, and the bulbs being on a north border, had anything to do with the failure? Is there any remedy or treatment by means of which I could bring them round for the spring?—T. M. M.

Camellia buds dropping.—Will "E. B. D." kindly give us his address, and also his treatment of the plants, and whether they are in pots or planted out?

Name wanted.—Charles Dudley Warner has published a very humorous 1s. book called "Pusley," which is represented to be the common name of a very troublesome weed in an American garden. Can you inform me what is the proper name of the plant in question, and if found in English gardens?—J. H. Reeve.

BOOKS RECEIVED.

"The Practice of Forestry." By C. J. Michie. Wm. Blackwood and Sons, Edinburgh and London.

"The Rose Garden." By Wm. Paul, F.L.S. Ninth edition. Kent and Co., 23, Paternoster Row, and all Booksellers.

Names of plants.—*Burt.*—1, Sedum Sieboldi variegatum; 2, Impatiens Sultani; 3, Althæa frutex; 4, Mesembryanthemum tigrinum; 5, Franc a ramosa; 6, Diplacus glutinosus. *W. Nelson.*—Adiantum mundulum. *J. G. K.* Sweet Sultan (Centaurea suaveolens). —*Hartwell.*—1, Crinum augustum; 2, apparently Acacia longifolia, but it is difficult to tell unless flowers are sent; 3, Dicksonia antarctica.

Names of fruit.—*W. F.*—Pear Doyenné du Comice.

WOODS & FORESTS.

THE BEECH AND ITS USES.

Notwithstanding the assertion of Cæsar in his "Commentaries" that he found no Beech timber in Britain, there are no good grounds for the supposition that the tree has been introduced into this country since the Roman period. It seems, however, to have as good a claim to be regarded truly indigenous as any other of our timber trees, and there is no other evidence to the contrary than the single word above quoted. It grows spontaneously in the greatest luxuriance in many of our southern counties, especially on chalky hills; indeed, it is seldom found on other than calcareous soils. Loudon says that—

It abounds on the great ridge of chalk hills which passes from Dorsetshire through Wiltshire, Hampshire, Surrey, Sussex, and Kent; branching out into Berkshire, Buckinghamshire, and Hertfordshire; and is also found on the Stroudwater and Cotswold Hills in Gloucestershire, and on the bleak banks of the Wye in Herefordshire and Monmouthshire.

The finest trees are said to be those in the Hampshire forests, but those in Buckinghamshire, where they are very abundant, are also very fine, particularly the well-known Burnham Beeches.

The wide geographical distribution of the Beech over the continent of Europe, and especially its extensive range northwards, adds weight to the supposition of its being a true native of our country. In the south it is found in most of the countries bordering the Mediterranean, and extends as far east as Asia Minor and Syria. Pallas says it is plentiful in the Caucasus, whence it spreads through the southern provinces of Russia and into Poland and Lithuania, but it does not exist in the northern provinces. It reaches its northern limit in Norway and Sweden in latitude 59°. Throughout Germany, France, Switzerland, and other central European countries it is most abundant. The Beech appears to have been a favourite tree with the Latin poets, especially with Virgil, and there are frequent allusions to it in their writings, and among our own poets it holds an equally high place. Our English word Beech is derived from the Saxon *bece* or *boc*, which belongs to the same root as the German *buche*, the Dutch *beuke*, the Danish *bog*, the Swedish *bok*, and the Russian *buk*. The word "book" also comes from the same root, and the application is by some accounted for by the fact that the old German bookbinders employed sawn beechen boards for the covers of books instead of pasteboard, and by others from beechen boards having been formerly used for writing upon. Writings were also made upon the bark of the Beech.

> Or shall I rather the sad verse repeat
> Which on the Beech's bark I lately writ?
> —*Dryden's "Virgil."*

The genus Fagus consists of about fifteen species, distributed over both northern and southern hemispheres in the temperate and colder regions. Some are of shrubby habit, but most of them are large timber trees. The northern species are mostly deciduous, while some of the southern are evergreen.

The common or, as it is sometimes called, the European Beech is, perhaps, the handsomest, as well as one of the largest, of all the trees indigenous to, or cultivated in, this country. Full grown trees average from 60 feet to 80 feet high, but are occasionally found as high as 100 feet or 120 feet, especially when drawn up by the proximity of other trees. For its timber it is considered in its prime when between sixty and eighty years old, but it will live to a much greater age, and in Windsor Forest there is a celebrated tree, or rather the remains of a tree, which is supposed to have passed its young days in times preceding the Norman Conquest. In places where it stands singly the Beech usually has a comparatively short thick trunk and a large, wide-spreading, much-branched head, measuring in some cases as much as 300 feet in circumference, or even more. But when cramped for room it has a tall and more slender trunk, sometimes from 70 feet to 75 feet high and 9 feet or 10 feet in circumference at the bottom, tapering to 5 feet or 6 feet at the top. Individual trees have been estimated to contain upwards of 950 cubic feet of timber, but the average is considerably less. The wood of the Beech is very strong and durable, and when properly seasoned it is not likely to split or warp. On this account it is largely used for chair-making, and until quite recently was considered the best wood for making boot-makers' lasts; latterly, however, Hornbeam has been introduced for this purpose, as being more suitable. Besides the wood the nut has a certain value both in its natural state for feeding swine, deer, pheasants, poultry, &c., and also for the expression of oil, which is principally carried on in France, Germany, Switzerland, Italy, and other Mediterranean countries. In the country districts of France and Germany Beech oil was at one time commonly employed by the peasants as a substitute for butter, the finest kind being used as salad oil or for cooking, and the coarser qualities for burning in lamps. The leaves of the Beech when properly dried have been used for stuffing mattresses.

J. R. Jackson.

Museum, Royal Gardens, Kew.

THE LARCH.

There are two varieties of the Larch generally found in cultivation, namely, the white and the red. The white attains the greatest size and is the sort most generally cultivated, although both varieties are often seen growing together in the same plantation, and that by mere accident. As to the durability of the Larch wood, it is allowed by those who are at all acquainted with the tree, and who have had occasion to use the timber, to be decidedly the toughest and most lasting of all the coniferous tribe we are yet acquainted with. There is also a peculiar feature characterising the wood, namely, its being durable and tough when only of a few years' growth.

The Larch is propagated from seed taken from the cones, which are generally ripe in December, when they should be gathered. When the desired quantity is gathered, the cones should be stored away in a cool loft having a circulation of air, where they may remain till summer, when the cones must be exposed to the heat of the sun, which will open their scales and cause the seed to fall out by a gentle thrashing with a stick. When the seed has been collected, it may be stored away in a cool place and sown in the following spring. Another process may be used when it is wished to have the seed sown as soon as convenient. When the cones are gathered they may be put into sheets, and exposed to the heat of the sun every fine day; and if the weather prove a little warm and sunny, the cones may be opened and the seeds thrashed out by the end of March or beginning of April, when it will be time to sow.

In sowing the seed, a piece of very fine, light ground should be chosen. The ground should be marked off into parallel beds of 4 feet in breadth, each bed having a path of a foot broad between it and the next. The seed should be sown pretty thickly, and covered with about a quarter of an inch of very fine soil. As birds are very destructive to Pine seeds, the beds should be watched for a few weeks in order to prevent their ravages. The plants are generally allowed to remain two years in the seed beds, and are then transplanted into nursery rows.

In collecting the seed of Larch great care should be taken not to gather it from diseased trees; nor should it be gathered from trees of a small size, for the very fact of small Larch trees having seed upon them is enough to point out that they are not of sound constitution. Were this point more attended to, that disease in the Larch termed the rot might in a great measure be in future prevented; for it is well known that if the parent be diseased, the seed of that parent will be in a degree diseased also; moreover, as the most diseased trees generally bear the greatest quantity of seed, the seed gatherers, who collect it for nurserymen by the bushel, will be most ready to take it where it is most plentiful, and will, of course, pay them best. In order to prevent this, nurserymen ought to give a fair salary to a trustworthy man, who should superintend the gathering of all their Larch seed. The quality of the wood of the Larch, as well as that of most other trees, is much affected by the nature of the soil and situation upon which it is grown. We have paid some attention to this point, and find that Larch trees growing upon a rich loamy soil and in a rather sheltered site do not produce nearly such durable timber as trees grown in a more exposed situation and upon a poorer soil.

The Larch is from its upright habit one of the very best nurses we have for hard-wooded trees. It does not, indeed, produce so much warmth to young hard-wooded trees in the spring and winter season as the Pines or the Spruce Fir do; but notwithstanding this, where there is a mixture of Larch among hard-wooded trees, these are generally in better condition than when over-nursed by the Scotch Pine and Spruce Fir.

The Larch is not particular as to soil, provided it be well drained. As a rule, no tree becomes so valuable in so short a time as the Larch. In many districts the first thinnings are useful for paling, stakes for plants, sheep hurdles, and many other similar purposes. When full grown it is used for almost every purpose, even for ship-building. It is constantly employed for railway sleepers, mill axles, gate posts, rafters, &c. The Venice turpentine of commerce is produced by the Larch. The full grown tree in its native districts is pierced to the centre with an auger. The turpentine is conducted by a tube into a trough, and it requires no other preparation to render it fit for sale than straining it through a coarse hair cloth. A healthy tree when tapped is said to yield seven or eight pounds weight yearly for forty or fifty years. The turpentine flows from May to September, but the timber is thereby rendered of no value.—*Farmers' Gazette.*

Barbed wire fencing.—There is one grave objection to this which has often been spoken of in the press, but which "J. F." (p. 476) did not refer to, viz., its dangerous character when used to repair fences. I know but little of the position of affairs in Scotland, but here in the south its use under such conditions is almost universally condemned, as, being practically invisible, it is nothing more than a trap to horsemen. In the district from which I write, wire, whether barbed or plain I do not now remember, as either is equally objectionable, has been the direct cause of the loss of more than one life. On an estate where I was valuing timber last winter a considerable quantity of this material had been used, a couple of wires running along close to or in the fences where they were thin. It is, of course, the members of the various hunts who are the chief sufferers, as they cannot be acquainted with every fence. It would be a vast deal better were the owners or occupiers of lands to forbid access to their holdings altogether than to set traps of this sort. When "J. F." speaks of using this wire for enclosing plantations, *e.g.*, ornamental groups of trees in parks and the like, the suggestion is reasonable, as no mounted person would have business in such enclosures. When placed in the open, too, it would be simply a matter of taste or economy, but for the repair of existing fences I would earnestly warn "J. F." and everyone else against its employment, at any rate in hunting countries.—D. J. Yeo, *Lyneham, Wilts.*

No. 890. SATURDAY, Dec. 8, 1888. Vol. XXXIV.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

T. W. GIRDLESTONE.

SEEDLING ROSES.

ALL seedling Roses, if only an inch or two high—in fact, all that can be seen above ground, should now be taken out of the seed beds (or pans, if the seed was not sown in the open ground) and laid in in some sheltered place until March or April next. When the plants have been carefully taken out, the soil of the bed or pans should be pressed down again and made firm, since many seeds that do not germinate the first year will come up subsequently, and raisers generally consider that the last up are often the best worth having.

The seedlings will all be of different sizes, some probably quite little bushes about 9 inches high, others having only just formed leaves. In laying them in, care should be taken to arrange them according to size, the largest together, then those that are smaller, and finally the tiny ones by themselves. They will do very well laid close under a wall where they can be undisturbed, but the best place is in a dry, airy pit, where in case of very heavy rain or severe weather a light can be put over them. Although they must all be taken out of the seed-bed now to ensure them from destruction during the winter, and to give room for another batch of seedlings that will come up the following summer, it would not do to plant them permanently before spring, as the first hard frost would draw them out of the ground and nearly all the smaller ones would perish. No time will, however, be lost in the matter of the seedlings becoming established, as they will be making root all the time they are laid in, and when planted out eventually on a showery day in March or April, they will be found to have a mass of white root fibres, whereby they will grow away without a check, like Cabbage plants.

Their subsequent treatment must depend to a great extent upon the individual character of the seedlings. It is not always easy to see at once how best to prune them so as to get them to bloom at the earliest possible date. Some seedlings will show flower in the seed-beds within six months of the sowing of the seed, and such varieties will be certain to bloom freely during the first summer after they are planted out, however they may be pruned; but many of the most vigorous growers do not always show any great disposition to bloom in the very young state, and if they are too hard pruned at first, the chance of their flowering is still further reduced. When first people have to deal with seedling Roses, they are rather liable to treat them exactly as ordinary transplanted plants, and to cut them back hard in the spring, ignoring the fact that the growing force at the base of a seedling immensely exceeds that of a budded Rose or even one on its own roots, whereby a vigorous seedling if severely pruned is liable to make so strong a growth as to reduce the prospect of flower to a minimum.

The past has been a bad season for seed, but where any has been saved, it should now be put into boxes of sand and kept moist to rot off the fleshy part of the fruit, so that the seed may be easily rubbed out and sown in the spring. It is worth noting that mice are extremely fond of Rose seeds, and that therefore it is important that the boxes or pans of damp sand in which the heps are kept during the winter should be placed out of the reach of these mischievous little creatures.

Similarly, when the seed is sown in the ground early in spring, care must be taken to protect it from the raids of small birds, or the chance of a crop of seedlings will be slight. Any piece of netting, supported at a height of about a foot from the ground, will answer the purpose, but the best plan is to sow the seed in narrow beds which can just be covered by wire Pea guards, with a space of about 1 foot between the beds so that the grower may pass up and down between them to inspect or weed them without treading on the surface of the beds themselves. By this means, also, seed saved from different varieties or crosses can be most easily kept separate. Each batch of seed as sown should be labelled with the name of the variety from which it was saved, and if the heps resulted from artificial fertilisation, the name of the pollen parent also should be added. It is a great pity that any considerable sowing of Rose seeds should be made quite promiscuously with the seed saved from a whole collection all mixed together, as it is no great trouble to keep the different sorts apart, and by doing so much information of considerable value will inevitably accumulate in course of time. If only raisers for the last thirty years had been at the pains to record even the seed parents of their new Roses, raisers to-day might perhaps not be working quite so much in the dark, and might also probably have been saved much trouble and waste of time in going over ground that had been already traversed without good result.

When the heps are ready to be gathered, undoubtedly the best plan to keep the different varieties separate is to take a number of common flower-pots, putting a crock at the bottom of each and a handful of damp white sand to prevent the crock from slipping about, and to gather the heps of each Rose straight into a separate pot. The pots may, of course, be of any size, according to the number of heps to be gathered, and they should be clean, so that the name of the variety may be at once written on them outside with a rough garden pencil. Then if the pots, not having been filled more than half full of heps, be filled up with moist sand no labelling will need to be done until the seed is sown, for the fruit can be stored until the fleshy part has rotted off in the pots into which it has been gathered, care only being taken to prevent the sand becoming dry.

If the sand be not kept damp, the outer part of the hep will merely become shrivelled and husky instead of perishing, and the labour of subsequently separating the seeds be thereby greatly increased. The raising of seedlings by amateurs as well as by nurserymen is happily considerably extending in this country at last, and now that growers are realising the simplicity as well as the great interest of the proceeding, it is to be hoped that the seed bed will before long become an invariable adjunct to every Rose garden.

Climbing Niphetos Rose.—It would be difficult to over-estimate the value of good white Tea Roses, and many kinds have been distributed as improvements on the good old white Tea Rose Niphetos. The Bride was said to be a great improvement. As far as my observation goes, I doubt if this is the case. Until this spring, when the Climbing Niphetos was shown by Messrs. Keynes, Williams & Co, we had no white climbing Tea Rose worthy of the name. Happening recently to be passing through Salisbury I determined I would go and see this new Rose. I must confess I was surprised to see the contrast between the normal form and the new comer. The plant which was exhibited had this summer made shoots from 15 feet to 20 feet long, and was still growing. Another plant on the opposite side of the house had grown equally as well, while a plant grafted at the end of April had made a shoot from 7 feet to 9 feet long this summer. The two large plants had many of their lovely blooms still open, although so late in the season.—J. C. F.

SELECTION AND GROWING OF ROSES.

"C. J. G." is hard to please. On p. 383 he says, "Now that you have given the Apple and Pear growers a good hearing, you might have a Rose election." On p. 454 the possible basis of such an election is suggested, and now "C. J. G." complains that I appear to "view the question in the light of a Rose election"—the very thing that he himself proposed. That freedom, continuity, and erectness of bloom are in the least necessary adjuncts of hardiness and vigour is a complete misapprehension on the part of "C. J. G." What has caused the disappearance of Leopold Hausburg, Emma Hall, and other good Roses but the pendulous nature of their flowers, which consequently produce no effect in the garden? and there are numberless varieties that grow with the utmost vigour, but flower little, while others flower incessantly, but hardly attain to a foot in height. Then, again, weather is not always sufficient to disfigure some Roses; for instance, this year the blooms of Gloire Lyonnaise, though constantly soaked with rain, rarely showed any ill effects from the pitiless drenching, and the same was the case with the crimson Ella Gordon. I think that to render such a discussion as "C. J. G." proposes of real value, the definition of terms cannot be too precise, nor the essential characteristics to be aimed at in selected Roses be too prominently kept in view.—T. W. GIRDLESTONE.

—— In connection with the proposed Rose discussion, "C. J. G." (in your issue of the 24th ult.) suggests that you should "call for lists from readers of THE GARDEN of the best forty-eight exhibition Roses." In my humble opinion this would be a very great mistake, as growing Roses for shows and cultivating them for decoration are two branches which should be kept quite distinct from one another. A great deal has been written on the subject of growing Roses for show; in fact, it appears to me to be the sole aim and object of all books about Roses; they all follow the same track, and sooner or later land you in the exhibition tent. One chapter or two may be devoted to so-called garden Roses, consisting mostly of summer-flowering varieties.

For one man who is in the habit of exhibiting there are certainly hundreds who grow Roses, and grow them exceedingly well, for the mere sake of the flowers themselves, without a thought of silver cups, medals, &c. Such men tend their plants with all possible care and attention. The labour involved is one of love, and by constant and careful observations they acquire an amount of practical experience which ensures for them the best possible results. This is the class from which the most valuable information is to be obtained, and a general Rose discussion certainly seems to be the best means to the end.

"C. J. G." further suggests that you should "define certain points to be discussed and certain rules to be adhered to." This would surely be a most difficult task, and would necessarily tend to cramp the subject and narrow the limits of a discussion which should be allowed free scope if real benefit is to be derived therefrom. A basis is, of course, necessary, and I think the one proposed by Mr. Girdlestone in the last paragraph of his letter in your issue of the 17th ult. is a thoroughly practical one, and I do not see that it can be improved upon.—R. B.

Late Roses.—A few blooms are now (Nov. 27) to be found on some of the Hybrid Perpetual Roses, but the number is not greater than I have noticed

in previous years. The well-known Gloire de Dijon still maintains its late-flowering character, but if I were asked to name the best and most reliable late autumn-blooming Roses that flower every year alike when the season is at all favourable, I should say the old monthly China and its crimson variety. I very much doubt if anyone can name two others that will equal, much less surpass, them. I have before me as I write a number of flowers of both sorts gathered from plants growing on the front wall of a villa residence. These plants have not been without some flowers all the season, but, owing to the mildness of the weather, both plants, as I write, are conspicuous by the number of blooms they are carrying. We should have to search over a large number of other classes of Roses before we could find an equal number of such bright-coloured flowers. The crimson variety is, of course, much the brighter, but when associated, one serves to enhance the value of the other.—J. C. C.

PROPAGATING ROSES.

There are many ways of increasing Roses, the one most generally pursued being by means of budding, but the season for this having long since passed, there are only two or three methods of propagating left open that can be pursued at this time of year. One of these is by cuttings, and some of the kinds root freely, but to get the shoots to do this, it is necessary to choose nice, medium-sized, well-ripened wood, and it is a good plan, when it can be done, to take each cutting off with a heel, as a base of that kind is a great aid towards the formation of roots. The sorts that lend themselves best to this mode of propagation are the Teas, and they do well on their own roots, but as they are not so hardy as the Perpetuals, the cuttings must have shelter, or they are apt to get killed or injured by frost. This being so, a frame should be prepared into which to dibble them. This may readily be done by standing a boarded one on the level ground and partly filling it up with sharp sandy soil, leaving about 9 inches or so between the soil and the glass, which will be quite enough for the heads of the cuttings to stand clear of the lights. The most suitable length for the cuttings is from 6 inches to 8 inches, and those that have not a heel should be cut so as to have a bud at the base and another at the top of the shoot. When thus trimmed and formed they will be ready for planting, which should be done by placing them in rows at about 4 inches apart, burying them so that only about a couple of inches of the wood stands out from the soil, which must be made quite firm around each. This burying up of the cutting is a very important part of the matter, as when more is exposed the bark is apt to shrivel, and when this takes place there is not much chance of the cuttings rooting. In sharp weather it is requisite to keep the lights quite closed, as well as protected by some covering at night, but when mild and favourable they should be taken off, or air given to prevent the cuttings from moulding. Although the same treatment answers for Hybrid Perpetuals, they will strike readily outdoors, but the ground for them must be prepared in the same way by making it sharp and sandy, and they must have a warm sheltered position, that on a border or in open parts among shrubs being very suitable, as the thing is to ward off cutting winds, which have such a withering, drying effect on the wood. Another way of increasing Roses that may be pursued now, and for some time to come, is by layering, which is a very certain mode, although somewhat slow, as it takes a year before the layers become sufficiently rooted to be severed and taken away from the plants, but then they are large and strong, and therefore equal to those raised from the cuttings. In layering, all that is necessary is to select the lower or best situated shoots, and having scraped away some of the soil, the shoots chosen should be pegged securely on the surface and there covered or buried to the depth of 3 inches, which done, they may be left to take care of themselves till summer comes round. All the attention they require then is a soaking of water occasionally if dry weather sets in.

The way growers for sale increase Roses at this season and after is by grafting, and this mode is almost as economical as budding, as it is only necessary to use one eye to each scion, and there is therefore no loss of wood. To be successful, all that is requisite is to have a good supply of stocks and a hot-bed frame, or some close place where there is a brisk moist heat to put the plants after grafting is done. The stocks may be either Manetti or seedling Brier or the large roots of either, as these do just as well, but if they are plants of the one or the other, they should be young and small in the stem, those about the size of a goose quill being the most suitable, as the bark then of scion and stock comes closer together, and the union takes place more readily than when the two are further asunder. The way to prepare or make ready the stocks is to cut off the heads to within a couple of inches or so of the roots, making the cut slanting when doing it, after which a strip of bark and wood underneath should be shaved off at the side of the stem. This done, the next thing is to make a corresponding cut at the lower end of the graft similar to what is carried out when forming a quill pen, and the scion and stock should then be placed together and tied securely with soft raffia or matting to keep them close and prevent any moving. If pieces of root are made choice of for the stocks, the same thing should be done, but in neither case is grafting-wax or any covering of the parts necessary, as with a frame or suitable situation such as already alluded to, there is no difficulty whatever in getting the grafts to unite. All that is needful to make sure of this is to keep up a temperature of about 80° and a perfectly close, moist atmosphere for three or four weeks, at the same time excluding all light by covering up the frame with double mats, as darkness favours the callusing. As soon as it can be seen that a union has taken place and shoots have issued from the buds, light and air should be gradually given till the plants will stand full exposure, and be sufficiently hardened to do in a temperature of 50° or so till the spring, when they can be potted on for forcing or planted out in the open after late frosts are over, and they will then flower freely during most of the summer. S. D.

SHORT NOTES.—ROSES.

Rosa pomifera attracts much attention by reason of its immense fruits, which are produced in great abundance.

Rosa lucida has, as usual, been one of the most beautiful of all the Rose species this autumn, the brightly coloured foliage and brilliant heps only now disappearing before the rough weather.

Rosa rubrifolia, although the colouring of its leaves is hardly so varied as in the case of R. lucida, is not less beautiful, and its myriad heps and handsome red stems combine to render the appearance of the plant most striking throughout October and November.

Chinese Roses.—There is about the country a very delicate blush, almost pure white, form of the China Rose known as the common white. Mr. Shirley Hibberd mentions it in his "Amateur's Rose Book," and I have seen it noticed elsewhere. It was this I referred to as the common white China. I cite Mr. George Paul as a witness in favour of Ducher. He thus describes it: "Pure white, good form, large, a desirable novelty, vigorous habit of growth." I take it this is the character of the Rose at Cheshunt.—R. D.

Rosa nutkana.—The most showy of our western Roses, as well as the most clearly defined, with the exception of the delicate Rosa gymnocarpa, is the Nutka Rose. It has the largest flowers and the largest fruit of any of our species, and its armature is liable to become on occasion the most formidable. It is frequent along the Pacific coast from the Alaskan peninsula to the Columbia River, where it was first collected by Menzies upon Vancouver's visit to that region, and somewhat later by Haenke at Nutka Sound. It ranges eastward from the coast through the mountains near the boundary to North-western Montana, and thence southward into Utah. It is rather stout in its habit, and with rather broad foliage, very rarely nearly spineless, usually armed with broad, flat spines at the base of the leaves, and occasionally, especially the young shoots, with scattered prickles. The spines are either straight or recurved and very numerous. The fruit is globose or somewhat depressed, of a bright scarlet, and often over half an inch in diameter.—*Garden and Forest.*

Books.

CULTURAL DIRECTIONS FOR THE ROSE.*

An appreciative public has demanded a seventh edition of Mr. Cranston's "Cultural Directions for the Rose," and that wisely, seeing that nothing could be better or more to the point than the calendar of operations (pp. 135—142), which is a complete epitome of Rose growing—brief, though full enough, and very clearly expressed.

It is, however, to be regretted that Mr. Cranston should recommend a "geometrical figure" as the best design for a rosarium (why not a Rose garden?), to be completed (*horribile dictu!*) by a "temple in the centre."

The condemnation of the still too common practice of working Roses standard high that are not strong and free growers is well deserved, and the suggestion on p. 20 for regulating the height of the stem is a good one. Mr. Cranston also lays great stress on the importance of the ground being dry at the time of planting, a proceeding that, though preferably effected early in November, he advises should be left till February rather than carried out in the wet. Good advice is given (pp. 35-6) as to the pruning of young plants and the encouragement of small birds in the Rose garden; but, oddly enough, in discussing the protection of Roses in severe winters, no mention is made of the best of all protecting materials, the common Fern or Bracken. Under the heading of mildew, sulphide of potassium, which has been found to be an invaluable means of checking this most tiresome of all Rose pests, is not even alluded to, while sulphur is recommended to stop red rust, which most growers have found quite incurable. It seems also rather strange that Mr. Cranston should class as a disease the green centres so often developed in the Rose blooms produced upon plants that have been injured by untimely frosts.

Mr. Cranston is the acknowledged champion of the Manetti stock, and it is, therefore, not to be wondered at, however much it may be regretted, that he should extol it above all others. In all probability in that wonderfully fertile red soil of Herefordshire anything would grow, but Mr. Cranston's success with the Manetti (a nurseryman's success be it noted, and consequently comparatively little criterion for the amateur grower) does not prove that his success would not have been even greater had he cultivated Brier cutting and seedling stocks.

Considering the great mass of evidence that has of late years been accumulated against the Manetti, it might have been thought that the sections on stocks would have been subjected to substantial revision, for as they stand a casual reader might easily retain the impression that the Manetti was the only dwarf stock for Roses, and on pp. 47-8 there is a remark which might even lead people into the fatal mistake of working Tea Roses on Manetti stocks. Moreover, grave exception may be taken to the following statement (pp. 43-4):—

> For dwarfs the Manetti and Grifferæ (why this name should be so spelt is not apparent; it is *de la Grefferaie* in the French lists) are preferable, especially for light soils. . . For dwarf Roses this (the Manetti) is a most excellent stock; it is alike suitable for stiff as for light soils. In many light, shallow soils, where the Dog Rose will scarcely live, this succeeds admirably. It is very hardy and enduring, and will last as long as, or perhaps longer than any other. . . . There are few Roses which refuse to grow on it.

These statements must, at least, with all deference to Mr. Cranston's long experience, be en-

* "Cultural Directions for the Rose, with full descriptions of all the newest and best Roses in cultivation, selections adapted to various circumstances and situations, and a calendar of operations to be performed during each month throughout the year; also a complete catalogue of Roses introduced up to the present time." By John Cranston, King's Acre Nurseries, near Hereford. Seventh edition, revised. 1888. H. M. Pollett and Co., horticultural and general steam printers, Fann Street, Aldersgate Street, London, E.C.

dorsed as "not proven," the experience of an immense number of rosarians being precisely to the contrary. With regard to de la Grefferaie, few Roses thrive upon it except the Dijon Teas, and these no better than upon dwarf Brier stocks; while as for there being few Roses which refuse to grow on Manetti, it is notorious that the whole of the Teas and Noisetes, not to mention many of the Victor Verdier race, of the smooth-wooded and very dark Roses fail absolutely upon it out of doors.

The advice given upon the selection of varieties (pp. 18, 19) is most excellent, and in view of the recent suggestions that have been made regarding a Rose election in the columns of THE GARDEN, it will be of interest to quote the admirable remarks of Mr. Cranston, on the "Properties of a good Rose":—

The first and most essential point to constitute a good Rose is that the variety be hardy, and of a healthy and moderately robust habit, combining ample foliage, for, be its bloom ever so good, if it refuses to grow under proper treatment it is almost worthless. Next to these are fine form, fulness, large size, good substance, fragrance, freedom to bloom, and decided and distinct colour. The form of the flower, whether it be cupped, globular, or expanded, should be symmetrical; the petals even and regularly placed, smooth, and free from all indentures, full, but not crowded, the outer row being broad and closely folded to enable the flower to stand firm for several days; they should be thick and leathery in texture and not (as we too frequently see them) thin and flimsy, and either faded or fallen to pieces after an hour's sun. The colour, whatever it is, should be decided and lasting, and not changing to a dull, cloudy or objectionable shade. The flower-stem should be stout to hold the bloom partly erect, so that it may be seen without the necessity of applying the hand. Every Rose should be fragrant, and the more highly so the better. Whether summer-blooming only or perpetual, it should be free to flower, in the former case yielding abundance of blooms throughout June and July, and in the latter from June till November, allowing for an occasional rest for each period of flowering. A perpetual Rose, to justify its name, should always produce blooms at the end of each shoot. . . . There is another class of Roses which must not be overlooked, nearly, if not quite, as useful as the above, and to some much more so. These are hardy, free-blooming, attractive varieties for garden decoration, many of which have not a single property to recommend them as show flowers, but which for grouping and general effect in the flower garden are most beautiful and attractive. The properties most to be desired in these are freedom and uniformity of growth, profusion of bloom, and brilliancy combined with durability of colour.

Part II., in addition to the excellent calendar of operations above referred to, consists of "a choice selection of the most esteemed varieties of Roses," and, considering the soundness of the critical remarks just quoted, and that Mr. Cranston claims to have omitted "all second-rate or doubtful sorts," it may seem rather hypercritical to say that the selection includes about 150 varieties which, in accordance with their deserts, have already been very generally discarded. But perhaps a clue to this inclusiveness may be found in the somewhat quaint remark that "it requires at least one season to test the properties of a new Rose."

In discussing the question of raising seedlings (pp. 8, 9), much stress is rightly laid upon the importance of vigour and hardiness in new varieties; but it is very doubtful if it is just to attribute a lack of either quality to the influence of the Tea-scented Roses, as Mr. Cranston does; for, to take an example, Géant des Batailles is not generally classed as a hybrid Tea, but it has a wretched constitution; while Gloire de Dijon and La France, two of the most obvious offspring of the Teas, are as hardy and vigorous as need be.

On page 76 occurs a palpable mistake in describing Celestial and Maiden's Blush as synonymous; they are quite distinct, and Celestial is by far the more beautiful Rose of the two. Again, no mention is made of Rosa Mundi, the brightest and best of all the striped Roses; but on page 77 York and Lancaster is so described as to leave little doubt that here is Rosa Mundi again under a wrong name, the true York and Lancaster being frequently not striped at all, but having some of its flimsy flowers quite white, while others are entirely pale pink.

In stating that there are only three desirable varieties of Rosa multiflora, Mr. Cranston ignores the extreme beauty of the species itself as a climber, and all the recent hybrids such as Max Singer, &c.; and a particularly strange omission is that of the invaluable crimson Rev. H. H. D'Ombrain from among the selected Bourbons.

Synonyms are entirely overlooked, and no hint is given of the Roses which, although possessing distinctive names, have now long been considered identical, while that 100 picked varieties should in these days include such dismal things as Felix Genero and Nardy Frères, or that Duchess of Bedford, Horace Vernet, and Mrs. Charles Wood should be classed amongst the "hardy Roses for cold localities," will surprise many growers. The list of 100 finest exhibition Roses might also have been more carefully revised, containing as it does only ninety-seven distinct varieties, of which more than half a dozen are now rarely, if ever, staged; and the suggested employment of Reine de Portugal, La Boule d'Or and Louise de Savoie as effective bedding Roses can hardly be commended.

The book concludes with a very full and carefully compiled list of Roses, giving dates and raisers' names in most instances, of great value for reference; but a glance through it revealed a slight confusion between the varieties named after the Misses Rodocanachi. In 1879 Eugène Verdier sent out a Rose under the name of Marie Rodocanachi, and in 1883 Lévêque sent one out called Suzanne-Marie Rodocanachi; of these Suzanne-Marie is generally cultivated and admired, while the elder Marie has been discarded; but Mr. Cranston transposes both the names and the qualifications!

STOVE AND GREENHOUSE.

TREE CARNATIONS IN AMERICA.

SEEING Mr. Collins' article on the above plants in THE GARDEN of October 27, I thought a few notes on the method of culture in this country might be of value to all lovers of these plants, more especially market growers. Our plants are propagated the first week in February, potted in 2-inch pots, and from them planted into the open ground about the middle of May. They are pinched back three or four times during the summer, not being allowed to flower. By this means fine dwarf sturdy plants with from eight to twelve shoots on each are obtained. They show their flower-buds about the beginning of October, when they are lifted and planted into benches or potted. We bench nearly all ours, as we have three houses devoted to their culture. The benches are made to hold 5 inches' depth of soil, which is composed of a good stiff loam and one-fourth good rotten manure. The plants are put about 12 inches apart, care being taken not to plant them too low down. They thrive best in a temperature of from 45° to 50° with all the air that can be given them. Give one good watering, after which water sparingly.

Just to give you an idea of the wonderful crop of flowers that is gathered from them in one season, I have counted the buds in one house 100 feet by 13 feet, and find about 30,000 that will open from now until Christmas. The varieties are Hintze's White; President de Graw, white; Miss Joliffe, salmon-pink; Colonel Wilder, scarlet-flaked; Buttercup, yellow-flaked; President Garfield, bright red, which is very beautiful; Seward, dark purple; Portia, red; Grace Wilder, pink.

A few hints on propagating may not be out of place. The cuttings should be struck in good clean sand in a propagating case with a bottom-heat of 65° and a top-heat of 50°; a knife should never be used, as it is fatal to a Carnation cutting. The small shoots should be pulled out of the old stems and put right into the case. They like to be well sprinkled and will root in about two or three weeks. If this is carried out in the manner described, these Carnations will be found as easily propagated as Coleuses.

R. H. C. BARD.

Rochester, N.Y., U.S.A.

Callistemon rigidus.—There is a gigantic bush of this brilliantly-coloured Bottle-brush plant now flowering in the temperate house at Kew. Except for large conservatories this kind is not of much value, as it does not flower freely, except when large. But nothing can be finer than such a specimen as that at Kew, which will continue to develop its attractive flowers all through the winter. For the information of those who do not know what Callistemons are like, it may be stated that the Kew specimen is about 8 feet high and 6 feet through, clothed with rigid, lance-shaped, grey-green leaves, 3 inches long, and the twiggy branches, a foot or so in length, have about 6 inches in the middle clothed with a mass of bristle-like filaments about 1½ inches long, and exactly like an ordinary bottle-brush in arrangement. The colour of these filaments is bright scarlet tipped with gold.

Correa cardinalis planted out.—This fine Correa is one of the very best of hard-wooded greenhouse plants; but it is difficult to grow in pots, and we do not remember to have seen a presentable specimen of it either at an exhibition or elsewhere. C. speciosa, C. ventricosa, C. magnifica, and the other garden kinds are easily grown into good shapely specimens, whilst C. cardinalis is always scraggy and thin; but Mr. Ross, in the large greenhouse devoted to such like plants at Pendell Court, has tried this Correa planted out in a peat bed, and the result is a good bush about 4 feet high by 2 feet through, well furnished with foliage and now in full flower. The brilliant colour of the long, tubular flowers, which remind one of ear pendants, makes this shrub especially attractive. It continues to bloom all through the winter. If anyone has a greenhouse or conservatory where there is a bed of peat soil with a good aspect, that is the position for Correa cardinalis.

Javanese, or Malayan Rhododendrons.—Perhaps the most valuable addition to greenhouse plants in recent years is that of the beautiful varieties of Rhododendron known as the above. But many people are deterred from attempting their cultivation, owing to the belief that this race of Rhododendrons may not be grown unless one has a stove or very warm greenhouse to put them in. The same opinion prevailed with regard to the Himalayan kinds when they were first introduced, but these are now grown out of doors in the warmer parts of England. Whether the Javanese kinds are as hardy has not yet been tested, but a set of them has been planted along with the Himalayan species in the temperate house at Kew, where they have been nearly a year. They have made excellent growth, are well set with flower-buds, and are at least as healthy as the Himalayan kinds. The temperature of the house is kept only a few degrees above freezing point in cold weather. The sorts are Princess Royal, Taylori, Maiden's Blush, and jasminiflorum.

Dutch Honeysuckle in pots.—Although seldom seen as a pot plant, this is one of the best things that can be grown for the decoration of the conservatory, the grateful perfume of its flowers being refreshing and sweet without being overpowering. This is the best time of year to pot the plants for next year's flowering, and the best way to obtain good specimens is to put in strong cuttings and treat them exactly as one would Gooseberry or Currant cuttings. Select stout cuttings, and after taking off two or three of the lowest eyes shorten the top that will be above ground to about three buds, then bed them in firmly in rows about 1 foot apart. They will grow freely in spring, and as soon as the young shoots are 6 inches long they are pinched to induce a well-branched head. The shoots are all shortened back at the winter prun-

ing, and during the next summer they will develop fine heads thickly studded with flowering buds, and about the second week in November they can be lifted and potted. We use 6 inch and 7-inch pots, and employ good rotten turf for potting. The plants are plunged out of doors in a bed of leaves until Christmas, when they are transferred to any cool vinery or Peach house and allowed to come on very gently, all the attention they need being careful watering and fumigating if green-fly attacks them when in bloom. When they cease flowering the plants are plunged in any spare place out of doors, and any gross shoots that outgrow the others are stopped, and if attended to with water and repotted when required, they will do good service for several years.—J. Groom, *Gosport.*

WORK IN PLANT HOUSES.

Stove.—Lily of the Valley.—Where this favourite plant is wanted in bloom at the beginning of the new year it is time to commence forcing. When the flowers are wanted early, it is best to select crowns of German growth. There is no plant with which I am acquainted that will stand so much heat as Lily of the Valley; a bottom heat of 100° and a proportionately high temperature in the atmosphere is not too much, provided the plants, as soon as they have made an inch or so of growth, are near enough to the glass to enable them to get all the light that it is possible to give them. A propagating frame that has the requisite amount of bottom heat, and that in place of being, as such contrivances too often are, too far from the roof in a half darkened position, will afford plenty of light, and answer in every way for the high pressure forcing that the plant will bear. Lily of the Valley likes water, so much so, that it may be said to be half aquatic. By copious waterings every day, so as to keep the soil saturated, a crop of leaves as well as flowers can be had; whereas, if the soil is only watered enough to keep it fairly moist in the way that most plants require, few, if any, leaves will be produced. The most successful market growers now put the crowns thickly in light material in the forcing frames, and when the spikes of flowers are about half open they pot them, putting the tallest in the middle of the pots with the smaller ones around. In this way the plants can be made to look better. No harm is done by moving them in this manner, as the heat has no effect in setting the root fibres in motion. When this hard forcing is practised, the plants should be kept close for a day or two in a temperature a little above that of an ordinary greenhouse before exposing them in a lower temperature. After this, by keeping the soil wet, the flowers and leaves will not flag, even in the dry atmosphere of a living room, where, needless to say, there are few flowers so acceptable in the dead of winter.

Greenhouse. — Heaths. — The necessity for giving Heaths plenty of light is generally understood. This applies to the different sections, hard and soft-wooded, but more especially to varieties of the latter section that flower in spring, and are consequently growing through the winter to a greater extent than such of the hard-wooded sorts as bloom in summer. Plants of most sorts have the best appearance when arranged in the houses so as to be below the eye; but in the cultivation of Heaths, effect of this kind should not be considered, except whilst the plants are in bloom during the winter time, when little harm will be done by keeping them somewhat further from the light than they like. If the permanent stages in the house or pit they are wintered in, are too low to enable the plants to get sufficient light, means should be taken to elevate them. In this way the light will reach the lower branches. Give air daily, but do not allow cold currents to come in direct contact with the plants, for though the foliage is less susceptible to injury in this way than when growth is active, cold winds turn the leaves brown. Water will not be required so often as during the spring and summer, but the plants should be looked over every other day. Keep a good look out for mildew, which during a mild autumn, like the present, following a wet, sunless summer, such as the past, is sure to be more than usually troublesome. Immediately the least trace of the parasite is found, sulphur should be applied. E. hyemalis and other winter-flowering sorts are often stood during the time they are in bloom in conservatories, where the temperature is higher than the plants like. The mischief is intensified by less air being given than in an ordinary plant house. Whilst the Heaths in question are located in conservatories, where even only a little heat is used, they should be stood as near to the glass as they can be got; here they will be cooler, and in addition to this the air in such a position is always moving more freely than in the body of the house. As soon as the plants are out of bloom move them to a house or pit where they can get plenty of light, but with a little less air for a few weeks than is given to the general stock. Where Heaths are only required for ordinary decoration they need fewer sticks to support the branches, and less training than is necessary for exhibition plants. Winter is the best time for the work. Old decayed sticks should be removed and new ones put in their place, taking care to insert the new ones in the same holes that the old ones have occupied. This is a matter that is little thought of by the majority of hard-wooded plant growers, but I am satisfied that injury to the roots by staking is the cause of the indifferent condition the plants are often seen in. All dead leaves should be removed at the time the tying is carried out. In regulating the branches, the plants should be opened out sufficiently to admit light and air to the centres, as without this it is not possible for the foliage to be in good condition.

Hard-wooded greenhouse plants.—The different species that come under this head, such as Aphelexis, Phœnocomas, Adenandras, Eriostemons, Chorozemas, Correas, and Polygalas, should now have their annual tying. It is well to follow the lines laid down for the tying of Heaths, by not using more sticks than necessary to support the plants in something like the shape they would take if growing naturally. Avoid formality as far as possible. In the case of young specimens, the strongest shoots should be bent out horizontally at the bottom, so as to get them well to the outside. In this way the weaker growths will be left in an erect position, and by this means they will gain sufficient strength to equalise the growth of the whole of the branches. Such things as the Eriostemons and Phœnocomas often form a few very strong branches, that cannot be reduced in strength by bending out in the way above suggested. Any that are taking an undue lead in this manner should be shortened back sufficiently to keep them in bounds. The plants ought to be wintered in a well-lighted house and kept raised well up to the glass. They should not be crowded closely together in a way that prevents the light reaching them on all sides. The soil requires to be kept somewhat drier than in the season of active growth, but this must not be carried too far, for this class of plants is never wholly at rest. In advising that the roots of hard-wooded plants should be drier in winter, it is not meant that there should be anything like partial watering, as when the soil requires water enough must be given to moisten the whole. During foggy weather, when there is little movement in the air, some heat should be turned on for an hour or two about twice a week; it should be turned on early in the day so that the pipes will get quite cool before nightfall. The top ventilators must be opened whilst the heat is on to allow the moisture to escape, even if the weather is not such as to admit of the side shutters or lights being opened. A night temperature of 35° to 40° is sufficient during the next eight or ten weeks for the plants named. Boronias, Leschenaultias, Gompholobiums, and Roella ciliata like to be kept a few degrees warmer, otherwise mildew is likely to trouble them. This pest must be closely looked after, for if it is allowed to go unchecked, even for a short time, the leaves will be injured.

Acacias.—Plants of A. armata, A. Drummondi, and others that can be grown in bush shape in pots, and that are wanted to flower early, should be kept in an intermediate temperature. This is better than giving them more heat. The flowers are naturally not the longest lived, in addition to which they are liable to flag when used in a cut state, and if they are brought on with much heat these defects are intensified. Air in moderate quantity should be given for a time each day to the house in which the plants are kept, and the atmosphere should not be much charged with moisture, as this tends to make the flowers soft.

Cannas.—These plants are now deservedly coming into favour for greenhouse and conservatory decoration, where they form conspicuous objects during the latter part of summer and early autumn, the time when their showy flowers are produced. There has been a marked improvement in the habit of growth in the different varieties that have been raised in recent times, and equally so in the character of their flowers. In place of the meagre flowers on stems too tall to admit of the plants being used in low houses, we have now varieties with compact growth and finely developed blooms. One of the advantages attending the cultivation of these Cannas is that they take up little room in winter when plant houses are ordinarily most crowded. They will now be going to rest. Little water will be required whilst they are in a dormant state, only as much as will prevent the soil getting dust-dry. After the tops are removed the plants may be kept under a stage or in any spare corner during the winter where they will not be too cold.

T. B.

Tropæolum Lobbianum.—What has become of the old typical Tropæolum Lobbianum? Soon after its introduction it was grown everywhere and well deserved it. It is never seen now. I suppose the more showy, but less useful hybrids have choked it out of cultivation. All the seed sold for it turns out to be crossed. Its perennial and continuous flowering character renders it a valuable greenhouse climber. I have a lively recollection of seeing at the Merriott Nurseries twenty-five years ago a specimen planted out and trained under the ridge of a long span-roofed propagating house. It extended a great length and was covered throughout the winter with hundreds of flowers. Very useful it was, too, for large or small pots. If the pure species is still in the country it should be again brought under notice; it certainly is too good a plant to be allowed to drop out of cultivation.—J. M, *Charmouth, Dorset.*

SHORT NOTES.—STOVE AND GREENHOUSE.

Impatiens Hawkeri.—This beautiful Balsam, growing in 4-inch pots, is now flowering freely. The cuttings were struck last August, and every shoot is now flowering. The plants are 9 inches high by 12 inches through.—J. T. Ebbutt.

Dracæna Evansiana is a very richly coloured variety. The leaves are of a mixture of green, red, and yellow; and a few specimens look well amongst green-leaved plants. Crotons and Dracænas have been rather at a discount lately.

Sonerila Hendersoni and S. argentea are neat, useful stove plants. The leaves of both are ornamental, those of argentea being silvery grey. The flowers are of a mauve colour. They are blooming now and require a moist soil and a high temperature. The plants do best pegged down in pans.

Epiphyllums are commencing to flower. E. truncatum is the best, but Russellianum (scarlet), violaceum (scarlet and violet), spectabile superbum (purple and white), and elegans (rich purple) are excellent kinds. These are in bloom at Isleworth grafted on Pereskia stock.

Statice floribunda is one of the most useful of its group. The plants may be readily raised from root cuttings, which can be taken at any time. Plants six months old will commence to bloom, and the rich purple-violet flowers are produced quite as freely as in the old S. profusa. There is a large batch of it in Messrs. Lee and Son's nursery at Isleworth.

Salvia Pitcheri and S. splendens.—These two varieties are most useful for brightening up the houses during the dark, dull days of November and December. The intense blue flowers of S. Pitcheri are even more beautiful and effective than the glowing scarlet ones of S. splendens. Mr. Bunney at Danny Park grows both of the Salvias largely and well. When there recently we particularly noted the blue variety, of which he had a fine stock of healthy plants.

Trees and Shrubs.

WEEPING WILLOWS.

Two or three of the Weeping Willows now fairly common in cultivation are well worthy of the attention of planters, for not only are they of the freest growth, but when suitably placed add a charm to the landscape that it would be difficult to obtain with any other trees of their kind.

In the accompanying engraving, which represents a well-grown specimen of Salix babylonica (the Babylonian Willow)—and which, by-the-by, was raised from a cutting taken from one of the historic trees at St. Helena—the easy grace and great beauty of the tree are well delineated. English writers have made the poet Pope's Willow (and which was the true S. babylonica) at Twickenham quite historical; indeed, so much so, that his successor on the Twickenham estate felled the tree to avoid the nuisance occasioned by the crowds of visitors which it attracted. Its successor at the Twickenham villa, when I last saw it, looked hale and hearty, and trees have likewise been planted in considerable quantity along the banks of the Thames.



The Babylonian Willow. Engraved for The Garden from a photograph by Mason Good.

The Babylonian Willow was introduced into St. Helena from this country by General Beatson in 1810, and planted near a spring—a favourite resort of Napoleon's—and thence it was propagated widely on that island. Near this fountain, and close to the Weeping Willows, Napoleon's remains were interred in 1821.

That the climate of England is peculiarly well suited for the growth of this tree is amply illustrated by the numerous giant specimens which ornament the banks of the Thames; indeed, it is not too much to say that these are as finely grown as any ever described in their native habitat, specimens of from 50 feet to 60 feet in height and fully as much in diameter of branch-spread being not at all uncommon.

There is a form of the Babylonian Willow, S. babylonica crispa, that is worthy of extended culture, as it is highly ornamental and distinct from the type.

The Kilmarnock Weeping Willow (S. caprea pendula), which was found wild on Monkwood estate, in Scotland, needs no description, it being a general favourite, and consequently generally distributed. It is of easy, free growth, and a desirable acquisition where space is limited.

The American Fountain Willow is of taller growth than the latter, but quite as ornamental, and is suited for similar situations, but where ground space is less limited.

One of the most distinct and free-flowering of American Willows is the now well-known S. fuscata, but it is more of a creeping than pendulous-habited plant. Grafted on a 4-feet-high stock, it, however, looks well; indeed, I consider this to be the best mode of treatment.

Soil is not of much importance in the culture of Willows, but they must be well supplied with water, or half their beauty is lost. Willows, and especially the weeping kinds, require to be used with great discretion, or the good effect they are capable of producing on our lawns and grounds is quite destroyed.

A. D. Webster.

NOTES FROM FELTHAM.

This is a dead season to the lover of deciduous trees; not so, however, to those who have an interest in the many coniferous shrubs and Hollies that are the pride of English gardens. In the Feltham Nursery of Messrs. C. Lee and Son Hollies are at their best, and, according to a foolish country tale, this should be a severe winter, as the plants have not often carried so heavy a crop of berries. The Holly is a tree that has many advantages. It is ornamental at all seasons, but especially in dull winter, when everything except Evergreens is bare of foliage. It thrives in sheltered and exposed situations in ordinary soils, and requires little attention. In the strong clayey loam at Feltham the growth is especially glossy and vigorous. Handsworth's silver variegated is one of the best for smoky towns; platyphylla, Shepherdi, laurifolia, old Silver Queen, Golden Queen, Perry's Weeping, Hodginsi, are varieties that should be made note of, and a good selection of gold and silver-leaved kinds secured, as by these excellent effects can be obtained in the garden.

Euonymuses will require lifting now if the position they are in is cold and exposed. The finer variegated-leaved kinds are not hardy as we understand the term, even if the plants are large. They may pass through a few mild winters unharmed, but the sudden scathing frost of October 2 has damaged them considerably. Large batches of the more tender variegated Euonymuses have been severely crippled at Feltham. Albus marginatus is the hardiest of all, and it will stand 25° of frost without injury; but when it is sharper than this the growth is cut back. Aureus marginatus is the best of the golden-leaved varieties, as it is not blotchy and leggy, as albus marginatus. Maculatus is the tenderest, and radicans variegatus is the best for edging, as it grows freely and has bright coloured leaves. Argenteus marginatus and latifolius aureus are also useful. Messrs. C. Lee are compelled to lift the plants and place them in cold frames in a bed of light soil. Protection is given by a covering of mats in cold weather. Those who live in London and want cheerful window boxes in winter cannot do better than use the variegated Euonymuses freely. Cupressus Lawsoniana erecta viridis thrives to perfection in the friable loam at Feltham. There are few more shapely Conifers than this; the growth is erect, richly coloured, and does not quickly become disfigured by thrips and other insects, as in the case of many coniferous shrubs. C. lutea, a variety of this, has golden foliage, and does well to associate with green-leaved shrubs. C. argentea is also of value. Biota elegantissima is richer in colour than even the bronzy Cryptomeria elegans; the foliage is deep bronzy brown of an unusual shade. The Junipers are an interesting class and make a good growth at Feltham. Taxifolia, the rich green Wallichiana, the well-known chinensis, and Schotti are excellent kinds, the last of the list being very free, of fine colour, and not subject to blight. Retinospora pisifera and its variety aurea are two excellent garden Conifers, and the same remark

applies to squarrosa and the graceful filifera. Thujopsis dolabrata is one of the most distinct; it does well in a loamy soil, and many pot up the plants for the conservatory and greenhouse. There are excellent specimens of Thujopsis borealis, Wellingtonia gigantea (which was moved successfully when between 30 feet and 40 feet high), Picea Nordmanniana, P. lasiocarpa, P. nobilis, Abies excelsa, and A. Menziesi glauca. Araucaria imbricata thrives well here, and this is more than can be said of the wretched specimens so frequently the central object on a narrow lawn. It is not fit for London, and amateurs should carefully avoid a tree that, although exceedingly distinct, is not adapted for a confined garden. There are several specimens of magnificent dimensions in some of our English gardens, but here they have free scope to develop.

The Pyracantha (Cratægus Pyracantha) and its variety Lælandi are a mass of berries in the Isleworth nursery. The variety has large berries and of a more decided pale coral colour than in the better known type. The specimens are protected by fish nets, as birds are partial to the brightly-coloured fruits.

TREE AND SHRUB NOTES.

The *Weekly Press* (Philadelphia) has been collecting through its correspondents some interesting data as to big trees in various parts of the country, and measurements of remarkable trees in fourteen States are published in the number for August 22. Among these are a Live Oak in Marion County, Florida, with a trunk circumference of 31 feet, and a spread of branches of nearly 139 feet; a Sugar Maple in Bradford County, Pennsylvania, with a girth of 16 feet, and branches spreading 83 feet; an Elm in Shinnston, West Virginia, with a girth of 27 feet 3 inches, a spread of branch of 123 feet, and a total height of 110 feet, a Chestnut in Lancaster County, Pennsylvania, with a circumference of 25 feet 3 inches, and branches spreading 88 feet; a Sycamore in Wabash County, Illinois, with a girth of 28 feet, and a Sassafras at Johnsville, Pennsylvania, with a circumference of 13 feet 6 inches 3 feet from the ground, a spread of branches of 35 feet, and a total height of 46 feet.

Symplocos paniculata, a fine Japanese shrub, is now thickly covered with berries in small bunches. The fruit is of a bright ultramarine blue, and makes the shrub conspicuous among those which are valued for ornamental fruit. Another comparatively new shrub, Panax sessilifolium, is now showing large heads of deep black fruits, which hang on the branches long after the large compound leaves have dropped. The old-fashioned Snowberry is one of the few shrubs with white fruits. When growing in a deep, rich soil it has a rare beauty in autumn, and is a graceful plant at all times.

The largest Sequoia yet found has lately been discovered, says the Californian *Sentinel*, near the headwaters of the Kameah River, on a small basin surrounded on every side by a wall of rugged rocks. The hunter who found it in this almost inaccessible little valley reports that the tree's circumference at a point as high as a man could reach was 160 feet.

Juglans manchurica is a most promising nut tree from Japan. A tree in the Arnold Arboretum, from seed planted in the autumn of 1879, has this year borne 2 bushels of nuts. The fruit is larger, more nearly spherical, and less rough than our common Butternut, and is of very good flavour. The nuts are borne in clusters with from six to thirteen together. The tree has borne now for five years, and, besides the valuable crop it yields, it promises well as an ornamental tree.

Rhododendron (Azalea) Vaseyi.—Among the additions which have been made of late years to the flora of the United States, few plants have a greater scientific and horticultural interest than the Rhododendron (Azalea) Vaseyi. Its nearest American ally is the Rhodora. The discovery, therefore, of R. Vaseyi added, as Professor Gray at once pointed out, "another to the now very numerous cases of remarkable relationship between the Chino-Japanese and the Alleghanian floras." R. Vaseyi is a tall shrub with slender branches, 15 feet to 18 feet high, with bright, clear pink, precocious flowers, marked towards the base of the upper lobes of the corolla with numerous darker spots. The flowers are quite unlike in colour, and appear much earlier than those of other American Azaleas. R. Vaseyi was discovered by Mr. George Vasey, in 1878, near Webster, in Jackson County, North Carolina; it was afterward found in Cashier's Valley, South Carolina (directly in the rear of the house long occupied, during the summer months, by the Hampton family), where it grows in great luxuriance with R. arborescens, occupying the low banks of a small stream. During the present season it has been found again, this time by Mr. S. T. Kelsey, upon Grandfather Mountain, in North Carolina, only two or three miles from Louisville, "growing everywhere in clumps and patches on the southern and southeastern slopes, at 4000 feet to 5000 feet elevation, but most abundant and vigorous in moist situations, and is associated with R. maximum, R. catawbiense, and Kalmia latifolia." R. Vaseyi takes readily to cultivation, flowering freely when not more than a foot high, and promises to be perfectly hardy in the climate of Boston.

Rhododendron (Azalea) arborescens.—This beautiful Azalea was first made known to botanists by Pursh, in his "Flora of North America," published in 1816. He had found it in the mountains of Pennsylvania, and in Bartram's garden at Philadelphia, where John Bartram, who was therefore its real discoverer, had planted it many years before. Neither the elder Michaux, who traversed over and over that part of the country where this species is most common, nor Fraser, who had explored the Alleghany Mountains some years before Pursh visited that region, seems to have noticed it, although it is hardly possible that they would have overlooked so common a plant, which they, perhaps, confounded with R. viscosum. It is stated in Nicholson's "Dictionary of Gardening" that Rhododendron arborescens was introduced into English gardens in 1818, but it has probably never been very well known in Europe, and was soon lost, perhaps, from gardens. Rhododendron arborescens is a tall shrub, with slender branches, sometimes 15 feet or 20 feet high. The flowers are white or tinged with rose; the brilliant scarlet stamens and pistil add to the beauty of the deliciously fragrant flowers, which are not viscid like those of its nearest American relative, the familiar Swamp Honeysuckle (R. viscosum). They are later than those of other Azaleas, not appearing until July, and are often obscured by the shoots of the year which precede them, a habit which lessens somewhat the value of this species as a showy garden plant. The leaves, in drying, exhale the perfume of newly mown Grass—a character which has not been noticed in other Azaleas. It is a native of the mountain region from Pennsylvania to South Carolina and Tennessee, where it is frequently found in great abundance, especially among the foot-hills of the high mountains of North Carolina, bordering and often overhanging the smaller streams and filling the woods in early summer with fragrance. It is perfectly hardy in the arboretum, where it requires no special treatment, and flowers every year.

Deutzia parviflora.—This, although but little known in gardens, is by far the most beautiful of the three or four species now cultivated. It is a native of Northern China and the Amoor country, and was sent a few years ago from the St. Petersburg garden to the Arnold arboretum. It is a stout shrub with upright stems 4 feet or 5 feet high. The corymbs of handsome white flowers appear here generally during the first week in June, and are produced in the greatest profusion, quite covering for several feet the upper portions of the stems. Maximowicz, in his revision of the genus Deutzia, describes nine species. They are all Asiatic, three belonging to the temperate Himalayan region, two to Northern China (of these the large-flowered D. grandiflora should be a real acquision in gardens), and four to Japan. It is one of the hardiest and most desirable of the Asiatic shrubs of recent introduction.

Hibiscus lasiocarpus. — This belongs to a group of tall, large-flowered American species of Hibiscus, which have been somewhat confused. Their distinguishing characters, as they have been defined by Dr. Gray, consisting mainly in difference of pubescence and colour, are such as cannot well be shown in an illustration. It has its leaves nearly equally tomentose on both sides, or rather more coarsely so on the upper surface, and the bracts of the involucre are ciliate. The leaves are, perhaps, more frequently cordate at base than in H. moschatus, but the flowers are of the same colour. This species ranges from the coast of Georgia to Louisiana and Southern Illinois and westward. The extreme western form (var. occidentalis, Gray; H. californicus, of Kellogg), of Chihuahua and the swamps bordering the rivers of California, differs merely in the leaves being more uniformly heart-shaped at base, and the capsule pubescent rather than hirsute.

The swamp Rose Mallow (H. moschatus) is the most common of these, being found through the Eastern United States, more frequent in brackish swamps and near the coast, from New England and Lakes Erie and Ontario to Florida and Eastern Texas. The flowers are white or rose colour, with or without a crimson base, and the capsule is glabrous or nearly so. H. incanus is very similar, but has sulphur-yellow flowers with a crimson base. It is found in the swamps of South Carolina and thence to Florida and Alabama, but it has been very rarely collected. Its distinctness from H. moschatus and from the following species was recognised by Dr. Gray from specimens cultivated last season by Mr. Meehan.—*Garden and Forest.*

Weeping Wellingtonia.—In common with most other Conifers, where Wellingtonias are raised from seed there is always a certain amount of variety to be found among the young plants, so that specimens of a more or less pendulous character are frequently met with. The variety pendula nova, however, greatly surpasses all others that have come under my observation. In this the leading shoot maintains its upright habit, but the side branches are strictly pendulous, so that they hang closely to the main stem, and thus form an almost columnar-shaped specimen. This variety originated, I believe, several years ago at Messrs. Little and Ballantyne's nurseries, Carlisle, and up to the present appears to be but little known.—T.

The colouring of leaves.—The variation in the colouring of the leaves of deciduous trees, mentioned by Mr. William Paul on p. 473, may, I venture to think, be explained. No doubt all the trees enumerated are grown from seeds (not grafts), and the universal law is that seedlings shall differ one from the other. Nature insists on a change or variation, or rather never-ceasing progress. The thousands of species of plants known at present can be carried back step by step to a few forms. Of the millions of people upon the globe probably no two are alike, and though the Oak tree is easily recognised from the Elm, no two leaves on each tree match each other. In grafted trees, say an Apple, the same variety may be placed upon fifty different stocks, all seedlings, and should the influence of the stock upon the graft be allowed, as some argue, so should there be a slight difference in every tree, of course in a much fainter degree.—G. C.

SHORT NOTES.—TREES AND SHRUBS.

Laurustinus is flowering freely at Isleworth. It is a shrub that does extremely well in the west of London. Garden Primroses were also in full bloom there a few days ago.

Jasminum nudiflorum is in full flower now in many gardens, and it is earlier in bloom than usual, tempted by the mildness of the season. One of the finest specimens I have seen was clambering over a cottage porch in the old village of Isleworth. It was a mass of yellow bloom, that seemed to glitter in the sunlight when seen a few yards away.—X.

Variegated Laurustinus (Viburnum Tinus variegatum) has the leaves margined with silver, and is of free growth like its parent. There is a large batch of it in the nurseries of Messrs. C. Lee and Sons at Isleworth, but unfortunately it is susceptible to frost. The early frosts of October inflicted considerable injury to the plants and at the time they were in full bloom.

CHRYSANTHEMUMS.

NATURALLY GROWN PLANTS.

The great Chrysanthemum campaign for 1888 is over, and once again preparations have commenced for the fight of next autumn. To half, and perhaps three-fourths of the Chrysanthemum growers of this country the exhibition is the only goal that is to be reached. Many days of careful watching and unnecessary anxiety have to be gone through before the exhibitor can rest satisfied that he has even a chance in a great competition. As the years roll on, this training, stopping, harmful feeding, and unnatural development of the plants become more and more severe. The standard that was considered good a few years ago is ridiculed in the present age of "big things," and the result will be a tremendous reaction, when gardeners and hybridists will see the folly of the game they played with a plant that is fast losing a beauty of an unexampled type. An enthusiastic grower said to me the other day, speaking in reference to a variety that might have been taken for a piece of nibbled Endive, "What are we coming to? A reaction is sure to follow this absurd frenzy about 'size.'" And never were truer words spoken. Every year it becomes a matter of "size." A flower, unless it is large and, to use a common expression, of bold proportions, is tossed on one side as a thing of naught, whereas it may be doubly as beautiful as the hard, full, and stiff representatives of the several types that are the exhibitor's *beau ideal* of true perfection. It is very easy to see the result of this selfish policy. Each section has an absurdly high standard of formality to which every hybridist and every cultivator must strive to achieve. The result is, the Pompons are becoming as hard and ugly as the more formal of the incurved; the reflexed are developing into huge balls of petals as pleasing to the artist's eye as a glass globe; the Japanese are forced entirely out of reasonable limits; in fact, everything is sacrificed to size. This kind of frenzy must have an end. The geometric bedding craze received a crushing blow when the eyes of the public were opened to its untruthfulness and hideous formality, and it has never recovered. So it will be with the Chrysanthemum. The grower has striven until the climax has been reached. The public will soon sicken of the specimens of flowers that are called "beautiful," and instead we shall have a smaller bloom that we may call "natural," because its intrinsic beauty is not crushed by a barbarous course of stopping, feeding, and tying. A house filled with exhibition plants resembles a forest of tall sticks, each stem having a flower poised on top. If this bloom is destroyed, the labour spent over that plant is gone, and the early frosts of this year have taught a lesson that has been very dearly paid for. In a year or two we shall be celebrating the centenary of this glorious flower. In its interest a protest should be made against the setting up of size as the chief thing to be considered. It is to be hoped that many amateurs who now try to ape the professional gardener in his culture of the Chrysanthemum will cease the practice and grow plants that are bushy, abundantly bloomed, and ornamental. The National Chrysanthemum Society can do much to check an unnatural standard. Its work is carefully accomplished, but it is a matter for regret that huge, ugly flowers, as W. and G. Drover and others we could name, find acceptance and are certificated. We went into a house the other day containing plants covered with bloom, each flower of average size and quality, and not forced to absurd dimensions. These plants had been stopped very little, and were clothed with foliage to the edge of the pot. This is the kind of plant many of those who do exhibit should grow. How many good blooms can be counted at a country exhibition? Very few, would be the answer in the majority of cases. Summer shows with their gaunt specimen plants have had their day; so will those devoted to the Chrysanthemum if carried on as at present. Mlle. Lacroix, Cullingfordi, Fair Maid of Guernsey, Mme. Charles Audiguier, Roseum superbum, Barbara, Jardin des Plantes, and Princess Teck were the varieties that were surprisingly handsome and beautiful as naturally grown plants. X.

Outdoor Chrysanthemums in November.—Seldom has there been such a wealth of bloom out of doors in November as this season. The buds were unusually late in opening, and the severe frosts of the first few nights in October gave them a severe check, but not enough to injure them in this part of the coast. The very late sorts, such as Ethel, Meg Merrilies, &c., that we keep out as late as possible, were kept under cover to avoid a more severe visitation. But from that date to this the weather has been uninterruptedly mild, only broken by a few rough gales. The flowers have expanded well, and make a fine display, as when grown under natural conditions the blooms bend down before the rain and wind, and the centres of the flowers keep dry, and as soon as fine weather again prevails and they get light and dry, they assume a more erect position.—J. G., *Hants.*

Chrysanthemums losing their leaves.—Being an amateur grower of Chrysanthemums, and having read your leading articles of late thereon, I shall be glad if you will give a remedy for my Chrysanthemums losing their leaves when in bloom.—W. P.

*** In answer to the above, I may say this is quite usual and a natural consequence. The lower leaves having performed their allotted functions, they, as a rule, die off during the time the plants are in bloom. Where the plants are placed thickly together and light and air are excluded the lower leaves die off more quickly than do the leaves of plants placed at the outside where they obtain more light. If the leaves die off the plants before the blooms develop, some error in culture is apparent. Either too little or too much water has been given to the roots, or the leaves may be badly infested with mildew, or many other causes. These defects should be avoided by careful culture. If the blooms are developing in a proper manner and the leaves dying off naturally, so to speak, the health of the plants is perfect, and nothing could be gained by wishing them to remain longer.—E. Molyneux.

Pompon and border Chrysanthemums.—In these days when the large-flowered classes are in the highest favour, it is possible that we are losing sight of the smaller and often more useful Pompon kinds. Take, for instance, the old Cedo Nulli, Bob, and many others of this class. They are very beautiful when grown as bush plants or for cutting from. I do not mean to say that these should be grown in preference to the larger kinds. Let us have both. There are many who could grow this class of Chrysanthemums and use them in small houses, sheltered spots, and to cut from that have not the room or time to grow the larger bloomed varieties. The Pompon kinds may be planted out during the summer and kept pinched later in summer. Pot them up in autumn. I am convinced that many attempt the growing of the Japanese and incurved Chrysanthemums that have neither accommodation nor knowledge of their requirements. I have seen recently several collections planted out of doors at the foot of warm walls. In every instance the large-bloomed kinds were failures compared with the Pompon and such kinds as President and Julia Lagravère. The latter I saw very fine at the end of November. I well remember that the cottagers grew these well at Bagshot, but of late years I observe they, as well as others, have tried growing the large type. A good supply of bloom may be kept up till the end of the year by growing suitable kinds. The early autumn-blooming kinds are worthy of more extensive cultivation. I am not referring to the very early sorts, as we scarcely want these, seeing how many good border plants are in bloom at the same time. I saw some plants of these, which had been lifted from the open ground, potted early in September and put into cold pits, used for conservatory decoration this autumn. Of late years the colours of this class have been very much improved. When looking through one of the large hardy plant nurseries in London at the end of October I observed a large border of Pompon Chrysanthemums in full bloom, and was told they had only had a mat over them at night.—J. C. F.

Plants as standards.—In some districts Chrysanthemums grown as standards are much prized, therefore much attention is paid to their cultivation. There are different methods of training the heads of the plants; each cultivator has a plan of his own. The best plants that I have seen were those exhibited at the Bristol show. Possibly they had the smallest heads, but their feature was the good quality of the blooms produced. Some growers sacrifice numbers to quality, but in the case of the Bristol plants the reverse was the case. Fifteen to twenty blooms were allowed to develop on each plant, the consequence being that almost the whole of the blooms were good enough to cut and place upon the exhibition table at an ordinary show. The heads, about 2 feet in diameter, were rather flatly trained, and carried large, healthy-looking foliage. Incurved varieties are generally chosen in the Bristol neighbourhood. At the Brighton exhibition, standards are shown in large numbers, and are quite a feature, being much admired by the visitors. Training the heads here takes quite another form. They are made to resemble small pyramids with a blunt top, the base being about 3 feet in diameter, and from 2 feet to 3 feet high, freely flowered, but somewhat stiffly trained. At Liverpool shows, standards have been a feature for many years; the training there takes more of the convex form, and in my opinion is the best method. The Rundle family in that neighbourhood meet with the most favour for standard growing. I have noted the varieties staged at the various exhibitions grown in standard form, and herewith supply the names, so that anyone interested in this method of Chrysanthemum culture may make an early selection of varieties suitable. I have placed the incurved and Japanese sections separate, and followed my usual practice of placing them according to the order of merit, so that a large or small selection may be made. *Incurved:* Lord Wolseley, Mrs. G. Rundle, Bronze Jardin des Plantes, Empress of India, George Glenny, Mrs. Dixon, White Venus, Prince of Wales, and Mrs. Haliburton. *Japanese:* Roseum superbum, Mme. Bertie Rendatler, William Robinson, Source d'Or, Bouquet Fait, and Lady Selborne.—E. M.

SHORT NOTES.—CHRYSANTHEMUMS.

Golden Circle is a very showy Pompon, synonymous with Golden St. Thais. The flower has plenty of substance and lasts well.

Mons. Patrolin is a rose-pink Japanese flower of delicate beauty. A well-bloomed specimen such as the one we saw the other day at the Isleworth nursery of Messrs. C. Lee and Son showed its value.

Tokio is an exceptionally rich coloured Japanese variety, the petals being deep crimson, tipped with yellow. The flower is small, but a free-blooming variety like this is invaluable at this season.

Felicity is a beautiful reflexed variety not very often

seen. The creamy white flowers stand well, and are of great use when cut. A large specimen was in full bloom last week in Messrs. C. Lee and Son's nursery at Isleworth.

Mlle. Lacroix.—In the groups of Chrysanthemums staged at the recent Chrysanthemum show at Brighton, this Japanese variety was conspicuous and very effective, the handsome drooping character of the flowers when partly expanded showing the pale yellow centre of this variety. The plants cultivated in bush form were pinched when young to induce side shoots, the result being a mass of bloom.—E. M.

Source d'Or.—This is one of the best varieties we have for growing in bush form for the production of a quantity of blooms. Being naturally of a dwarf habit of growth, it is easily induced to grow into dense bushes, which flower freely from lateral or side growths as well as from the points of the main shoots. The colour is orange-bronze, with gold tips; the florets reflexed, narrow in shape, and full, the blooms of medium size.—E. M.

Chrysanthemum Elaine.—This variety, as also Fair Maid of Guernsey, were raised by Mr. J. Downton, gardener to Mr. Saumarez Carey, The Grange, Guernsey, in 1870, and I believe were distributed by Mr. Adam Forsyth, of Stoke Newington, from whom I received plants in March, 1872. The date given in the catalogue of the National Chrysanthemum Society is evidently a misprint for 1872. Mr. Forsyth brought out several other varieties which I sent him from this island.—N. J. B., *Jersey*.

Chrysanthemum William Robinson.—This orange-buff sport from Bouquet Fait has been often shown this season. It is a full, solid bloom. Its colour is effective, too, amongst others; while as a specimen plant it has few equals in the Japanese section, its free habit of growth rendering its being easily trained into any form. A specimen of this variety, bearing nearly 200 blooms, the diameter of the plant measuring nearly 5 feet, was shown by Mr. W. Joy, nurseryman, Shirley, at Portsmouth.—E. M.

SEEDLING CHRYSANTHEMUMS IN JERSEY.

I RECENTLY visited the Springfield Nursery, St. Heliers, Jersey, to inspect some 300 or 400 plants of seedling Chrysanthemums raised by Mr. Elliott. The plants in question are arranged in a house 120 feet long, and have been a source of interest to many hundreds of visitors during the last few weeks. Nearly all the sections of the Chrysanthemums are represented, and the plants are arranged in a sloping bank the full length of the house. Several of the varieties are a decided advance on the older sorts, and will doubtless prove great acquisitions. The single varieties were bright in colour and graceful in appearance. They cannot fail to please all who are in search of truly charming flowers. The following varieties are the best in the collection, and well worth being grown:—

JERSEY NUGGET.—A fine full flower of a bright golden yellow colour and of the Japanese reflexed type, the petals being rounded and regularly recurved.

MR. J. BROWN.—This is also a Japanese reflexed variety, the flower large, bright yellow with the centre shaded bright red at the margin of the petals. The shape of the flower is not unlike that of Elaine.

MRS. H. ELLIOTT.—A medium-sized Japanese variety of deep crimson colour, the petals being curiously twisted. The plant is of good habit.

DORIE.—A reflexed variety, the flower being of a pale yellow colour. The plant is of very dwarf habit and good constitution.

CARNEA MAXIMA.—A reflexed variety, the flower having broad rounded petals. The plant is of good habit and very free-flowering.

PLUMOSA ROSEA.—This is a Japanese flower of a deep lilac-pink colour. It is a good exhibition bloom.

MRS. C. HAWTREY.—A single variety, the flower large with pure white petals and yellow eye.

MRS. J. BROWN.—This is also a single kind, soft clear yellow in colour, and the plant is very dwarf and compact in habit.

SNOWDRIFT.—A very neat single pure white flower.

HERBERT PARKER.

La Hougue Boéte, St. John's, Jersey.

Chrysanthemum sport.—I herewith enclose a bloom of Chrysanthemum, being a sport from Bronze Queen. One half of the flower has the colour of Bronze Queen, the other half that of Queen of England. I should be glad if your Chrysanthemum correspondent would say if this is of frequent occurrence.—GEORGE MARSH, *The Gardens, Arle Court, Cheltenham.*

*** Such a sport as that of the flower forwarded is not of frequent occurrence, but it is merely a curiosity. A sport, to have any value, must be something very distinct and well fixed.—ED.

INFLUENCE OF WOOD RIPENING ON BUDS AND BLOOMS.*

THE ripening of the wood of Chrysanthemums is a very important matter in the production of high-class blooms; indeed, without perfectly ripened wood it is impossible to have blooms of the finest quality. What I mean by perfectly ripened wood is wood that is ripened sufficiently by natural means as the result of correct treatment throughout. Sun is essential for the maturation of the wood in all stages of the plant's growth; but in some seasons and districts there may be too much of it and in others not enough, and we must make the best of both circumstances. Wood-ripening does not consist in merely hardening the wood, but storing it with nutriment for the blooms. Forcing the ripening, so to say, by drought or in other ways, contracts the sap-vessels unduly, and impedes the free flow of nourishment for the blooms at a critical time. Those persons who practise such methods in cultivation act erroneously and fail to produce the best blooms.

Seasons vary so much, that the locality in which growers reside is a very important factor in the production of good or bad blooms. Circumstances very often occur over which cultivators have no control. They cannot, for instance, excel during a cold, wet summer in a low, damp district. The higher and drier the locality the harder the wood, and the greater the disposition of the plants to set buds prematurely. This is a difficulty some have to contend with, myself among the number. Where buds are persistently formed long before the time we wish to see them, much valuable time is lost in the growth of the plants in their various stages during the time the buds are forming. Moreover, high and dry localities result in narrow petals and rather small, but solid blooms; while reverse conditions promote broader petals and larger blooms. Where the locality is high, the air, although much rain may be registered, is drier than in the lowlands, and it is this dry air that hastens bud-formation which gives so much trouble to some growers. The proper time to "take" buds of some varieties is upset altogether under such conditions. They form either too early or too late for producing the finest blooms.

Then the question of dew is important. During a hot and dry summer, as in 1887, the absence of dews in high-lying districts is much felt. Dew invigorates, and its scarcity or absence has been the cause of many small blooms. We can regulate and control moisture in the soil, but have practically no power over it in the atmosphere. We may do our best and may do some good, but after all the most we can do is but little in providing compensation for what we may consider the shortcomings of Nature.

When the growth of plants is soft and gross, the latter particularly, and the wood pale green instead of brown in colour, a want of ripeness is evident. Such plants produce blooms large in diameter, but they are usually lacking in depth and solidity of the petals. This is more noticeable in the incurved section than in the Japanese family. Blooms which are composed of extra broad florets are seldom if ever as solid as medium-sized blooms having narrower petals; neither can the former be considered of such high quality as those deeper in build, and consequently more firm and more likely to stand fresh a longer time. Blooms having unusually broad florets often show decided roughness and irregularity, and the grower is not able to present such blooms in the same highly finished condition as when the petals are narrower and the flowers more solid.

The present season is considered to have been a bad one for the growth of large high class blooms, especially those of the incurved section. This is borne out by the examples which have been staged at various exhibitions. It cannot be said they have been of the highest quality, or as they have been shown in some past seasons. Some stands have been extra heavy in the size of the blooms, owing to the immense breadth of the florets, but many of the blooms lacked depth in proportion with diameter, consequently they were not so solid as they would have been had the blooms been deeper in proportion to their breadth. After a summer like the past, we expect to see large blooms which lack solidity and closeness of the petals—a condition which is mainly owing to the unripened state of the wood. I am not in favour of extra large blooms of the incurved section, which are only large in one way—diameter—as they lack depth and solidity. My idea of an incurved bloom is one not great in diameter alone, but deep and firm in build, consequently of a better shape. Such blooms are never seen with extra broad petals, but they carry what is known as a good "shoulder." Such blooms as I have described are the result of perfectly ripened wood and are seldom met with after a season like the past. Where prizes are offered for the premier incurved bloom in a show, this honour generally falls to a specimen of the character indicated, and not to a flower which has merely two points in its favour—extra width of bloom and broadness of florets. Blooms which are generally chosen for this honour are usually remarkable for solidity and high finish, which qualities cannot be obtained from blooms which have extra broad and thin florets. The ripened character of the wood is the all-important factor in the production of blooms of the highest possible standard of excellence, and the complete maturation we seek is obtained, as far as seasons allow, by careful treatment from the beginning.

The method of culture I advise as the most likely to obtain the desired end is that of growing the plants in a regular steady manner, not by fits and starts, such as applying water regularly for a time, then neglecting the plants for a few days. Regular attention to potting is important, as if the plants are allowed to become root-bound many roots must be broken in the process, causing a check to the steady progressive growth that is so desirable in plants for producing the finest blooms. Crowding the plants in their younger stages of growth is most hurtful, and antagonistic to the development of vigorous wood and foliage. Sufficient space should always be allowed the plants. When in their summer quarters they should be arranged in an open position where the sun can shine directly on them, but the position should be protected from north, east, and south-westerly winds, which are often so destructive early in the season when the plants are first placed out of doors. Many plants have been so injured by a loss of their lower leaves during May, that they have never recovered the desired strength. South-westerly winds, which are prevalent during the end of August and the early part of September, often do much damage to the buds and leaves where the plants are much exposed. The flower-buds and their peduncles are at that time so tender, that they are apt to be whipped about and so cause a check to the development of the blooms.

Some growers set too much store on plants with extra thick stems and gross green leaves. These are perhaps pleasant to look upon during the summer by the uninitiated, but when the test of good culture comes to be looked for, blooms possessing the desirable characteristics are generally missing. Very vigorous plants, as a rule, produce blooms devoid of solidity and other essentials.

It is possible to have the plants in some seasons ripened too much in dry localities. The summer of 1887 was a most trying one to contend with in high and dry districts, where not a drop of rain fell for eleven weeks, and scarcely any dew during a greater part of that time. The remedy in this case is that of shading the pots from the sun during the hottest parts of the day, by boards set on edge in front of them, Fern, Cocoa-nut fibre, or mats. Such means keep the roots in a cooler state than

* Paper read by Mr. E. Molyneux at the Chrysanthemum Conference, Sheffield.

they otherwise would be with the sun shining directly on the pots most of the day. In the absence of shade to the pots the roots on the sunny side are almost sure to be killed, and we all know what that means. Plants in low-lying districts invariably produce the broadest florets and the largest, but not the most lasting blooms. The advantage of those which are more solid in character is often exemplified when the two kinds have stood two days at a show and borne the heat of crowded rooms. Those which are firm remain so longer than those which are more or less loose. The latter quickly show an "eye," which proves their weakness and non-sustaining form.

Flower-buds are generally produced upon plants at a more regular time in the various stages of growth when the plants are steadily, hence properly, ripened than when they are not, except in very high and dry localities, where they ripen their growth too early, causing premature bud-formation, which must be counteracted as much as possible, though it cannot always be prevented. Growers in the extreme southern counties often experience too early bud-formation, caused by a too early ripening of the wood, which their northern brethren are strangers to. This generally occurs with the whole of the Queen family, the plants forming flower-buds at times between the end of March and the end of April. This causes a serious interruption in their future growth, and prevents the formation of buds at the time most desirable for the district in which the grower resides.

NEW VARIETIES.

I AM now able to add other varieties to the list of new and desirable kinds given in THE GARDEN (p. 487). Having had opportunities of inspecting them, I have no hesitation in saying they are all worthy of a trial, and many are decided acquisitions to an already long list, especially in the Japanese section.

JAPANESE.

FIMBRIATUM.—Blush white, a full centred flower, the florets deeply toothed at the edges.

OTHELLO.—Bronze yellow, full flower.

L'OR DU JAPON.—Rich yellow.

MME. DUBREUIL.—Lilac, strap-shaped florets, full flower.

MRS. DRAKE YOUNG.—Pure white, petals long and narrow, very full, deep flower; a great acquisition.

SWANLEY WHITE.—The semi-drooping florets are creamy-white, the flower being of good form.

LADY CAVE.—Florets fimbriated and fluted; a fine white variety.

CONDOR.—Broad florets, large bloom, delicate blush white; effective.

VEIL D'OR.—Orange-yellow, form of Mr. Garnar, with the exception that the florets are longer and looser.

MLLE. LOUISE LEROY.—White, with the faintest tinge of blush.

THOMAS STEPHENSON.—An orange-red sport from Criterion, retaining the form of its parent; a decided acquisition, the colour being new.

FORESTER.—One of Délaux's new varieties; pale lilac, deep flower, the serrated florets rendering it effective.

JAPANESE ANEMONE.

MME. ROBERT OWEN.—Pure white, good variety.

REFLEXED.

IRENE.—Full flower, blush white.

ANEMONE.

MISS ANNIE LOWE has well retained the character it was sent out with last year as one of the best pale yellow, large-flowered Anemone sorts.

SINGLE.

SOUVENIR DE LONDRES.—Dark red, good.

ADMIRAL SIR T. SIMMONDS.—The florets, which droop slightly, are of a bright orange-yellow; most effective in a cut state.

M. A. LE MOULT.—Amaranth-crimson; very showy.

INCURVED.

MISS M. A. HAGGAS.—A pale golden sport from Mrs. Heale, and which retains the properties of its parent in form of floret and flower. The growth is robust, and it is a constant variety in producing exhibition blooms. It is at once a splendid acquisition to the incurved section, and a capital companion to Violet Tomlin, a sport from Princess of Wales, which belongs to the same type as Mrs. Heale. E. M.

FLOWER GARDEN.

LARGE WHITE CONVOLVULUS.

THE accompanying illustration conveys a more truthful idea of the beauty of the large white Convolvulus grandiflorus than any description, however elaborate. The common Bearbind that rambles over hedges, and proves a nuisance in more ways than one, is in itself a lovely flower, but it cannot be admitted into a choice garden. C. grandiflorus may, however, claim a place, and gives little trouble except from its excessive vigour. Its growth is very rapid, the leaves richer than those of the common wilding, and the flowers larger, of greater substance, and quite as pure.

Convolvulus (Calystegia) pubescens fl.-pl. is also a plant that is of great use for clothing stumps, rustic arbours, and trellises. It grows with great rapidity, and bears from June onwards double rose-coloured flowers in moderate profusion. Unlike the Convolvulus illustrated, it will not grow anywhere; it prefers a light soil and warm corner. In visiting a number of gardens, it is astonishing what little use is made of climbers. The reason is not because of their scarcity, for there are many beautiful kinds, but they are unknown. We have mentioned two that those who require this class of plants may make use of.



The large white Bindweed (Convolvulus grandiflorus).

Hybrid Foxgloves.—In his note upon Foxgloves in THE GARDEN, Nov. 24 (p. 489), "D. K." asks whether any others have had his experience of the difficulty found in hybridising Foxgloves. I was enabled to secure distinct hybrids on two successive occasions without much difficulty, but I cannot now recollect whether I employed purpurea or grandiflora (so misnamed) as the pollen parent, but the product was the same in each case—plants of an intermediate kind, fairly robust growing, leafage nearer to that of purpurea than to grandiflora, flowers of medium size and of a pale reddish hue. The hybrids were interesting because they were hybrids, but were by no means ornamental, and the plants died out in about two years. They seemed less capable of enduring our winters than the plants of purpurea. I do not find grandiflora any too hardy; indeed, it is difficult to keep it here through the winter. Foxgloves seed so abundantly, and also come so freely from seed, that it is not of material consequence that they are practically biennials. In some cases the stools will yet stand a year or so longer, but all strains show best form if the seed be sown in the spring, and the young plants got out early that they may become strong, and thus throw up several fine spikes of flowers. I like the white-flowered forms and the pretty flesh or pink-coloured ones, both having deep coloured blotches in the throat, better than the red or purple flowers, but only perhaps because the pale hues are not to be found wild and the dark tints are. Foxgloves seem more fitted for the wild garden than they do for primly-kept pleasure grounds. —A. D.

Cocoa-nut fibre for layering Carnations.— Although Cocoa-nut fibre is used in the garden for many purposes, I do not remember having seen it recommended for layering Carnations. I have used it during the past season, and I find that all those layers that had some fibre mixed with the soil have more roots than those which had none. I am so satisfied with it that I hope to use it to a much greater extent another year. I should not like to use it fresh from the manufactory. The material I employed had been laying about for some time. In preparing it for the Carnations I mixed about half its bulk with some fine soil instead of sand. To mix with the soil I consider it much better than sand. —J. C. C.

Giant Daisies.—Mr. Gumbleton very kindly writes to inform me that the giant Daisy, now blooming from side shoots so freely, is not Chrysanthemum maximum at all, but the true lacustre, or, as he prefers to call it, latifolium. The true maximum seems to be little known apparently, and as it blooms in July, is doubtless a large form of C. Leucanthemum, and nothing more. I confess having always been puzzled to understand why this late-blooming Daisy should have been classed as a large Leucanthemum, as it bears no resemblance to our old friend of the field. Its habit and character are as diverse as possible, and stamp it as a distinct species. Latifolium seems to be the best appellation, as the leafage is long and pointed. The plants this year, in addition to blooming so late, are already sending up an abundance of strong growths, so that unless harmed by severe frosts the clumps will help to render borders green and dressed through the winter.—A. D.

Iceland Poppies.—This year the fragile, but beautiful Iceland Poppies have been largely grown, and as the range of colours becomes greater their cultivation will steadily increase. Not only the Iceland Poppy, but many other forms of Papaver are gaining notice, and it seems that this special flower will have a season of prosperity. Those who are making up their seed lists for next year should bear the Iceland Poppies in mind. The seed may be sown in the open, and the plants come up thickly, as is the nature of all the Poppies. By sowing seed at stated times a succession of flowers will be obtained through the autumn. There are white, pale

yellow, orange-scarlet, and other colours, but the most beautiful are the white and the yellow. The plants are neat in growth, compact, and bloom freely, so that they may be used as edgings to large beds. The Shirley Poppies represent a lovely strain, and may well have a corner in the garden.

HELIANTHUS TRICUSPIS AND ITS VARIETY SEMI-PLENUS.

This is said by a recent author to be a variety of Helianthus lætiflorus (Pers.), but I maintain that it is not a variety of either of the plants that the author alluded to described as Helianthus lætiflorus (Pers.). Helianthus tricuspis type is a very rigid mid-autumn flowering species, attaining a height of from 3 feet to 4½ feet, with large oblong, ovate-lanceolate, green coriaceous leaves and with fourteen to sixteen bright yellow ligules. It will be found accurately described in Elliott's "Botany of South Carolina and Georgia," vol. ii., p. 422, pub. 1824; De C. Prodr., vol. v., p. 588, pub. 1834; as Helianthus scaberrimus (Elliott) in "Botany of South Carolina and Georgia," vol. ii., p. 423, in slight part; as Helianthus silphioides in Nutt. Trans. Am. Phil. Soc., vol. vii., p. 366, in slight part; as Helianthus sparsifolius (Elliott) in "Botany of South Carolina and Georgia," vol. ii, p. 415, in part; as Helianthus lætiflorus var. tricuspis in Asa Gray's "Synoptical Flora," vol. ii., p. 275, pub. 1886. With the name given by Dr. Asa Gray I do not agree. It being totally distinct from any other species, I wish to re-claim for it its former specific honour, and admit it to be an allied species of Helianthus lætiflorus and of Helianthus tomentosus, both of Gray's "Synoptical Flora." Helianthus tricuspis now appears to have dropped out of cultivation, while its variety semi-plenus, which is much more showy and deservedly meritorious, seems to have gained favour, and to this form I wish to draw equal attention as regards the name. Helianthus tricuspis (Elliott) var. semi-plenus has, as will be seen by the name, a character which ought not to allow it to stand as a species, as has been the case, being first described as Helianthus lætiflorus by C. H. Persoon in "Synopsis Plantarum Seu Eucheridium Botanicum," vol. ii., p. 476, pub. 1807. "In this description it is said to possess many ligules. In cultivation I have found it produce from twenty-seven to fifty-nine ligules in a head. Many of the heads when at their best are 5½ inches in diameter."—Gray in "Manual of Botany of the N. U. States," p. 256, pub. 1879 (in part).

It has also been grown of late in gardens under various names. In the autumn of 1885 I received from Mr. Moore, Curator of the Botanic Gardens, Glasnevin, Dublin, this form as Helianthus doronicoides (?), and again in autumn, 1887, as Helianthus lætiflorus (Dod). There can be no doubt but that the kind I write about is precisely the same as that known under the names of Helianthus lætiflorus (Dod) and Harpalium rigidum var. semi-plenum (Baker), and to which a first-class certificate was granted by the Royal Horticultural Society's floral committee, September 25, 1888, under the name of Harpalium rigidum semi-plenum (Baker). To this certificated name I protest, and assert that this semi-double form of tricuspis has nothing whatever to do with what is known as the shagreen leaf kinds, or as Harpalium rigidum (Cass), which are the Helianthus diffusus forms mentioned in The Garden, November 10, 1888, p. 430, and which are earlier flowering and totally distinct, and belonging to the section possessing reddish-black discs, while the disc of the Helianthus tricuspis forms are yellow. I would strongly advise that this Helianthus tricuspis semi-plenus should be figured, as it is very desirous to have distinct kinds such as this fixed and figured under such nomenclature as will prove best for all practical purposes. S. Appleton.

St. John's Nurseries, Worcester.

Summer-flowering Clematises.—Considering the large number of varieties of Clematises that have been distributed about the country, it is surprising how few there are to be found growing and flowering in a satisfactory manner. This is not because they are wanting in effectiveness when they are cultivated under conditions that suit them. It is very evident that it is a difficult matter always to find out what these conditions are. If Clematises were less particular in regard to the soil or aspect in which they are grown, it is very certain that good examples would be more frequently seen; as it is they are the exception, for I have met with many plants making a weak growth and producing very few flowers. I met with three varieties last summer which, owing to their satisfactory condition, appeared to me to point to the position that suits them best. The varieties in question were Lawsoniana (rosy purple), Otto Frœbel (greyish white), and William Kennett (lavender). These were growing against a well-sheltered east wall. All of them were flowering grandly in the month of August, and I was told that they had been in that condition for six weeks previous, with every indication that they would continue to do so for several weeks longer. Lawsoniana was the most vigorous of the three sorts.—J. C. C.

THE SPECIES OF GLADIOLUS.

The genus Gladiolus, as at present defined, includes about ninety species. The latest authoritative review of the family to which the genus belongs is in the "Genera Plantarum" of Bentham and Hooker, and this differs considerably from Mr. Baker's in the sixteenth volume of the "Journal of the Linnean Society," under date of 1878; and as we go backward along the line of botanical literature we find very great variety and even confusion of views as regards the genus. Species of Ixia, Anomatheca, Watsonia, Acidanthera, Tritonia, Babiana, &c., have been considered Gladioli by various authors, and many now called Gladioli have been previously referred to Homoglossum, Watsonia, Geissorhiza, and other genera.

The genus is somewhat widely dispersed. Though by far the greater number of species are South African, one, G. illyricus, strays as far to the north and west as the New Forest, in England, and others are found on the Mediterranean coasts and islands, and as far eastward as Persia and Afghanistan. A few occur on the western coast of tropical Africa and a few on the eastern, while three or four are indigenous to Madagascar.

This wideness of range indicates great dissimilarity of constitution and requirements among the species; accordingly we find some that flourish with vigour under cultivation and others that die away in spite of all our pains; some that will endure, unprotected, the rigour of a New England winter and others that will tolerate no frost at all. As the hardiness of a plant, however, does not depend upon temperature alone, the native country of a species affords no sure indication of its ability to withstand severe cold.

The species of the north temperate zone are not, as a class, as showy as the tropical kinds; yet, in their way, they are very beautiful, and, as far as I have tried them, perfectly hardy. According to Baker's enumeration there are fourteen of these and several well-marked varieties. Few of these are in cultivation, though some of them are very desirable, especially the purplish blue G. Kotschyanus of Persia.

I find that G. byzantinus, G. communis in its three varieties, G. imbricatus, G. illyricus, G. segetum and G. triphyllus withstand the cold of our winters very well, though the last named, a Cypriote species, is a little tender unless in well-drained soil, and even then it is better for a covering of leaves. It will be found, indeed, that all of these kinds will do better with some protection; and, in fact, without it will increase very slowly, if at all.

The African species are the most satisfactory for horticultural purposes, being in the main more beautiful than the others and generally very easy of cultivation. A few of them attain the height of stalk and something approaching the size of flower of the gorgeous garden hybrids so generally cultivated under the name of G. gandavensis.

The following species are best treated as the hybrids just mentioned; that is, planted in the open ground in May and taken up again in October. They may be kept in boxes in a cellar where the winter temperature is about 40° Fahr.

G. purpureo-auratus.—This is a native of Natal. It has stiff, narrow, and somewhat glaucous foliage, and a slender, but rigid flower-stalk about 3 feet high. The flowers are from six to ten, of a peculiar shape, the upper segment being curved over like a hood. They are not large, 1½ inches being the average breadth, and are yellow, with blotches of a colour between crimson and purple. The ground colour is by no means as strong and pure a yellow as in the figure in the *Botanical Magazine* (t. 5944), but somewhat greenish. This species is likely to be better known in its offspring than in its own person, for it is one parent of the "Lemoine hybrids," so-called, which are remarkable for their vivid blotches and their peculiar shape, both of which characteristics are derived from the species under consideration.

G. purpureo-auratus seldom seeds from the influence of its own pollen; such, at least, is my experience, for though I grow a great many every year in one mass, from the seed of which I have raised many hundred plants, I have never had but two seedlings which did not show the influence of the gandavensis varieties growing near them. This species forms a good many bulblets which lie a little way from the old corm, to which they are joined by short connectives. They have a thinner coating than those of the gandavensis sorts and start into growth more readily. This is the hardiest of the African species. I have known it to come up for several years among the Grass in a field.

G. floribundus.—This is a very pretty low-growing kind, bearing from ten to twenty blush white flowers on a stem about 18 inches high. These are never fully open, as we are accustomed to see Gladioli, but retain a half-closed appearance. They are usually somewhat crisped along the edges.

G. cardinalis.—A very brilliant scarlet and white species of low stature and great beauty. The bulbs of this, as well as of the hybrids of which it is a parent, viz., G. Colvillei, ramosus, floribundus, candidus, and incarnatus, will not endure being kept long out of the ground; at the same time, if left in the soil late in the summer they will make an autumnal growth to which the winter will be fatal; they ought, therefore, to be lifted a month after flowering and replanted in October either in a frame or in a raised bed of earth with a thick covering of leaves.

G. cruentus.—This is a magnificent species from Natal. Its manner of growth is very peculiar, for, while many kinds may be put into the ground on their sides or tops, as well as on their bases, the shoots rise perpendicularly from the centre of the corm and hence enter the air at all angles. The foliage is drooping, unlike that of any other kind, while the bulb is dissimilar to all others, being bright yellow, almost globular and scantily covered with a very thin papery husk. The flowers, though few, are very showy, deep crimson with an irregular band of white across the three lower segments. They are 4 inches and sometimes 5 inches across. G. cruentus has one bad fault; it is a very late bloomer.

G. psittacinus.—A peculiar and not very showy species. It has short, rigid foliage and flower-stalks about 2 feet high. The flowers are yellow, thickly dotted and lined mahogany red; throat yellow. The flowers are narrow and appear to only half open. Seedlings from this vary somewhat, though unmixed with any other kind. Among twenty raised from pure seed there are six which differ considerably from their parent, though plainly G. psittacinus, and nothing else. One or two of these are very handsome. This species and the next increase more rapidly, both by bulblets and by growth from the buds of the old corm, than any others I have seen; unhappily, they are the least desirable.

G. dracocephalus.—A very tall species (4½ feet or 5 feet), with a spike of narrow, inconspicuous

flowers, green, spotted and grained with dull red. This, on my grounds, never has perfect anthers, and I have never been able to get a grain of pollen.

G. Saundersi.—This very beautiful species is offered for sale by nearly every dealer, and is presumably better known than most others. Its foliage is short and quite glaucous; the flower-stem not high, and its flowers large and very showy, being scarlet mottled on the lower half with white; their form also is very elegant. Taken for all in all, this is one of the very best species.

The following being small in bulb and plant and flower, will give most satisfaction as pot plants. They should be grown in 4-inch or 5-inch pots, in light rich soil, and should, for the most part, be potted in late autumn.

G. tristis.—Like very many of the African species, this has narrow, almost Rush-like foliage. I have been most pleased with this plant when I have potted the bulbs in autumn and kept them through the winter in the greenhouse, though like many, perhaps all, of the tender species, it may be successfully wintered out of doors if deeply planted in a dry soil and well covered with leaves. With me it blossoms in April, the flowers being four or five, comparatively large, of a light creamy tint, sprinkled with small dark spots, and strongly fragrant from dusk to dawn. How excellently adapted to insect fertilisation! How plain that it is fecundated by some nocturnal moth allured by the large light flowers, whose powerful fragrance exists only during the hours of darkness! Unhappily for the theorists, who know so well why fragrance was given to flowers, however, Gladiolus tristis is perfectly self-fertilising. It does not depend upon nocturnal or diurnal insects, but every blossom, even when protected from insect visits by gauze, will form a capsule of perfect seed. From such I have raised scores of seedlings. It is to me evident that perfume is not always (even if ever) provided to ensure fertilisation by means of insects.

G. recurvus, called also G. ringens, is best treated like G. tristis, as it is a weakly-growing kind. Its flowers, though few, are very pretty, being of a shade of lilac approaching blue, with a whitish throat.

G. gracilis.—A slender plant, with two or three lilac and black flowers. Though apparently hardier than many sorts, it is too delicate for the open ground.

G. cuspidatus.—Another Rush-leaved kind, with flowers of a singular shape. Their segments are very long, narrow, and twisted. Colour creamy white, blotched with purple and yellow.

G. villosus.—I received this three years ago, and have been very unsuccessful with it, having seen, so far, but one flower. This was borne on a stalk 10 inches high, and was of a pinkish colour. The entire plant is covered with short, fine hairs; hence its name. This is not the G. hirsutus of Jacquin, but of Ker.

G. Milleri is a pretty species of small stature with light yellow flowers.

G. alatus.—I have tried this species many times, but all in vain: it will not flower, nor can I keep it. The bulb starts readily enough, and so does the seed when obtainable. I have now over 100 seedlings three years old and no larger than a grain of rice. If we may trust the published figures, this is one of the most beautiful species. Its colours are scarlet, yellow, and orange.

G. sulphureus, considered by some to be a variety of Babiana stricta, is a small species, but robust enough to maintain itself in the open ground. Flowers few, yellow, but of a deeper shade than the name implies.

G. Watsonius.—This is called by Baker a species of Homoglossum, a genus not admitted by Bentham and Hooker. I have had it only during the present season. In April I received fifty bulbs of it from the Cape of Good Hope, some of which I found had started into growth. I potted them and they bloomed in June. The foliage is plaited in four strong folds. The flowers are of an intense vermilion colour. A very desirable kind.

G. carneus.—At least four different plants have borne the name. I seem to have the one figured in Rédoute's "Liliaceæ." It is pretty, though not showy. The ground colour is pink with darker blotches on the lower segments. I have known this to endure a severe winter out of doors and blossom well the following June. I prefer to cultivate it in a pot.

I have many other species which I have not yet seen in flower, and of which I do not now wish to speak. At some future time I hope to describe them from my own knowledge.—W. E. Endicott, in *Garden and Forest*.

Carnation Paul Engleheart.—I read with interest the remark of "W. B. H." in The Garden, December 1 (p. 502), that the above Carnation has been common for years in the cottage gardens of the county of Cork, as it confirmed the opinion I formed when I saw it flowering under the above name this year. I remember it was common in the gardens about Limerick. This sort was sent out last year "as a new crimson Clove," and at the high price usual in the case of new things. Had plants of it in flower been shown at any of the exhibitions where Carnations are made a feature of, its identity would have been recognised and the mistake of sending out this old acquaintance as a novelty would have been avoided.—Amateur.

Irish Daffodils.—I have no desire to continue this discussion against the editor's judgment. It seems, however, desirable to repeat what Mr. Hartland appears not to understand, that I do not charge him with intentionally misleading his customers. In his rejoinder, so far as I can make sense of it, he fully acknowledges my contention, namely, that he has sent out Daffodils "not knowing what they were," and has subsequently "put into one pigeon-hole" varieties which he formerly offered as distinct. It is his persistence in this habit which has again made it necessary to raise a protest which I had hoped would be no longer called for. It is a pity that Mr. Hartland (p. 502) adheres to the absurdity of giving two names of his own invention, white variiformis and tortuosus minor, to a little plant which is generally known and has, I believe, been certificated as moschatus.—G. H. Engleheart.

Diseased Christmas Roses.—A question on this subject from "G. C." in The Garden, Dec. 1 (p. 503), ought to be noticed. I am afraid that "G. C.'s" Christmas Roses are suffering from the worst plague to which Hellebores are liable, and which, if allowed to spread, will inevitably destroy the whole stock. It is caused, I believe, by a microscopic epiphytal fungus belonging to a genus called Peronospora. This first shows itself by dark spots on the leaves, then by wrinkled black scars on the stalks, and finally descending to the crown it causes the whole plant to rot. The variety most liable to its attacks is that known as H. niger maximus or altifolius, of which I have more than once from this cause lost a large proportion of my stock. I am afraid there is no cure for a plant when once attacked. I have tried cutting off the diseased leaves and dusting the others with flowers of sulphur, but sooner or later the fungus reappears in some other part, as if the spores were circulated with the sap. I am told that the best plan is at once to burn all the plants attacked, but perhaps other readers of The Garden may have found some less desperate remedy. One thing is certain, that too great care cannot be taken before introducing plants of Christmas Roses into a garden to see that they have no taint of this destructive and fatal pest.—C. Wolley Dod, *Edge Hall, Malpas*.

Doronicum plantagineum.—This lovely Composite commenced to flower here in March last before the snow had left us, and it is almost the only occupant of the hardy border, except the great Christmas Rose, which looks bright and in good form at present (Nov. 20). This Doronicum is one of the hardy perennials that derives great benefit from frequent division; in fact, the more it is cut up the more vigorously it grows and flowers, and with a little attention in dividing and planting no perceptible check is given. A group planted about three weeks ago is now flowering freely, more than a dozen flowers being fully expanded and many buds are showing. I measured the largest bloom to-day and found that it was just 4 inches in diameter. All the flowers are perfect and without blemish, though high winds and beating rains have prevailed for several days past. It is the most refined-looking flower of its class that I know, and its freshness is especially noticeable when all is so dull and weather-beaten.—J. C. Tallack.

Senecio pulcher.—This beautiful plant has flowered well this season, and its showy spikes of lustrous purple flowers were to be seen in many gardens as late as November. Of course, this is simply due to the mild season, as the flowers of Senecio pulcher are amongst the first to succumb to the nipping frost. A plant was recently in bloom in the Broxbourne nursery of Messrs. Paul and Son, and it does well in a moist, peaty soil, wherein the finer kinds of Spiræa and plants that require similar conditions of soil thrive well. Senecio pulcher is quite hardy and needs little attention. One great point is to tie up loosely the straggling flower-stem to prevent injury from winds. Every border should have this characteristic hardy plant.

FLOWER GARDEN NOTES.

Primroses in midwinter.—We have a large bed of mixed seedlings flowering so profusely, that we could gather a nice bunch daily. The seed is of our own saving from a strain obtained in the first instance from Mr. Dean, of Bedfont, and the flowers range in colour from deep velvety maroon to almost pure white. The seed of the plants that are flowering best was sown in March, 1887, and the latter are now immense tufts. The plants from seed sown last March are of moderate size and sparsely flowered, but the quality of the blooms is far in advance of that on the older plants. I give preference to the younger plants on this account, and firmly believe that if a little more attention as regards watering and mulching had been given them during the summer, they would now have been quite as large and as free-blooming as the older plants. I have never known them grown nor have ever heard of them being recommended to be grown in frames in winter, the same as we force Violets; but except their lack of the sweet scent of Violets they are just as worthy of the same care and attention throughout the winter months. Their present beauty in the open air has made me resolve that another year they shall share our limited frame space with Violets, and thus I have no doubt but that we shall get a supply of blossom for as long a period as we do of Violets.

Other winter flowers.—The Chinese Jasmine (Jasminum nudiflorum) is, I think, this winter more free-blooming than ever; at this early period on a trellis-work having a north aspect it is a complete sheet of yellow. The trellis has been covered with the plant for years, and the only attention it now requires is to keep the growth within bounds. This is done by shearing over the plant as soon as the flowering period is past and again about midsummer. At this second clipping the shoots are left a greater length than at the first one, with a view of having flowering shoots of sufficient length to use as cut flowers, and the full advantage of which we are now reaping, as they are being used daily in this form, and with a few sprays of Maiden-hair Fern interspersed, they make an elegant floral display. The Laurustinus (Viburnum Tinus) is flowering exceptionally early and freely, and I note that the older the bushes the more abundant and finer are the flowers. The Laurustinus should be planted more freely in mixture with Rhododendrons, as the two species go well together. The same soil also suits both. The Pompon varieties of Chrysanthemums as out-of-door flowers have this season proved their value. Those long-to-be-remembered early October frosts did them little or no harm, and they have flowered freely ever since. The large-flowered varieties have, and are still flowering moderately well, but heavy rains cause them to have a very bedraggled appearance, so that, compared with the sturdy, head-erect Pompons, they are not in the running at all, and will in

future be excluded from our open-air list. On sheltered walls the large kinds do well, as all can testify that have seen the wall of them in the gardens at Swanmore, where Mr. Molyneux pays the same attention to this outside mode of culture as he does to his pets for the challenge cups.

Effective surfacing plants.—Any species of plant that serves to make flower beds or borders look cheerful in winter deserves a special mark of the flower gardener's favour, and that favour can be best shown by making the plant of use in winter. I have several plants in my mind's eye that not only serve us in good stead in winter, but are almost of equal merit as all-the-year-round flower garden plants; indeed, some two or three have thus served us in the same positions for two years past. That which just now has the most pleasing effect is Antennaria tomentosa. It is planted as an undergrowth to the golden-hued Retinospora plumosa aurea. The shrubs are about 30 inches high and 18 inches in width at the base, and the carpet of Antennaria projects about 8 inches beyond the base of the plants. Another plant nearly as effective, but of a very different type, is the small glossy green-leaved Periwinkle (Vinca minor). The plant is used as a setting for golden variegated Hollies and Aucubas. The common wood Ivy we have used in the same way and as a substitute for the Periwinkle when the latter has run short, but the Periwinkle is the best. The larger-leaved variegated variety is a most excellent carpeting plant for green shrubs, and the best of plants for draping the sides of vases and for planting on rock or rootwork, showing up conspicuously at all seasons. The dense and almost flat-growing grey Sedum glaucum is perhaps more generally useful than the silvery Antennaria. It can be used in a great variety of ways without fear of failure, but in low-lying positions and in damp soils generally the Antennaria is liable to damp off. This Sedum, however, bears damp and drought alike with impunity. The form in which it is most pleasing at the present time is that of a marginal or outline plant of the width of 9 inches, the small beds formed by it being filled with winter and early spring-flowering Heaths (Erica carnea and E. mediterranea). We have it also planted as a groundwork plant for small specimens of the dark green, upright-growing Lawson's Cypress (erecta viridis), and both the Sedum and the shrubs formed part of the summer arrangement of a long flower and foliage border. The summer brightness is, of course, now lacking, but the sombre hues of these and other small shrubs that were planted as soon as winter began are as bright comparatively as was the summer arrangement. Sedum glaucum has no equal as an edging for the rock garden and fernery, and, in fact, I have seen it used as an edging plant for kitchen garden walks, being kept in line by cutting it with an edging iron twice or three times a year. There are several other closely allied species that do remarkably well when planted in similar positions, and for the sake of variety it is worth while to use them. The best forms are Sedum dasyphyllum, S. brevifolium, S. rupestre, and S. acre elegans. The most beautiful green surfacing plant, and one that virtually takes care of itself when once planted, is Herniaria glabra. We have for several years used this and the less robust-growing variety, H. hirsuta, both as summer and winter flower-gardening plants, and, speaking advisedly, they are unequalled for forming dark green masses of colour beneath lighter shades of any kind of plant. The variety glabra will root quickly and thrive in the poorest soil and with as little moisture as most plants; hence its adaptability—in which form we use it largely—for the forming of upright edgings to beds, these edgings being at the present time quite a feature in our winter bedding arrangements. I have often intended, but hitherto never put it into practice, to clothe the bare ground beneath perennials with this plant. There is no doubt of its effectiveness in such a position, and, what is more, it grows so densely that weed growth would be next to impossible. This double cropping of the ground might be objected to by some, on the plea of impoverishment of soil, but the plant is so purely a surface rooter that I question whether the least injury would be caused to the perennials by its presence. But, granted that slight exhaustion of soil would result, it is surely worth something to produce a permanent evergreen effect. There are other plants that could doubtless be made to do duty in the same way as those I have named, but, having no personal experience of them, I prefer to enumerate only those that have proved useful to me.

W. Wildsmith.

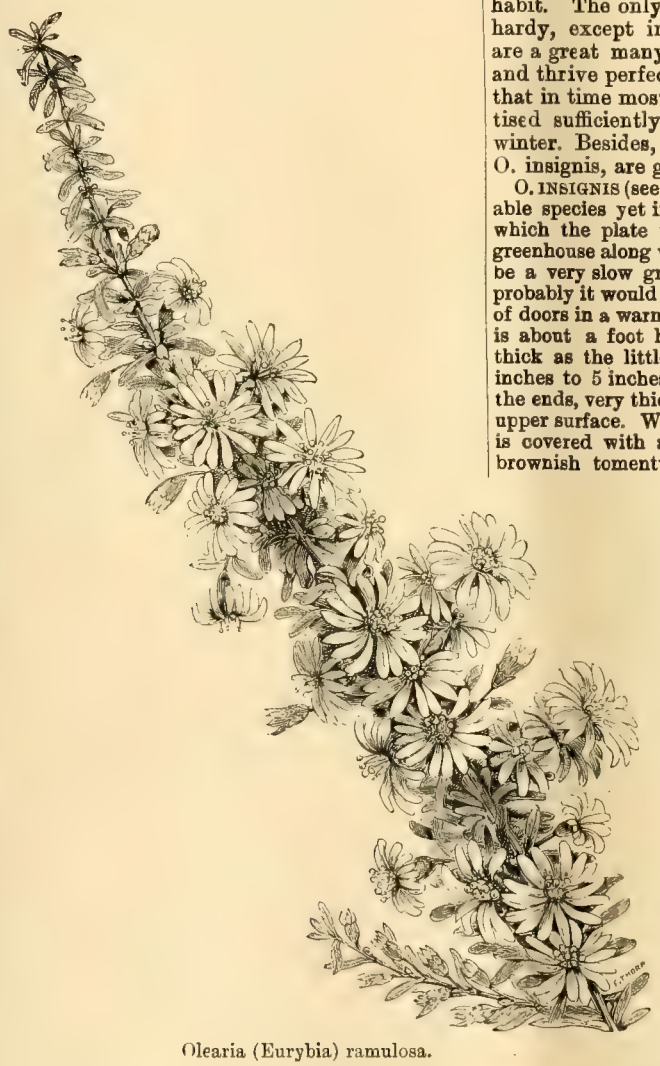
Garden Flora.

PLATE 678.

DAISY TREES.

(olearias.*)

The publication of the accompanying plate of one of the most interesting of the Olearias affords an opportunity for bringing together all the information we have respecting some of the species as garden plants. Some of them have been in cultivation many years and still remain comparatively unknown, whilst several newer introductions have come to the front as good ornamental shrubs for out-of-doors in the south and other favoured parts of England. The following list comprises all that are known to be in cultivation in English gardens.



Olearia (Eurybia) ramulosa.

To make matters plain we must begin by following the lead of botanists who have merged the genus Eurybia into Olearia, so that all those plants which have been known by the former name must now be called Olearias. The name Eurybia is entirely obsolete. This gives us a genus of over eighty species, all of them natives of New Zealand and Australia. Most of the kinds in cultivation here are natives of the former country. But amongst the Australian species there are many beautiful shrubs which would pay for their introduction. Indeed, O. insignis is exceptional amongst the New Zealand kinds, but resembles some found in Australia. In the latter country there are species with large flowers in which the ray florets are blue. The genus is very closely related to Aster, which is so extensive in the northern hemisphere, especially in America.

The species already in cultivation are really useful and handsome shrubs, easily cultivated, evergreen, very free-flowering, and of good habit. The only drawback is their not proving hardy, except in warm localities. Still, there are a great many gardens where they will grow and thrive perfectly, and there is also the chance that in time most of the kinds will get acclimatised sufficiently to bear an ordinary English winter. Besides, some of them, as, for instance, O. insignis, are good greenhouse plants.

O. insignis (see plate).—This is the most remarkable species yet introduced. The Kew plant from which the plate was made was grown in a cool greenhouse along with Cape Heaths. It appears to be a very slow grower when cultivated in a pot; probably it would grow more rapidly if planted out of doors in a warm, sheltered situation. The plant is about a foot high, branched, the branches as thick as the little finger; the leaves are from 3 inches to 5 inches long, 2 inches broad, rounded at the ends, very thick and hard, shining green on the upper surface. With this exception the whole plant is covered with a thick, felt-like coating of pale brownish tomentum. The flowers are on erect peduncles, which are as thick as a goose-quill and from 6 inches to 9 inches long. The flower-heads are a little over 2 inches across; the involucres covered with stiff needle-pointed scales; the ray florets numerous, white, and the disc broad, compact, and yellow. The flowers remain fresh on the plant for about six weeks. In my opinion this plant is one of the most interesting and prettiest of the Composites which are found in Australia and New Zealand. The Kew plant was shown in flower at one of the meetings of the Royal Horticultural Society in the summer of this year. It failed to ripen seeds at Kew. It is a native of Middle Island, in New Zealand, where it is said to grow on the driest rocks.

O. argophylla is the Musk-wood of Tasmania and New South Wales. The whole plant smells very strongly of musk when bruised, a single leaf rubbed in the hand emitting a very powerful and agreeable odour. The wood is useful in cabinet-making. Large plants of this species are grown in the greenhouse at Kew, where it forms a shrub covered with oblong, toothed leaves, which are clothed with silky hairs. The flowers are small and of no account, but the plant is worth growing for its fragrance. It is of the easiest possible culture, requiring greenhouse treatment.

O. dentata is cultivated in the Scilly Isles and other favourable localities, where it forms a large bush covered with rusty brown tomentum, except on the upper surface of the leaves, which are about 2 inches long, ovate, and toothed. The flowers are over 1 inch across and numerous, in terminal

* Drawn for The Garden by H. G. Moon, in the Royal Gardens, Kew, July 13, 1888. Lithographed and printed by Guillaume Severeyns.



DAISY-BUSH (OLEARIA INSIGNIS)

racemes; the ray florets number about twenty, each half an inch long, curved upwards, forming a saucer-like head; they are white, tinted with rose, the disc being bright yellow. This is a beautiful flowering shrub which would probably thrive in the south of England in sheltered situations. It grew well at Kew against a wall for several years, but was destroyed by a very severe winter. It is a native of New South Wales, where the flowers are sometimes blue. For the plant introduced from New Zealand under the name of O. dentata, see under O. macrodonta.

O. Gunniana is quite hardy in the south of England. At Coombe Wood it thrives without any protection on a slope and planted in light sandy loam, producing every summer a mass of beautiful blossoms. Against a sunny wall it ought to do in almost any part of England. It forms a bush, with small, toothed, green leaves, the under surface and other parts of the plant covered with white, felt-like tomentum. The flowers (as shown in the illustration) are very abundant, clothing the branches with a mass of white Daisy-like blooms, which are borne singly on the ends of hundreds of tiny branches on the upper part of the large branches, and they are 1 inch across, with about a dozen ray florets, which are half an inch long and white, the disc being yellow. This species is also a good greenhouse plant. It is a native of Tasmania.

O. Haasti.—Whether grown as a pot plant or against a wall or in the open border, or even as a specimen on lawns, this shrub almost invariably gives satisfaction. It is hardy in most parts of England, growing to a large size in the more favoured localities. It has been recommended as a suitable plant for sea-side gardens by several who have tried and proved it. If planted in large groups it has a good effect when covered with its thousands of Aster-like flowers, and even out of bloom it is attractive. In New Zealand, where it is found at altitudes of about 4000 feet, it grows into a small shrubby tree. Here, however, it forms a compact bush, not unlike a Box plant. The leaves are oval, three-quarters of an inch long, leathery, shining green above, white beneath, where they are covered with felt-like hairs, as also are the stems. The flowers are very numerous, in terminal corymbs, the ray florets quarter of an inch long, white, the disc yellow. The plants usually bloom in August and remain in perfection several weeks. Messrs. Veitch, of Exeter, were the first to introduce this species, which flowered with them in 1858.

O. ilicifolia is very similar to O. macrodonta, differing in being less thickly covered with down, sometimes almost glabrous, and the leaves longer and narrower. The flower-heads are exactly the same in both species A plant of the former kind is growing against a wall at Kew, where it flowers in June. It is a native of New Zealand.

O. macrodonta.—This was introduced from New Zealand about three years ago by the Messrs. Veitch, of Chelsea. It is the O. dentata of the New Zealand Flora, there being another dentata, the true one, native of Australia, and described above. Mr. Gumbleton, of Cork, who grows these plants successfully, describes O. macrodonta as being perfectly hardy with him, and a most profuse blooming and exceedingly ornamental shrub. Others have described it as being "of doubtful hardiness and not a first-rate shrub;" but as Mr. Gumbleton generally underrates rather than overrates plants when describing them, we may accept his opinion of this species as reliable. I saw it in flower on a sunny border last year at Kew, the plant being about 2 feet high, with large, silver-green, Holly-like foliage and dense heads of whitish flowers. When fully grown it attains a height of 20 feet, the stem 2½ feet in diameter at the base, the branches stout and forming with the leaves a round, somewhat flattened top, which is hidden by the dense heads of white flowers developed in the month of August. The foliage smells agreeably of musk.

O. myrsinoides was cultivated in Mr. Jackman's nursery at Woking, and is described as being as handsome and desirable a shrub as O. Haasti. It is a low bush, the short dentate leaves, as well as the branches, being covered with silky down underneath. The flowers are small, in panicles on the upper portions of the branches. It is a native of Tasmania and New South Wales. Here it is said to be as hardy as O. Haasti.

O. nitida.—Mr. Gumbleton grows this at Cork, where it is hardy, neat, and compact in habit, and flowers freely. It forms a large bush, clothed with ovate, leathery leaves about 2 inches long, the branches and under surface of the leaves covered with a thick silvery down. The flowers are in crowded heads or corymbs, very small, but so numerous as to make a good display; they are white with a yellowish disc. This species is a native of New Zealand, at 4000 feet altitude.

O. ramulosa.—This (see illustration) is a handsome little shrub which has been in cultivation about twenty years under the name of Eurybia ramulosa. It is covered with a rough pubescence; the leaves are crowded, very small, clustered, and woolly on the under side. The flowers are very numerous on long, curving branches, forming elegant sprays of pretty, starry blossoms; each one is small, but they are so abundant and prettily arranged, that the effect of a well-grown plant when in flower in September or October is charming. The species is a native of Tasmania, New South Wales, &c.

O. stellulata was one of the first species introduced into England. It was cultivated by Knight at Chelsea, and by Loddiges at Hackney at the beginning of this century. It has lately been spoken very highly of by Mr. Hartland and others in Ireland, where these plants appear to find a congenial home. It grows to a height of about 5 feet; the leaves are lance-shaped, toothed, varying in length from half an inch to 2 inches, the upper surface green, the rest of the plant covered with a rusty tomentum. Flowers in leafy panicles, which are long and very graceful in form; each flower is small, Daisy-like, pure white, with about a dozen ray florets. When grown against a wall this species flowers very freely in June and July. It is a native of Tasmania and New South Wales. There are several varieties of it described by botanists.

O. Traversi.—This is the bastard Sandal Wood of Chatham Island, where it is the most valuable of the native timber trees. It forms a tree 35 feet high, with a stout trunk and many branches. It flowered a year or two ago outside at Cork and at Stranraer. It has lance-shaped opposite leaves 2 inches long, the upper surface smooth green, all the rest of the plant being covered with silky down. The flowers are numerous in axillary and terminal panicles, which are produced freely all over the plant. Each flower is small and creamy white. Except in favoured localities this species is hardly likely to thrive out of doors. It is of interest as being one of the few members of the very large Order Compositæ which form good-sized trees.

O. corymbosa has been noted in The Garden as a hardy species cultivated in England, but I cannot ascertain where.

O. gummosa is also mentioned in The Garden as a pretty species, which thrives in the neighbourhood of Newry. W.

Orchids.

THE TELIPOGONS.

What is a Telipogon? Botanists know that there are about forty species, all of them natives of South America and all large-flowered. Collectors know this, and more besides; they know that Telipogons are, of all known Orchids, absolutely the worst to deal with. Such plants as Phalænopsis, Masdevallia, Miltonia vexillaria and M. Roezli, which a few years ago were reckoned so exceedingly difficult to get into England with any life left in them, are now-a-days brought home as successfully almost as if they were Onions. But the genus Telipogon has baffled everyone who has attempted it so far I lately asked a very successful collector of Orchids why he did not bring home some of these plants. His reply was, "I have spent more thought, time, and money over those plants than over any other Orchid I have ever meddled with. I shall not bother with them again." If this is the case, why write about Telipogons? For this reason: Precisely the same kind of thing used to be said about Masdevallias and the other Orchids I have named, and it has only been by careful management and perseverance that the difficulties in regard to them have been overcome. If anyone can overcome whatever the obstacle may be and get a batch of living Telipogons to England, he will be well repaid, and we shall have a most distinct and beautiful addition to garden Orchids. I have seen several lots of dried specimens of these plants within the last twelve months, all of them gathered in the United States of Colombia, and one of those who brought them said he knew how to get them home. There are very few genera of Orchids of any beauty which



Olearia (Eurybia) Gunniana.

are not represented in cultivated collections of to-day, but Telipogon is certainly one, and, so far as can be ascertained, it has never been seen alive out of South America.

Botanically, the genus Telipogon is related to Phalænopsis. There are, as has been already stated, about forty species known, all natives of the Andes of Peru and Colombia, and apparently invariably at very high altitudes. This fact, no doubt, accounts for the difficulties of importing them alive. They are epiphytic on trees, to which they cling by means of their fleshy roots. They have no pseudo-bulbs, usually very short stems, with short leathery or fleshy leaves arranged in two opposite rows (distichously). The flowers are on erect slender scapes, which are unbranched and a foot or more in length. Each scape bears several flowers on the upper portion, and each flower is large, cup-shaped, not unlike that of a Calochortus in form, and coloured bright yellow, or some shade of that colour, with purple or rose or similar markings. The sepals are narrow, equal, and spreading; the petals and lip are almost similar in size and shape, an inch or more long and wide, and very prettily reticulated. It would be more correct to say that in this genus there is no labellum, but simply three sepals and three petals, with a short fleshy column in the middle. It may be of some aid to collectors to state what is known respecting the localities for some of the species. T. andicola, western side of Pichincha, at 10,000 feet; T. aureus, mountains of Loxa; T. Klotzchianus, Caracas, 6000 feet; T. falcatus, Pamplona, near La Baja, 9000 feet; T. Hausmannianus, forests of Quindiu, Cauca; T. angustifolius, near Chachopa, in Venezuela, 10,500 feet. These are the headquarters of many of our most beautiful Masdevallias and other cool Orchids. If plants of the Telipogon cannot be got, probably good seeds are easily procurable, and from these a stock might be raised in England. No one on seeing the dried flowers of these plants could fail to be greatly struck by their distinct character and beauty. W.

Lælia albida bella.—This species may now be considered as fairly established in our gardens, and the consequence is that the spikes are freely produced, and each bears from six to nine flowers. The variety named above is now very fine in Mr. Bull's collection. It is distinguished from the type by its larger flowers and richer colour, the sepals and petals being waxy white, tipped with rosy lilac, the front lobe of the lip being broadly bordered with soft magenta. A great many plants have been imported during the last few years.

Masdevallia cucullata.—This rare species has recently been flowering in Mr. Shuttleworth's nursery at Clapham, and I again noted it recently in Mr. Bull's collection. It appears to be a free growing species, and produces large flowers of the Reichenbachiana section, the front part of the sepals as well as the tail-like appendages being of a rich blackish crimson, the base of the tube suddenly becoming greenish white, thus rendering it very conspicuous. The species is rare and at present little known, but it will certainly increase in favour as it becomes better known to Orchid growers.—W. H. G.

Calanthe Veitchi.—This lovely hybrid plant is just now very fine in Mr. Schwann's garden at Wimbledon, some of the forms being very highly coloured. Mr. Luff starts a somewhat curious theory respecting the manner of selecting the high-coloured forms, which certainly is confirmed by his own plants, but which I must note in the various collections which I may have the opportunity of inspecting during the coming season, and should I find as true as in Mr. Luff's collection, I certainly shall accept it as a guide. He asserts that the straight-bulbed forms, or those with but a shallow indenture in the neck, are the dark-flowered varieties, whilst those with a very deep and large indenture bear light-coloured flowers, and this is borne out in every instance in his collection, which consists of numerous well-grown examples. Those who desire the richly-coloured flowers should note this peculiarity.—W. H. G.

ORCHIDS AT TWICKENHAM.

In a nursery as that of Messrs. W. Gordon, of Twickenham, where almost the whole of the plants are imported and quickly sold off, there is not much to be seen in bloom, although this is naturally one of the worst seasons in the whole year for Orchids. Even if there are very few flowering specimens, a visit to such a place is of considerable interest, especially as the plants are adapted for amateurs who cannot afford to go much beyond half a sovereign. A useful fact may be drawn, however, from the number of comparatively common species and varieties which crowd every part of the houses, and that is the increasing popularity of Orchids. The enthusiasm that is displayed over rare and often paltry hybrids will abate, but the culture of Orchids will never die out, though possibly it will find a lower level than it has now. Mr. Tharratt, the foreman here, pots up the imported pieces at once, in preference to allowing them to remain exposed, as is often done, but more drainage is given to prevent any stagnation about the roots. The Orchids that are mentioned seem to be especial favourites with amateurs. The usual question is, "I want something that is cheap, easy to grow, and showy," and in the kinds recommended these things are combined. There was a large batch of Odontoglossum (or Miltonia) vexillarium, for which there is a steadily increasing demand amongst amateurs, and it is easy to manage, besides being very distinct and far more ornamental in growth than is often the case in this class of plants. Dendrobiums, judging by the number of kinds Messrs. Gordon have in their nursery, are in great request. The old D. nobile is still the most popular, but D. Wardianum will probably, in a great measure, shut out the old favourite. This splendid Indian Orchid is not hard to manage, and the flowers are both large and richly coloured. D. formosum is often asked for, and we have few more handsome species. The flowers are large, fragrant, and white. It is easy to establish, but rather difficult to grow afterwards. It should have a good season of rest and plenty of moisture and heat while in growth. D. Jamesianum is of the character of D. infundibulum, and the flowers are almost as large as those of D. formosum, pure white, with the lip stained cinnabar-red; it grows well in baskets, and must be kept cooler than D. formosum. There were large batches of D. infundibulum, thyrsiflorum, and Dalhousianum. The last of the three is a beautiful Orchid, the flowers large, pale buff, and ornamented with two bold eye-like blotches of purple-crimson at the base. It requires plenty of heat to start it. D. densiflorum needs no praise. It is an Orchid every amateur should have, and in most small collections it happily has a place. The plant should have plenty of heat when in growth and a long season of rest. D. dixanthum and the lovely Ainsworthi are both easy to grow, so also is the beautiful D. primulinum, the flowers of delicate colour, but the plant should be grown in a basket and given plenty of sun-heat. The numerous specimens of it were in excellent health. It blooms in April and May. The richly marked D. crassinode is another sun-loving Orchid, and every amateur should have it. There were two or three fine pieces of D. Brymerianum, a striking Burmese Orchid, that flowered first with Mr. W. E. Brymer at Ilsington House, Dorchester. The terete stems are considerably over a foot in length, and bear broad golden flowers, the middle lobe of the cordate lip having a lovely lace-like fringe of great delicacy. Good plants will fetch a high price; it has, in fact, never been at a discount in the market. D. bigibbum and D. Pierardi are two gems that every amateur should grow. These are a few of the great genus Dendrobium that are essentially amateurs' plants, as they are easy to establish in most cases from imported pieces, and carry flowers that are sure to please.

Many Odontoglossums might be named that are cheap and not troublesome to cultivate. The large masses of O. Alexandræ testify to the demand that is still maintained for this the most useful, perhaps, of all Orchids. This, together with O. Pescatorei and D. formosum, Messrs. Gordon consider the three most popular kinds. O. citrosmum was represented by healthy plants. It is easy to establish this Orchid in baskets. Give a good season of rest, and commence watering when the plants have made about half an inch of growth. O. nebulosum and maculatum were in quantity, also the now widely known O. Harryanum, some imported plants of which were growing freely. It is said that the demand for this species is likely to be influenced by the peculiarity which the flowers exhibit, and that is the singular incurved character of the petals that destroys the beauty of the bloom. As mentioned a short time since in The Garden, this may be rectified by cultivation. Cœlogyne cristata, of course, needs no mention. It should be grown by everyone, as the racemes of white flowers are invaluable for the epergne. C. ochracea is a species that Messrs. Gordon mentioned sells well. It is not very showy, but the fragrant flowers are borne freely, and are white except the lip, where there are two horseshoe blotches of yellow bordered with deep orange. This species was formerly common in the hilly districts of North-eastern India. Messrs. Gordon also had small pieces of Disa racemosa, which has been frequently described in The Garden. It likes moisture and a cool atmosphere. The plants are placed upon small pans inverted in about 2 inches of water. The brilliant D. grandiflora was also doing well; it is kept very moist. In contrast to the above mentioned Orchids are the Vandas, Saccolabiums, and Aerides, which seem to find very little market. There seems a greater demand for smaller-growing kinds, and this we can understand, as such things as Angræcum sesquipedale, eburneum, and others require a large amount of room to accommodate them. Vandas and Saccolabiums have been realising comparatively small prices for some time past, but there seems to be more interest centred in the Aerides.

Pescatorea cerina.—This plant is said to be a native of Veragua, at some 8000 feet elevation, but yet it appears to enjoy the temperature of the Brazilian house—at least, judging from examples of it which were recently noted. The plants, growing freely and strong, were flowering upon the first home growth, producing flowers upwards of 3 inches across, the sepals and petals being light yellow or straw colour; the lip thick and fleshy, yellow, with a plaited ruff on the disc. It may be considered one of the freest of this genus, all of which deserve more attention from Orchid growers.

Odontoglossum Roezli.—A very fine variety of this plant is flowering with Mr. Schwann at Wimbledon, and this, it appears, is the third crop of flowers the same plant has produced in twelve months. The plant is grown in the intermediate house, and is in good health. I have recently noted that this species appears to thrive well under similar conditions with Mr. Williams at Holloway, although in former times when grown in warmth it usually became infested with thrips; this, however, I believe, was brought about by too dry an atmosphere. To develop its beauties it evidently requires more heat than such species as O. Alexandræ.—H.

Cypripedium callosum is a beautiful species, and we noted it flowering through November in most of the collections round London. At first sight it appears to be similar to C. Lawrenceanum, but this latter species has straight petals, and the latter are ornamented on both edges with large black, wart-like spots; whilst in C. callosum the petals are deflexed, and it is only the upper edge which bears the black, warty patches. This species was first introduced by Mr. Bull, of Chelsea, who recently remarked to me that the atmosphere has a very marked effect on it, inasmuch as the plants in the country, where they are subjected to a clear, bright atmosphere, produce very large flowers, but

the same plants when grown in London yield only poor flowers in comparison. It is an Eastern species, and requires to be grown in the warmest house.

Angræcum eburneum.—A good variety of this noble Orchid was very recently in flower in the nursery of Messrs. W. Gordon, Twickenham. The plant was of large size and carrying four strong spikes. The sepals and petals are greenish in colour and the lip is ivory white, the spur being of the same colour as the petals. It is scarcely an amateur's plant, but is not difficult to grow, although plenty of room is needed. It is not so beautiful as A. sesquipedale, which is an Orchid all should have.

Cattleya guttata.—A plant of this Orchid on a block in Messrs. Gordon's nursery at Twickenham was recently in bloom. There are many good forms of this richly spotted species, and when a well-marked variety is obtained it is worth keeping. The plant was doing well fastened to damp Moss on an ordinary piece of deal, and carried two spikes. The sepals and petals are greenish yellow, spotted freely with chocolate, the lip having the apex richly coloured with crimson. C. g. Leopoldi is one of the best of the varieties, and another beautiful kind is C. g. Prinzi.

A new Cypripedium.—A hybrid is flowering in Mr. Bull's nursery at Chelsea. The plant in question is the result of a cross between C. niveum and C. barbatum; the foliage is neatly tessellated, and the flowers are slightly larger than those of niveum, the whole surface being lined and suffused with a lovely bright pink It somewhat resembles the flower of C. Marshallianum, but if memory serves me right, it is brighter and the apex of the dorsal sepal in the centre is white, destitute of any lines or shade of pink. This will at once distinguish it from the Veitchian hybrid, independent of its foliage, which is quite dissimilar.—W. H. G.

Making teak baskets.—The great increase in the culture of Orchids has naturally led to a considerable demand for baskets, which are usually made of teak, as this wood is hard and durable. Messrs. Gordon, of Twickenham, supply a large number, and the wood is obtained from the London Docks in square rods of about the same length, though, of course, thicker than ordinary builder's laths. They are obtained from the broken-up ships, and can be readily made of good service. The edges of the rods are neatly rounded off and cut with a lathe into the required lengths, according to the size of the baskets, these varying from 3 inches to 36 inches. When this is finished, they are pierced at each end with a hole, through which is inserted a long copper wire. With the aid of a few French nails the foundation is formed and the work quickly finished. Well-made teak baskets last from ten to twelve years if, when a plant is removed, they are thoroughly cleansed. They can be made of various shapes, but square baskets are the most common. A handy man can make a large number in a day.

SHORT NOTES.—ORCHIDS.

Cattleya porphyroglossa.—I am informed by Mr. Horsman, of Colchester, that this Cattleya yields a delicious perfume in the evening, resembling that of the Clove Carnation.—W. H. G.

Cymbidium elegans.—This species was first introduced by Mr. Bull, in whose establishment some nice examples were recently bearing numerous pendent creamy yellow spikes of bloom, which contribute greatly to the display of December Orchids. The finest example of this plant we recently noted in these pages as flowering in The Woodlands collection at Streatham.

Pilumna nobilis.—No more beautiful or deliciously fragrant Orchid for autumn-flowering can be found than this species. The flowers are pure white with a yellow eye, and yield a delicious fragrance. The flowers are very useful for button-holes. This Orchid cannot be too highly recommended to amateurs, as, in addition to its flowering freely, it thrives under quite cool treatment.

Catasetum Bungerothi salmoneum.—This is the name of a fine, large-flowered variety recently noted in bloom in Mr. Bull's establishment. As in the case of the other varieties, the flowers are pure ivory-white, but the centre of the lip is stained with salmon colour, which renders it very distinct. This species still appears to be the freest-blooming form which has hitherto been introduced.

Dendrochilum uncatum.—This species was recently in bloom in Mr. Smee's garden at Wallington, and also in Mr. Bull's nursery at Chelsea. It is a very pretty plant, but very much inferior to the Golden Chain Orchid (D. filiforme), to which it has been likened. To me it more resembles D. glumaceum, but the flowers are more straw-coloured and their fragrance quite distinct from that of filiforme. Although by no means showy it is a desirable plant, and well repays any labour bestowed upon it.

Stanhopea grandiflora.—This is a genus which is but little known to the Orchid growers of the present day, but of which in my earlier Orchid days the various species and varieties were largely grown. And I was pleased some time ago to find specimens of the rare and seldom seen S. grandiflora flowering in Mr. Schwann's garden at Wimbledon. The flowers are hornless and pure ivory white; in some varieties the centre of the lip bears a few spots of crimson, but in the plants above mentioned the whole flower was ivory white. It is a native of Trinidad.—G.

Miltonia Clowesi pauci-guttata is the name of a very rare and exceedingly beautiful variety now flowering with Mr. Bull at Chelsea; the plant is scarcely distinguishable from the normal form, but the flowers are both larger and more richly coloured, so that it is at once very conspicuous and attractive. The blooms are borne several upon a scape, the sepals and petals being spreading, and the ground colour a soft bright brown, spotted with large and distinct spots of bright chocolate-brown; lip large, white in front, the base and crests being of a deep mauve-purple.

Lycaste Skinneri in variety are just now conspicuous among Mr. Wm. Bull's treasures at Chelsea. More especially is this the case with a variety named rubella, which is a noteworthy variety, the flowers being large, the sepals broad and pure white. The petals also are exceptionally large, and wholly of a rich bright crimson; lip white, freckled with rose. Some very large-flowered, elegant forms of the chaste, pure ivory white variety alba, which still maintains its proud position as the leading variety of this popular Orchid, were also noticeable.

Maxillaria grandiflora.—I have on former occasions referred to this as one of the most beautiful and most desirable species of the genus in cultivation, but I have never before seen it in such grand condition as I did a short time ago with Mr. Luff in Mr. Schwann's garden at Wimbledon, where a handsome specimen bearing fifty flowers is now in bloom. The plant in question appears to be grown in the intermediate house, which is somewhat warmer than I have hitherto grown it myself, or seen it grown by others, while its great beauty and free-flowering qualities lead me to infer that it does not object to this heat, although a native of Peru and Columbia.—W. H. G.

Comparettia macroplectron.—This is the largest-flowered species in a small genus, all the known members of which are plants of great beauty. Although the largest and strongest species in cultivation, it is a dwarf plant, which is best accommodated on a block or in a shallow basket, and it succeeds well when its roots are but little encumbered with mould. The spikes bear five or six flowers, the sepals and petals of which are of a soft rose colour, more or less spotted with rosy purple; whilst the large lip is rosy magenta, spotted in the same way as the petals, and furnished with a somewhat long double spur. We recently observed this species flowering in Mr. Bull's collection. A coloured illustration of this lovely plant was given in The Garden of April 21, 1883.

Cœlogyne Gardneriana.—This North Indian species is now in great beauty with Mr. Buchan, Wilton House, Southampton. Though a well-known plant, it is one which has been undeservedly cast on one side in favour of the cool-house plants from the Western Hemisphere. It has long, flask-shaped bulbs of a dark green colour, which bear a pair of leathery leaves of the same colour. The spike is long and pendent; the flowers, arranged in a two-ranked fashion, are long, and do not open fully. The blooms are pure white with a yellow lip, each flower being surrounded at the base with a membranous chaffy bract. It is a cool house plant, but thrives best at the warmest end of the Odontoglossum house or the coolest part of the Cattleya house, and blooms during the winter months, a fact which enhances its value.

KITCHEN GARDEN.

GARDEN WALK EDGINGS.

As far as appearance goes, a well-kept Box edging is hard to surpass, and is yet the most popular bordering for kitchen garden walks. When first laid down, and until it either becomes full of gaps or too old to be safely trimmed closely every season, it presents a very neat appearance; but when trimming or renovation is neglected it soon becomes the reverse of ornamental—is an eyesore, in fact. It should be added that it is not always the fault of gardeners that the Box edging is in a poor plight, nor are they to blame in many instances for neglecting to substitute some other form of edging. Personally, I would much prefer to dispense with Box or live edgings of any description in all cases, being of opinion that there are other better, and in the long run cheaper, materials that could be substituted. In addition to the need of annual trimming, and it may be filling in at places, as well as an occasional lifting, dividing, and replanting, these edgings harbour slugs, and probably insect pests in variety, as well as encourage Couch Grass and other troublesome weeds not unfrequently established in old gravel walks. Box also requires support, and the coarse roots it forms draw from the ground a portion, small though it may be, of food and moisture that can ill be spared by important crops or fruit trees near them. Various substitutes for Box edgings are available, but as far as this district is concerned, as well as many others in the western counties of England, common stone borderings are the cheapest and best. Where the Oolite system prevails, either coarse slaty limestone, blue and white lias, limestone, sandy and siliceous limestone can usually be quarried at a trifling cost, or suitable stone can be purchased very cheaply. In most instances there is little or no need to split up these stones, the divisions in the strata being naturally thin at places, and a smart mechanic ought to roughly dress a considerable number of these stones in a week. The upper edge and sides should be fairly square, and each stone be not less than 12 inches deep. This admits of a depth of 9 inches being let into the ground, and if a greater depth can be buried, there is all the more likelihood of the stones keeping in position. An ordinary garden labourer, with very little supervision, ought to be able to fix one of the stone edgings on each side of a well-established walk, but if new walks are being formed, the levelling and fixing must be of a more scientific character, and should be done before the walk is completed. These stone edgings, as a rule, are very durable, but frost will sometimes affect the softer material. If disturbed, which they need not often be, by being dug near, they can be quickly re-fixed in their proper position. Nor should they be wheeled over, as this would soon break them. The best example I have yet seen of what can be done with these common stone edgings is at Badminton, the Wiltshire seat of the Duke of Beaufort. At that place

there is a fine walled-in kitchen garden, eleven acres in extent, and all the principal walks are edged with native stone, Mr. Nash, the gardener in charge, much preferring this material to any other form of edging, while, at the same time, it presents both a neat and serviceable appearance.

There are several fairly good substitutes for these common stone edgings, including glazed stone-ware, terra-cotta, and terra-metallic ware, all of which are very neat and fairly durable. Most of these are made too lightly, and very few of them are of sufficient depth. Unless fixed in the edge of the walk, they are apt to get out of order, and are easily disturbed by a spade or fork. Common roofing tiles also form a cheap and serviceable edging which can easily be renewed at any time. Builders' bricks, however fixed, form a rather clumsy edging, but even these are sometimes used with good results.

As before stated, Box is the favourite live edging, but it is by no means the only kind available. Many who take a pride in their comparatively small gardens use the old-fashioned Thrift as an edging, and this, besides being neat and of little trouble, also flowers freely. Sedum glaucum is still more easily established, every tiny piece pressed into the soil either now or in the spring soon taking root, while each small plant spreads rapidly. A narrow, slightly raised edging of this Sedum or Stonecrop will remain in good condition for several years, being kept within bounds by the aid of a spade. Snowdrops, Crocuses, Scillas, and other small bulbs are largely planted next the walks in small kitchen gardens or in gardens which happen to be utilised for the culture of flowers, as well as fruit and vegetables. In many instances there is no need for any formal edging, and in any case a row of flowering plants of some kind is far preferable to a patchy line of Box.

A few years ago it was the custom to grow Strawberries alongside the garden walks, and this ought to be revived by the owners of small gardens, as well as by those who either must utilise every foot of ground to its fullest extent, or would like to have the Strawberries growing where they can most easily be gathered. Few will venture to dispute the fact that Strawberries are most delicious and refreshing when gathered and eaten direct from the plants, and it is only those growing near the walks that are readily accessible at all times. This accessibility has its drawbacks, I admit, but this portion of my subject is meant more especially for amateurs. Not only can remarkably heavy crops be obtained from alongside garden walks with or without a tile or stone edging, but the quality of the fruit is often superior to that obtained from plants in beds. The late and, in my estimation, valuable Strawberry Oxonian or Eleanor is not generally considered of sufficiently good quality to find a place even in a fairly large selection of varieties, but those who have tasted it either from plants grown in the open fields or alongside walks have been obliged to concede that its value has been much underestimated. It requires plenty of light and air and a firm soil, and these conditions are most frequently afforded by the market growers and those who cultivate Strawberries in a single row on each side of their garden walks. Some of the best crops of Strawberries I saw last season were growing by the side of a sunny walk that had been similarly and constantly fringed during the past thirty summers. Fresh varieties or a fresh stock of plants are substituted for the old ones every fourth year, a fourth portion of the walk being done annually, and some fresh loam and manure added each time. The plants are put out 18 inches apart in a single line about 12 inches from the edge of the path. Properly mulched with manure, and subsequently with strawy litter, the crops are certain to be heavy and clean. A narrow net keeps out the birds, while the dust from the path rarely spoils the fruit. Of the various live edgings then, the first place must be given to Strawberries.

W. I.

KITCHEN GARDEN NOTES.

Effects of Mild Weather.

November proved exceptionally mild throughout, and this has had the effect of recovering many vegetables from the check administered by frosts in October. It is, however, a doubtful advantage. At the present time Globe Artichokes, Broccoli, Borecole, Celery, Cabbage, Leeks, Lettuce, Endive, Onions, and Turnips are all growing strongly, and unless this is checked soon there is every prospect of the first severe frost cutting them up badly. A heavy rainfall was needed, the springs not having reached their normal height for two autumns past, but now we have a sufficiency of water it is to be hoped we shall be favoured with a spell of clear, cold, and drying weather in order to arrest the growth of and harden vegetables before severe frost intervenes. We ought not to be content with wishing for this desirable change, but must prepare for severe weather. Some of the more tender kinds ought to be got under cover in good time, and protective material of any kind be kept dry and in readiness for covering up salading and anything needing protection. Winter Onions, especially where not well ripened, are disposed to start into growth already, and these must therefore be kept as cool and dry as possible. Those bunched up or roped and suspended in airy sheds keep the best, and it is not yet too late to attend to this. If there are any that have already pushed out leaves, these may well be bedded or planted rather closely on an open piece of ground. A very severe frost would destroy them, but as a rule they would escape and form very serviceable bulbs early in the spring. Mild weather is also unfavourable to the keeping of Potatoes. Premature sprouting greatly weakens those required for planting; in fact, it quite spoils the early kidney varieties, as well as those of the Lapstone type, and it also materially affects the quality of those to be kept for late use. The tubers required for planting ought always to be stored thinly where they can be readily attended to and given all the light and air possible. If the Ashleaf and other early kidney varieties are stored in single layers, sprout end uppermost, it would be unwise to remove the shoots already formed, at any rate not if they are short and stout, but the tubers must be kept cool and dry, or otherwise the sprouts will become drawn and weakly long before planting time. The very early rounds, such as Early Eclipse and First and Best, ought not to be disbudded, but this may safely be practised in the case of the many-eyed later round and kidney varieties, though as before stated this also should be avoided if possible. When it is too wet to proceed with other garden work the men might well be set to turn over the heaps of cooking Potatoes, throwing out the unsound tubers and at the same time rubbing off all shoots that are being formed. It will also be necessary to examine the "clamps" of Potatoes, Beet, Turnips and Carrots much earlier than usual, the long spell of mild weather inducing these to sprout more than is good for them. This must be done on a dry day, so as to keep both the roots and protecting material as dry as possible. In many instances it will be necessary to turn the heaps, all the shoots being rubbed off and decaying roots thrown out prior to covering first with the dry litter and then with the surfacing of soil.

Early Potatoes.

Extra early dishes are sometimes much appreciated, especially when the old tubers are of inferior quality. Where there are heated pits that can be spared these may be utilised for forcing Potatoes, the successional crops being obtained from deep frames set on hot-beds. Such instances, however, are not very numerous, and the earliest supplies must, in most cases, be obtained by the aid of pots and boxes. Back shelves of early vineries and swinging shelves in the earliest Peach houses can be utilised for growing Potatoes in pots, and the fronts of either are usually suitable positions for either boxes or large pots. The planting sets ought first to be prepared or forwarded in heat. Moderate-sized whole tubers of either Old Ashleaf, the true Mona's Pride, or Early Eclipse are suitable, a sufficient number of these being set thickly, sprout end uppermost, in shallow boxes and placed in gentle heat. This will be found a better plan than planting direct into the pots, boxes, or beds, the sprouts starting more quickly and strongly when exposed to heat and a moist atmosphere. Not till they are about 2 inches long should they be planted. For shelves, lightly-drained 9-inch pots are most suitable, a single set being placed in each. Larger, or 11-inch pots, would hold three sets, and the latter ought not to be crowded into the various kinds of boxes that may be used. A suitable compost consists of three parts of loam to one of old Mushroom-bed manure, and which ought to be warmed before it is used. Having first sprouted the sets, there is no necessity for allowing any space in either the pots or boxes for top-dressings later on. The sets should be covered by not less than 3 inches of soil. Supposing the compost is fairly moist at the outset, no water should be given, and for several weeks the watering must be light. When the soil is well filled with roots more water will be needed, and occasional supplies of soot-water or a surfacing of either guano or superphosphate may be given. A high temperature is injurious, and if the Potatoes are grown in other than early vineries or Peach houses the temperature should range from about 60° in the daytime to 50° or 55° during the night. Early Potatoes are sometimes started in pots set on gentle hot-beds formed in pits with leaves or leaves and stable manure, being transferred to shelves and given more air when the crops are maturing. This plan answers well.

W. I. M.

Onion Lord Keeper.—The size to which this fine Onion grows is astonishing, while the solidity and weight of the bulbs are not less extraordinary. A dozen bulbs were exhibited by the raiser at the recent exhibition of the Banbury Chrysanthemum Society, and one of them turned the scale at 2 lbs. It is quite a new variety of this year, and was raised by Mr. Doherty, gardener to Lord North, Wroxton Abbey. It was raised in this way: Mr. Doherty planted out six of the very best of Deverill's Anglo-Spanish Onions he could select and six of the very finest imported Spanish Onions he could find in the shops, and when in flower pollen from the former was used upon the latter, which became, of course, the seed parent. The seeds were sown, and the result is what Mr. Doherty considers to be a new type of Onion, similar in general character to Rousham Hero, deeper in the flesh and very large in circumference, with a very small neck, and the skin of a pale straw colour. The stock from the crop was eighty bulbs, all similar in character, and twelve of the largest weighed 20 pounds. It is a very fine keeper to all appearance, perfect in shape and quality, and the finest examples of Rousham Hero looked small by the side of it. It was named by Lady North after a former Lord North who was Lord Keeper of the Great Seal, and who laid out the gardens at Wroxton Abbey.—R. D.

Brussels Sprouts.—Looking carefully over any large breadths of this vegetable, such as several acres present, one is surprised at the variation found in the character, colour of leafage, form, and size of the Sprouts. It would be very easy to select half-a-dozen plants sufficiently diverse to name them all as distinct were it thought desirable, but there can be no doubt but that we have in our best types as good, perhaps better, than the market selections will produce. It is very possible that were seedsmen to select a score or two of plants from any considerable breadth, the plants in which were true to character, and grow stock from them solely for further seeding, a very perfect strain in con-

siderable bulk might presently be secured. This method of selecting a few stems of the best form needs to be practised every year to ensure its true character. One of the very best strains I have seen, but produced only in a small way so far, is Northaw Prize, raised by Mr. May, who showed plants of it at the Royal Aquarium last month. Better have rarely been seen, the Sprouts being very solid, green, and evenly set on the stems. One rarely sees fine furnished stems of the larger sprouted forms without many of the lower Sprouts being too large and bursting. Plenty far better might often be found in a market breadth. I think some of this bad form is due to high cultivation and soft ground, whereas the market growers plant in firm soil which is not too heavily manured. Very probably in deep soils the past season proved to be too moist for the production of Brussels Sprouts generally in good form.—A. D.

Fruit Garden.

W. COLEMAN.

THE ORCHARD.

The planting of orchard trees having been brought to a close, the next two months may be devoted to aged and full-bearing trees, including Apples, Pears, Plums and Cherries. Taking the aged trees first, the most important questions to be decided will be their retention or removal, two points which may be settled by the quantity and quality of their fruit and its value when placed on the market. The majority of the trees in some orchards in this part of th country now out of date for market purposes and too old for grafting must be looked upon as cumberers of the ground, and as such should be cleared away root and branch, converted into ashes, and in this form preserved for top-dressing. The remnant left, including the best standard varieties, such as Blenheim Orange, Ribston, Wyken and Flanders Pippins, and a few others which seem to improve for the first thirty or forty years of their lives, although the orchard may be thrown back to ordinary arable or pasture, being set quite clear will then most likely pay for any reasonable attention which may be bestowed upon them. These are the trees which Mr. Bunyard, in his excellent paper read at Chiswick, calls upon the woodman to spare, and right heartily I endorse his prayer, but we must do something more than spare; we must thin cautiously, for it will not do to make too free with trees suddenly bereft of a great portion of their sheltering neighbours, but, on the contrary, we must let in light and air by degrees. We must cleanse them of Moss and Lichen, first by scraping, then by scrubbing with brine or soapsuds and paraffin, three gallons of the first to a pint of the second. Meantime, we must see what can be done for the roots; in fact, we must treat them as any humane man would treat a poor, emaciated, insect-infested beast after he has removed the filth and parasites. We must fill up the cells and plump up the buds by good feeding with fresh soil and manure, and, taking a leaf out of Mr. Tonks' paper, we may supplement this with a dressing of lime and soda, which that gentleman assures us will do the trees good if it does not stop canker. Draining where necessary, of course, is a preliminary operation, and breaking up the surface with steel forks to an extent equal to the spread of the branches is not less important, as this loosening of the hard waterproof cake, whilst letting in heavy rain, warmth, and air, will form a healthy medium through which fresh feeders will find their way upward into the top-dressing. Good rotten manure no doubt is the best mulch for trees exhausted by bad usage and heavy cropping, but where this is unequal to the demand, an invigorating dressing may be made by steady perseverance in the collection of fresh soil, road sidings and scrapings, the scourings of ditches, old mortar rubble, burnt earth or clay, wood ashes, spent Hops, and refuse from the cider mill. These, or as many of them as can be got together, should be carted to the reserve corner of the orchard, dressed with quicklime, turned and mixed once or twice during frosty weather in winter, and a heap of rich material of surprising dimensions will be ready for carting out early in the spring. A cartload to each old tree will make its mark the first year, but the collection of all these materials, in many country places a nuisance, must be constantly going on, and in this way a heap in reserve will soon be ready for distribution every autumn. The heaviest crops of the best fruit in this part of the country are obtained from arable orchards in which the roots of the trees get a share of the manure ploughed in for green crops and cereals. Not for the Apples; nothing of the kind. Nine-tenths of our farmers have not yet thought of manuring for a crop which would pay much better than Corn, whilst cutting down superfluous trees, thinning and cleansing the heads of those worth keeping are operations quite beyond their ken.

Passing from aged trees to plantations of younger growth, the same attention to thinning, cleansing, cutting down, breaking up the surface soil, and top-dressing is equally necessary. The ways and means have been pointed out in the pages of The Garden over and over again, but their application, as hundreds of acres of languishing trees testify, is extremely slow. The outcome of local associations now in course of formation remains to be seen, but one thing is quite certain, and it may as well be said first as last: occupiers as well as owners must put their shoulders to the wheel, and the latter must rise above the abject wish to be thought poor, otherwise the efforts now being made will fall to the ground.

Pears with us are not so valuable as Plums and Apples, but this should not put a stop to all planting, especially of pyramids and bushes, on warm sunny slopes facing west, where a deep warm sustaining loam is likely to suit them. Railway rates and want of store room just now tell heavily, but local markets which must be established in a few years may place present planters or their heirs on a better footing.

Established and old trees meantime should be pruned, cleaned, and renovated by forking up the soil and giving the surface a thorough top-dressing. Small or inferior fruit, the article which produces glut, is of no use; therefore the only course to the establishment of brisk trade is good culture. Choice dessert varieties are most valuable, but I have found good stewing sorts pay well, especially when kept until after Christmas. Being so thoroughly hardy and capable of roughing it, so to speak, on the farm, the best varieties, such as Catillac, I think, might be extensively planted. As companions to these the Beaufin Apples, including the old, the striped, and the Herefordshire, which keep well till May, are worthy of attention. When well grown the fruit from these varieties is fine and handsome, but the trees being remarkably fertile, they require liberal culture and careful thinning.

Plums are a paying crop. A plantation of Victoria this year in the neighbourhood of Ross has realised £50 an acre, and will go on increasing in value, as the trees as yet are quite young. Plums as pyramids, with branches well thinned, but on the extension principle, are the coming trees on cultivated ground, with bush fruits or Strawberries as sub-crops for the first few years. It is not, however, a good plan to confine the selection to one variety, neither is it wise to grow too many. All Plum growers having planted large breadths of Victoria, those about to cater for the rising generation should not overlook Cox's Emperor, the old Green Gage, where it does well, The Czar, Grand Duke, Prince Englebert, and Belgian Purple. Angelina Burdett does well here as a standard, but coming in with the glut its fine quality is its only recommendation. Plums, again, do well as sub-crops with Apples, the latter 30 feet to 40 feet apart each way with a Plum tree intervening in the rows, and complete rows of Plums 15 feet to 20 feet from tree to tree alternating with them. The Plum trees may be reduced or cut away altogether as the Apples require their room.



Oblique-trained cordon Pear trees. (See p. 542.)

Good Grapes rarely met with.—In reading Mr. Sheppard's condemnation of Mrs. Pearson Grape in The Garden, Nov. 17 (p. 467), I was greatly surprised, for I think this is one of the finest white, late-keeping Grapes. Muscat of Alexandria, if grown in a well-heated house, does well; but yet it has its faults, for let it be ever so well grown, few good sound bunches are to be had in March or April; whereas Mrs. Pearson can be had perfect in bunch and berry through March and into April. Mrs. Pearson forms a suitable companion to Lady Downe's during the dullest months of the year, when good Grapes are always in de-

mand and appreciated, while it is also a Grape of fine flavour as well as fine appearance, and, like Alicante and Lady Downe's, possesses a strong constitution.—W. C. Leach, *Albury Park.*

PLUMS *V.* PEACHES.

It is possible that in many establishments a greater space of garden walls is devoted to the culture of the Peach than is really advisable. The ripening of the Peach and the Nectarine on open walls in this country is attended with considerable uncertainty, and even during favourable seasons when this is accomplished, such fruit will generally be found to be inferior to that of the same varieties ripened under glass. Another disadvantage applies to the Peach and the Nectarine which does not apply to the finer kinds of dessert Plums, viz., that Peaches and Nectarines do not keep good long after they have become ripe, while most of the finest dessert Plums will keep in excellent condition for even months after being gathered. In many instances it might be advisable to devote more wall space to late Plums and less to Peaches.

In recommending a few of the very best dessert Plums it may be remarked that several of them appear to have originated very near to the spot whence I write. There is possibly no finer and more useful Plum than Coe's Golden Drop, which appears to have originated in a garden in the town of Bury St. Edmunds about a century ago, and is supposed to have been a cross between the White Magnum Bonum and the well-known Green Gage, and inherits in a remarkable degree the properties of both parents, viz., size, form and colour from Magnum Bonum, and exquisite flavour from the Green Gage. This Plum well deserves a favoured place on a south wall, but so accommodating is this variety, that it may be successfully fruited on any aspect, even on the north side of a wall. On a south or south-east aspect the fruit will generally be ripe by the middle of September, but will keep perfectly good for a month or more after being gathered if placed upon a shelf in a dry fruit room, or the fruits may with advantage be wrapped singly in tissue paper. I have found the fruit produced on a northern aspect, as might be expected, somewhat later in ripening, but hardly inferior in flavour and appearance to that grown in more favourable aspects.

Coe's Late Red is supposed to have originated in the same garden as the above. It is not quite so large as the Golden Drop, and, as its name implies, it is of a bright red colour. It is a very useful late dessert variety, which ripens during the latter part of October, and will hang long upon the tree if desired, or it may be gathered and kept dry, as has been recommended in the case of the Golden Drop.

Ickworth Imperatrice.—This is also a well-known late dessert Plum. The fruit is of medium size, purple in colour, and ripens in October, but will hang upon the tree until it shrivels, when it becomes of a deliciously rich sugary flavour. Where this fine variety originated I am unable to say, but its name suggests Ickworth Park, the seat of the Marquis of Bristol, which lies two miles south-west from Bury St. Edmunds.

Green Gage.—This is one of the best and richest flavoured of Plums, and is so universally known that it is unnecessary to describe it. It is supposed to be a native of Greece, introduced at an early period to Italy and France, from whence it was brought to this country by a member of the old family of Gage and planted in the gardens of their ancient seat of Hengrave, near Bury St. Edmunds, as early as the beginning of the last century. In course of time it became distributed under the name of Gage's Plum, or Green Gage. The Purple Gage is also an excellent dessert Plum of medium size, and ripens somewhat later than the Green Gage, and if allowed will hang upon the tree until shrivelled.

Reine Claude de Bavay is a first-rate dessert variety, of a greenish yellow colour, and ripens about the end of September or early in October. It is of exquisite flavour.

Kirke's Plum is a fine, large, dark purple dessert variety of delicious flavour. Its origin is unknown, but it was introduced by a nurseryman named Kirke at Brompton, near London, and bears his name.

Jefferson's Plum is a fine, large, oval variety of a greenish yellow colour, changing when quite ripe to a rich golden yellow, more particularly on the side exposed to the sun. It is a richly flavoured dessert Plum, and ripens about the middle of September. It is of American origin, and was named in honour of President Jefferson.

Washington Plum.—This, like the above, is from America, and is a fine, large, yellow dessert variety of excellent flavour. It is found to succeed well as a standard, although it is well deserving of a wall, where it will be found to ripen early in September.

P. G.

STARTING THE FIRST STRAWBERRIES.

Strawberries in March are always highly prized, and if ripe fruit can be produced before that month the greater is the credit due to the gardener. Strawberries, however, are one of the most difficult crops to grow, and many people fail to secure the early dishes of this fruit. Hundreds of plants annually started for the first batch are often consigned to the rubbish-heap before they have produced a ripe berry; and I do not think I am far wrong in asserting that there are few amongst the most skilful cultivators who have not at some time experienced failures with this crop.

What, then, are the prevailing causes of so many disasters, and how best to guard against a repetition of them, are important points demanding careful consideration in commencing Strawberry forcing for another season.

A frequent cause of failure is found in using small, immature plants. Such material may give a few dishes of fruit later on when the season is further advanced and when the sun shines powerfully enough to help them on, but it is useless attempting to start them with any chance of success before February. For introducing at the present time—that is, the first week in December—the plants must be strong and well ripened, and comprise those from the earliest layers, which, having stood in a light, airy position during the summer, and been well attended to, will now be furnished with stout foliage, mature crowns, and abundance of roots. Another frequent cause of failure is a misconception of what constitutes a ripe or mature plant. Many gardeners are impressed with the idea that a certain amount of drying is necessary to induce maturity; hence they proceed to house their plants, carefully keeping off the rain and frost, and at the same time withholding water to promote the end they have in view, namely, the ripening of the plants. This, however, it fails to do, and instead only tends to cripple the energies of the plants. Frost I consider one of the greatest helps to rest, and it is seldom we experience it severe enough to injure Strawberries in pots before the first batch is required for starting. Therefore, I think the best position for them up to this time is standing outside exposed to the elements, and if exposed to 10° or 12° of frost, they will start the more readily when introduced into their forcing quarters. Dryness at the roots should on no account be permitted, or many will be killed and injured by such treatment, especially at the sides of the pots. If the plants are well provided with drainage, and are standing on boards, slates, or ashes, no fear need be entertained of the soil becoming too wet from autumn rains; indeed, during a dry time, if the weather is bright, they will need watering up to the time they are taken inside. The Strawberry being a moisture-loving subject, dryness at the roots at any time cannot but be productive of harmful results.

Few gardeners are fortunate enough to possess a house for Strawberry forcing. Failing this, they have to select the best positions at their command from amongst houses and pits mostly occupied with other things. After residing in a place for a few years, and having charge of the same houses, one gets to know the positions most suited for different classes of plants, and the crop under consideration, from its importance, generally comes in for a large share of attention in this respect, and receives the best places at disposal. Amongst those available at the present time are shelves and stages in early Peach houses and early vineries, heated pits and small houses. Taking pits first, it is seldom these are built at a sharp enough angle for starting Strawberries at this season of the year. Again, if they are not pretty roomy, with the heating well under command, it is a very difficult matter to keep the temperature from varying greatly, which is the reason of many failures in these structures without the cause being suspected. I have never been very successful when using ordinary brick pits, owing to the above reasons. To answer the requirements of the Strawberry during the dullest period of the year, the pits should be built at an angle of not less than 35°, and be provided with means of access to the inside without having to remove the lights. This is particularly desirable for observing the temperature at night, at which time pits often become over-heated, resulting in considerable injury to the occupants. I do not advocate plunging the pots, but prefer standing them on the surface of a bed of leaves, or, better still, on a temporary stage over the bed, arranged at a corresponding angle with the lights, and about 18 inches from them. When plunged there is a danger of unduly exciting the roots, but when thus placed each plant receives a good share of light, causing roots and crowns to start at the same time. A safe temperature to begin with is from 50° to 55°; the latter figure should not be exceeded from fire-heat alone. The early Peach house is invariably selected for introducing a batch of plants at the time the house is closed for forcing, and if a good position can be given them they will start well under the same treatment as given to the Peaches. I am always most successful with the plants brought on in this house. Perhaps it is because the arrangement of the trellis for the Peaches in our case enables us to give the Strawberries a particularly light and suitable position. But, independently of this, I always think the equable temperature and careful attention to other details of culture demanded by the Peaches have a great deal to do with the success of the Strawberries. However, if a good position is given to them in this house, they will not fail to bloom well and set plenty of fruit, and when advanced to this stage they may be removed to warmer quarters to swell and ripen the berries.

The early vinery is the least desirable place for this crop, not because it is unsuitable for the Strawberries, but on account of the Vines. It certainly is not worth risking an attack of red spider and the consequent injury to the Grapes to obtain a few dishes of Strawberries, and it is a well-known fact that these plants, with few exceptions, leave a legacy of insects behind. Employers do not, however, always understand this, and many gardeners, having no choice, are compelled to make use of their early vineries for Strawberry forcing. Under these circumstances extra care should be given to freeing the plants from any insect pests that may possibly be found upon them by dipping them in a solution of Gishurst compound or similar insecticide. Success must always to a great extent depend upon the watering; the Strawberry

as much as any plant will pay for careful attention to this operation, and in like manner, if injudiciously performed, will not be slow in resenting it. The plants should be examined individually, and no more water given than is required to keep the balls of soil uniformly moist. One of the best tests is to feel the surface; if this appears at all adhesive, no water is required, but when the soil feels crumbling without being dry, then water may be applied. A little practice in this way will soon accustom the operator to the wants of the plants, and is, I think, a better test than tapping the pots containing plants with such solid balls of soil and roots as Strawberries usually have.

A. Barker.

FRUITS UNDER GLASS.

Early Orchard House.

Where a structure of this kind now opens the early Peach season, and at the same time renders the November closing of the first permanently-planted Peach house unnecessary, properly prepared trees that were taken in last month, and have been steadily stimulated by fermenting material placed beneath the pots, will now be swelling their buds pretty freely. Time being an important object, the varieties usually selected for this work will stand a slightly increased temperature through the day, should the weather continue mild and bright, and air can be freely admitted; but that by night should not exceed 45° to 50° until the trees commence opening their flowers, when 50° may be taken as the minimum, unless external conditions, as may be expected, are unusually severe. Under these circumstances, 45° by night with a little air should be adhered to, as it is always possible to pull up time, apparently lost, after the turn of the year. A great deal, however, depends upon the selection and preparation of the trees, as we have placed thoroughly ripened, precocious varieties in early vineries where they have set profusely, whilst others only moderately ripe have cast many of their flower-buds, and have pushed their wood-buds too far in advance in a much lower temperature. A continuous circulation of air being such a great help to the advancing buds, the hot-water valves should have an extra turn every morning at daylight to raise the temperature of the house to 58° or 60° by midday, when reducing must receive attention, and, the better to prevent sudden fluctuations, the fermenting material must be renovated at short intervals. Moisture from this will minimise syringing to a great extent, but where constant damping or dewing over is resorted to, extra care must be devoted to root-watering, otherwise a nicely moistened surface may mislead, when the trees will be spoiled for the season. Indeed, so important is thorough watering, that I would rather dispense with the syringe altogether than allow a tree with its roots cramped in a 12-inch pot to once feel the want of water. The water, again, for use in Peach houses should be soft and warm; hence the advantage of large tanks and cisterns capable of holding an abundant supply for all purposes, but most especially for syringing when the fruit is swelling. Strawberries, as a matter of course, will occupy the shelves, where they must have plenty of water and good syringing. Moreover, being so subject to green-fly, their presence will necessitate two or three moderate fumigations before the Peaches come into flower. As I may not touch upon this subject again for some time, I may say a very low, moist temperature is not favourable to the setting of the fruit, but a brisk, buoyant atmosphere which ripens and expands the pollen is; therefore, extra fire-heat and fresh air—that is, in reason—must be secured, and damping must be confined to the stems, walls, and floors. Many people set their fruit with the syringe, especially in the spring; but, considering that this set of trees may not receive a ray of sun throughout the flowering stage, I would suggest daily fertilisation with the camel's-hair brush until the petals begin to fall.

The Mixed Orchard House.

If this structure is not now gay with Chrysanthemums it should be cleansed and put in thorough working order to be ready for hasty housing should real wintry weather set in. If the season continues mild and open the trees need not be taken in before Christmas, but this delay will not prevent the washing of the young shoots with soap and water and painting the stems with a solution of Gishurst, 6 ozs. to 8 ozs. to the gallon of water. Pruning, if requisite, may be deferred until the trees are under glass, when the strongest shoots of Plums, Cherries, and Pears may be shortened more or less to suit the position they are intended to occupy. Peaches and Nectarines, on the other hand, are best left over until the buds begin to swell, especially where the amateur is not well up in his work, as I have seen good trees sadly injured by cutting away the triple and all the wood buds, excepting those at the base of each shoot, when they have been dormant. When the time arrives for arranging the trees in a mixed house they should be kept together in sections as far as may be practicable—Figs in the warmest corner, Peaches next, Pears, Plums, and Cherries in the order named. Apples are not often introduced, as magnificent fruit can be obtained from cordons trained near the foot of a south or west wall, but growers who wish to rival the examples of Ribston and Cox's Orange Pippin, The Queen, Alexander, and King of Tomkins County, recently seen at Chiswick and elsewhere, should obtain trees on the Paradise stock established in pots, and give them a place under glass. In the selection of Pears for the orchard house, none but the very best varieties which do well on the Quince stock should be thought of, as these can be duplicated to any extent and grown into a fruiting condition in the course of one or two years. Trees, two years from the graft, carefully lifted and potted now may be plunged in a warm, sunny border in the open air, there to remain until they are well set with flower-buds, or, time being an object, they can be obtained from any good nurseryman not only well furnished, but fit for immediate forcing. Plums and Cherries can also be secured either as maidens, cut-backs, bushes, or handsome pyramids, the latter profusely furnished with flower-buds. Perfect trees in endless variety can be obtained at a moderate price, but in all cases the greatest care should be devoted to their selection.

Pines.

As days are still decreasing in length directions given last month must be carefully observed, the only deviation, if any, being a slight lowering of the temperature in bad weather. Having two difficulties to contend with, viz, dry fire heat within and dark cold weather without, particular attention must be paid to the bottom-heat, which in fruiting houses should range from 80° to 85°, and in succession houses 10° lower. If obtained from hot-water pipes placed in chambers and the beds are thin, there is always a danger of the plunging material becoming too dry beneath the bottoms of the pots, and as this aridity soon results in irreparable mischief, the tan or leaves should be partially drawn away from the sides the better to facilitate the liberal use of tepid water. By this means a proper degree of moisture, so essential at all times, can be restored without saturating the soil contained in the pots, whilst the slightly increased bottom-heat, especially where diluted liquid has been used, will act as an excellent stimulant. It must not, however, be assumed that fruiting Pines, even in winter, can do without water, but it should only be given when they actually require it, and then upon beds of this kind it should be thorough and of a stimulating nature. Overhead syringing will hardly be necessary, but I may repeat that the surface of the bed should be kept constantly moist, and the roots coiling round the lower parts of the stems must be fed by forcing into the axils of the leaves diluted liquid, guano, or soot-water at short intervals. The heat by day may range from 76° to 80°, and that through the night from 65° to 70°, but no strict rule must be observed, as a somewhat low, steady heat often suits the plants better than a higher temperature, which cannot be maintained without having to resort to hard firing. Early Queens still resting must be kept very quiet, but the balls of each plant, no matter how well they are moulded up, must be examined, and if it is found that they are getting too dry a little tepid water must be given to them. When this batch of plants has been pushed just a little too forward in the autumn, and there is danger of their suffering from drought or throwing up too soon, it is always a relief to be able to set about preparing for starting. The time is now at hand, and the materials, be they tan or newly harvested leaves, may be placed under a course of preparation.

Young successions and suckers, like fruiters, that have hot-water pipes beneath them, must be frequently examined, for here lies their greatest danger; they may not be too hot, but they may get too dry, and once this continues for only a short time, premature starting may be looked for. The remedy, or rather the preventive, is the same, viz, a good soaking of tepid water applied to the plunging material. The range of temperature necessary to the most gentle progress being low, the syringe will hardly be needed, certainly not amongst the plants until after the turn of the year, but arid parts of the bed and walls may be damped on bright days when the heat has reached the maximum. Plants in extra light span-roofed pits which have been kept steadily progressing will be the better for an occasional dewing over with the syringe on fine days, and root-watering must be more frequent than would be good for others which are resting. If in small pots, and the latter are getting full of roots, they will derive great benefit from very weak soot or guano water poured on to the tan or leaves in which they are plunged, but on no account must steam be generated by wetting the pipes when they are overheated. If extra speed is an object, pots, crocks, and a little carefully prepared compost may be got ready for giving them a shift soon after Christmas. Pits used for this work should have the aid of good external linings, and if practicable the roof should be well covered in bad weather through the hours of darkness. Waterproof blinds on rollers answer fairly well, but sheets of oiled canvas which will stand drawing off when stiff with frost or loaded with snow answer better.

Figs.

Next to Grapes and Peaches, if not equal to them, stand the Fig, when really good fruit is forthcoming in April. Twenty-five years ago very few forcing gardeners tried to get these sun-loving subjects ready for the table before the end of May or the beginning of June, but quite recently a great change has taken place, and although superior quality rarely sees the light in the Centre Row, large luscious Figs worth eating now go to the formation of all the best April desserts in the country. From these remarks some may jump to the conclusion that gardeners could not force them through the winter months; if so, I must inform them that they are labouring under a delusion, as suitable varieties of Figs are more tractable than Strawberries or Peaches; further, I may say, the taste for Figs, as for Tomatoes, must be acquired before they can be enjoyed, and this dislike on the part of consumers who had not travelled and eaten the fruit abroad, goes far to prove that the fault did not rest with the gardener. The list of Figs, fortunately, until quite recently, has not been a long one, and I much question if any of the varieties comparatively new to us, but very old on the Continent, are better than Brown Turkey or Lee's Perpetual, Early Violet, White Marseilles, Angelique, and Brown Ischia. Of recent introduction I must not omit Negro Largo and Osborn's Early Prolific, which, like the preceding, force well and crop profusely. Here, then, we have a good half dozen, and one over, which will not disappoint; therefore, good fruit and plenty of it being the forcing gardener's object, he may pick where he will from these for culture in pots or training on trellises. Old hands who have been at the work for years prepare their own trees by feeding, roasting, and resting for starting in November, and these, it is hardly necessary for me to say, are now answering to the mild, moist heat which is helping them along. But the masses who have not yet entered the lists may yet do so, as superb trees established in pots can be obtained from the trade for starting on the 1st of January. Assuming that they do not require more than half the varieties I have named

they might select Early Violet or Osborn's Prolific for coming in first, Brown Turkey and Marseilles for a close succession, and any of the remainder for ripening within a fortnight after Early Violet. As Figs do not attain their best quality until they are thoroughly ripe upon the trees, and some are more tender in the skin and flesh than others, those who anticipate having to pack for long journeys should select Early Violet, Brown Turkey, and Negro Largo, but on no account should they omit Osborn's and White Marseilles for home use. Pot Figs, it is generally admitted, can be grown from good cuttings into fruiting plants in one year, but those who do not wish to wait, or cannot command the convenience must buy, and here a word as to the best points may be of use to the novice, or amateur, who does not feel disposed to leave the selection to the nurseryman. Not a few who ought to know better, on arrival at an express nursery, are beguiled into buying big trees or young giants, which, innocent of root-pruning, have laid on as much wood in one year as would suffice for two, but this line will not do when they set out in search of pot Figs fit for forcing, and giving a good crop of fruit the following year. Point No. 1 must be met by a clean 10-inch pot well filled with roots. No. 2, by a clean, straight, grey stem, not less than 9 inches in height, and perfectly free from suckers. No. 3, by a compact, squat bush, composed of five to seven shoots of moderate strength, well furnished with short, spur-like laterals with bold terminal buds and a few small figlets, not larger than swan-shot, clustering near them. If a pyramid (the best form for lofty houses) is desired, point 4 must be met by a clean straight leader, showing the first check for a set of shoots 9 inches to 12 inches above the pot, and so on, as it sped upward throughout the season. Last, but not least, the young trees must have been grown under glass, and thoroughly ripened root and shoot by the end of September. Next, as to forcing. Trees in pots may be treated precisely as we treat fruiting pot Vines, that is to say, the air temperature, good syringing, copious watering with warm diluted liquid, rich top-dressing, and a moist, steady bottom-heat from fermenting material which suit the Vine will carry the first crop of young Figs to maturity. The manipulation of the young trees, of course, is different, as the second crop of fruit from wood of the current year depends upon the way in which the strongest shoots are pinched at the fifth or sixth leaf, once, or perhaps twice, being generally sufficient up to the beginning of July. After this date all the points should be allowed to grow, as success in the succeeding season, when forcing may be commenced a little earlier, depends upon getting a set of breaks from the last stopping thoroughly ripe before the leaves fall. By dint of sharp forcing, hard stopping, and high feeding, I have taken three crops of fruit from pot trees in one season, but the strain is too great, as some of the points after the last stopping remain blind and have to be cut back to a single dormant bud; whilst the last crop, which comes in late when finer fruit from other houses is plentiful, is of little value; the trees, moreover, having had a very short season of rest, break weakly, show sparsely, and very often resent the hard whipping of the preceding season by casting the most forward fruits just when they should commence swelling for ripening. W. C.

PEARS AND APPLES AS HORIZONTAL CORDONS.

Growing Pear trees trained as oblique (see illustration, p. 539) cordons against walls and buildings is frequently advocated by experienced cultivators of this fruit, and those who adopt this system of training are generally well satisfied with the results. There is, however, another form of cordon from which excellent fruit of good flavour can be obtained, namely, the horizontal cordon. Having had some experience with this system of training, I am induced to say a few words in its favour. I am encouraged to do so from the fact that I have gathered some of the best flavoured and most handsome Apples and Pears from trees under this mode of training. Trees trained as horizontal cordons (see illustration) when in bloom are easily protected from frost, whilst the fruit is comparatively secure from winds, which often cause great havoc after it is about half grown. I do not assert that trees so trained are superior to those on walls, but then all growers do not have walls which they can devote to Pears; neither is this mode of culture suited to very cold districts. Of this I am, however, sure, that fruit from horizontal cordons, where they will succeed, is far superior in point of flavour, and often in size and colour, to that grown on east or west walls. The best position for horizontal cordons is along the front of fruit borders.

Similarly placed on vegetable borders they succeed very well. In such positions they are very ornamental and do not encroach greatly upon the space devoted to those crops, as if worked upon the right kind of stock the roots require but little room, and by training the branches a good distance from the ground, many dwarf things, such as Lettuce, Parsley, &c., can be grown underneath, except for a space of 18 inches or so on each side of the stems of the trees. A stout galvanised wire should be provided for training the branches to, this being firmly secured at each end to iron or wooden standards with means for straining it. The best standards are those made of iron, firmly driven into blocks of wood placed about a foot underground, means for straining the wire being supplied by a bolt of iron 12 inches long, and provided with a thread three parts of its length and an eye at one end. This is passed through a hole near the top of the standard and secured by a movable nut, by which the wire is tightened. Supports are also needed at distances of 15 feet.



Horizontal-trained cordon Apple trees in fruit. Engraved from a photograph.

As regards the trees for planting, Pears should be upon the Quince, with stems 18 inches high. The best trees I have had were obtained from France. Certainly in this branch of training our neighbours excel us, their trees being on good straight stems, from which the branches start at right angles and are well furnished with fruiting spurs. Horizontal cordons purchased at home are generally too low and unevenly trained to form good cordons. Whilst admitting the superiority of the French trees, I must say that, exercising a little care, very fair trees that will answer the purpose equally as well can be produced at home from maidens in a few years. I have often wondered how it is they (the French nurserymen) manage to obtain two shoots almost on a level with which they form such even trees. Perhaps their climate is more conducive to short-jointed growth, or they give their maiden trees intended for cordon training plenty of room.

In preparing the stations for planting, the soil should be made firm, especially in the centre, for the roots to rest upon. I remember seeing bricks recommended for this purpose some years ago, and I adopted the practice with good results. Two bricks are placed close together flatwise, 9 inches or 1 foot from the surface, and the tree is planted immediately over them, thus keeping the roots near the surface and providing a firm base, which prevents the trees from settling. Planting should be done sufficiently high to bring the horizontal limbs on a level with the wire, this being strained at a height of 18 inches from the ground. The distance apart usually recommended for planting these trees is, I think, too close, better results being obtained when the branches have room to extend a good way; 12 feet apart is a good distance for double cordons, which gives 6 feet for each branch, and when they become furnished with spurs such trees will produce three dozen good fruits. Training is a simple operation, consisting of allowing the leading shoots to extend until the trees meet.

Pears on the Quince do not as a rule make

very vigorous growth; therefore, by paying attention to disbudding and stopping the summer growth, fruiting spurs are readily produced. If any of the trees seem more disposed to making growth then fruiting spurs, lifting and replanting are the best means of checking this tendency and bringing them into a fruitful condition. When they become established, summer growth will require but little attention. Overcrowding must, however, be avoided, or the spurs will become weak, and the fruit consequently poor.

Varieties which succeed on the Quince must be selected. Two of our best Pears, Marie Louise and Winter Nelis, are very unsatisfactory with me upon this stock, but another equally as good, namely, Doyenné du Comice, is all that can be desired, the fruits being clean, of good size, and delicious flavour. Beurré Superfin is another kind which does well. Beurré Diel, generally a very erratic sort, is invariably good from cordons when those from walls are almost worthless. Other kinds which I have found to succeed satisfactorily are Duchesse d'Angoulême, Nouveau Poiteau, a Pear which is soon over, but good if caught at the right time; Beurré d'Anjou, a melting kind with a Bergamotte flavour; Conseiller de la Cour, Pitmaston Duchess, Beurré d'Amanlis, Beurré Dumont and Thompson's.

Apples being hardier can be grown in this manner more generally and over a wider area than Pears. The details of culture are much the same. They are best if worked upon the Paradise stock, the growth then being moderate and fruitful. Some of our best Apples are cultivated to perfection under this system of training, especially the large, heavy kinds such as Lord Derby, Warner's King, Ecklinville Seedling, Alexander, Peasgood's Nonsuch, &c. If free-bearing kinds like the above are selected, a good crop may be looked for every year.

A. Barker.

Raspberry and Blackberry hybrid.—A supposed hybrid of this parentage was laid before the scientific committee of the Royal Horticultural Society lately (p. 497). Some twelve years ago, when staying at Lynton, in North Devon, I came across a large bush, which was unmistakably such a hybrid. At this lapse of time I am unable to record the exact spot, but to the best of my belief it was about two miles up the West Lynn Valley, on the right hand bank as one ascends the stream, and not many yards from the water. Both Blackberries and Raspberries were plentiful along the bank. The bush was in full fruit; the berries were long, mulberry-coloured, and of a pleasant flavour, intermediate between the distinctive flavours of Blackberries and Raspberries. The Raspberry usually flowers long before the Blackberry, but late blossom is not uncommon on the Raspberry, and no doubt this hybrid might without difficulty be artificially obtained, and might be valuable.—G. H. Engleheart.

Frontignan Grape.—"J. C. B." states that he was surprised to see the statement that I made respecting the above-named Grape, viz., that it shanks, and goes on to remark that he has it growing with Hamburghs, and never yet observed any tendency in the bunches to show that defect. I can only say in reply to this, that I think his experience with regard to the Frontignan is very different to that of other growers, if such there are, and I shall be glad to hear what they say. "J. C. B." further remarks that if I had said the Grape referred to invariably cracked he could have agreed with me, but that I never saw it do, and as his cracks and does not shank, I am of the opinion that he has not got the Frontignan at all, but has Josling's St. Albans instead, as cracking is its characteristic and distinguishing mark from the one under notice, as in other respects there is the closest resemblance. "J. C. B." is quite right in his surmise that the Frontignan requires or enjoys warmth at the roots, and it also needs a high temperature for the top. I have had every proof of this, as the only time I have seen it good was in a Pine stove, where it used to do well.—J. Sheppard.

STANDARD APPLES FOR BRITAIN.

1. ALFRISTON.
2. BESS POOL (NEW).
3. BLENHEIM ORANGE.
4. BRAMLEY'S.
5. CLAYGATE PEARMAIN.
6. COX'S ORANGE PIPPIN.
7. DUTCH MIGNONNE.
8. FLANDERS PIPPIN.
9. LANE'S PRINCE ALBERT.
10. MERE DE MENAGE.
11. NORTHERN GREENING.
12. REINETTE GRISE.
13. RIBSTON PIPPIN.
14. STONE'S.
15. STURMER PIPPIN.
16. WELLINGTON.
17. WINTER QUEENING.

Early Apples.—Carlisle Codlin, Keswick Codlin, Lord Suffield, Duchess of Oldenburg, Devonshire Quarrenden, Irish Peach, Oslin, Early Margaret.

Fine-flowered Apples.—Emperor Alexander, Hawthornden, Lord Suffield, Hambledon Deux Ans, Blenheim Orange, Court Pendu Plat, Orange Goff, Kirke's Incomparable, Sharp's.

Cider Apples.—Fox-whelp, Garter Apple, Woodcock, Redstreak, Underleaf, Cowarne Red, Best Bache, Skyrme's Kernel, Forest Styre, Dymock Red, Joeby Crab, Styre Wilding, Eggleton Styre, Royal Wilding, Black Wilding, Pym Square, Mumm's Red, Bran Rose, Red Styre, Tremlett's Bitter, Ellis's Bitter, Slack-my-Girdle, Pound Apple or Sweet Buckland, Red Cluster, Sweet Albert, Holmcote Sweet, Cat's-head, Sweet Portugal, Red Bosberry, White Bosberry, Tom Putt, Kingston Black, Greasy.

Little Apples.—Golden Harvey, Pearson's Plate, Beachamwell, Keddleston Pippin, Ashmead's Kernel, Pine Golden Pippin, Pitmaston Pine-apple, Lucombe's Pine-apple, Sam Young, Lodgemore Nonpareil.

Brightly-coloured Apples.—Incomparable, Hanwell Souring, Cox's Pomona, Brabant Bellefleur, Bauman's Red Reinette, Rymer, Red Hollandbury, Alexander, Hoary Morning, Tom Putt, Tyler's Kernel, Striped Beaufin, Fearn's Pippin, Cumberland Fillbasket, Duchess of Gloucester, Worcester Pearmain, Cellini, Adams' Pearmain, Scarlet Nonpareil, Red Astrachan, Norfolk Beaufin.

Our readers will remember that last year we raised the question of the needless number of Apples, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The minor lists will, we hope, be useful, as they will prevent the exclusion of fruits with useful secondary qualities. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on English Apples of the highest quality and able to compete with those of any country.

Roadside plantations of fruit.—When travelling in Bohemia and Moravia (northern provinces of Austria) I noticed frequently plantations of Plums along the roads, the fruits of which are used in enormous quantities for preserving.—Louis Kropatsch, *The Imperial Gardens, Prater, Vienna.*

The winter moth.—Many fruit growers are this year adopting measures for preventing the ravages of this moth. The rings of daub on the Apple, Pear, and Plum trees in the orchards here are covered with moths of both sexes, and thousands have already been captured in this way. On some trees which were missed and were only done recently, between twenty and thirty moths were counted sticking to the daub on the stems the following morning.—A. B.

HEDGEROW FRUIT TREES.

Although fruit trees in hedgerows are a novelty in some parts of the country, they are by no means rare in the fruit-growing counties, and as a rule they succeed very well. In Kent Damsons are largely grown in this way, while in some counties Apples are the favourites, and I well remember some gigantic Apple trees which grew in a hedgerow, and which seldom failed to produce a good crop, while Quinces, Medlars, and Nuts were far more plentiful than they are now. There can be little doubt but that their fertility was in a great measure due to their surface roots being undisturbed, for the constant digging around trees in cultivated land destroys a great proportion of the fibrous roots that promote the fertility of the tree. I do not suppose that the supply from hedgerow trees will ever visibly affect the enormous quantity that is required in this country, but there cannot be a doubt that such positions might be made to help the supply of private establishments.

We know that hedges are very differently formed now to what they were fifty years ago; in fact, live hedges have to a great extent been replaced by fences of various kinds. Although it would be a very doubtful experiment to advocate planting fruit trees on the margins of public roads, it would be quite a different matter to plant them by the margins of private roads, or in hedgerows and alongside fences, for where a forest tree will grow a fruit tree will surely flourish. Some trees will not only yield good returns in the way of fruit, but are really valuable for timber. The Walnut is especially valuable for this double duty. In this locality we have more Walnut than any other trees, from the fact of their having been largely planted when the old ramparts and fortifications were formed here, and they bear large crops of Nuts. Quinces and Medlars succeed well as hedgerow trees, and I am sure their crops are very profitable, and another recommendation is that when once got up to bearing size very little attention is necessary. Plums, Damsons, Bullaces, and Cherries are all good subjects for such positions, as they do not like the incessant disturbance of their surface roots that they too often receive. Cherries seldom are as satisfactory in cultivated soil as in pastures. In positions where they would be as safe from the depredations of passers by as they would in an enclosed orchard, there is no reason why their culture should not prove profitable.

Of Apples and Pears for such positions there are many suitable varieties, and if I had to select a few for experiment, I would pass by all those beautiful varieties like Lord Suffield or Warner's King, that do so well on dwarf trees, and plant those of second size and quality. The Orange Goff Apple is a very profitable and useful variety, and the Golden Knob is one that returns more profit to the grower than many of the better sorts. This kind of tree planting must not be expected to solve the problem of our national fruit supply, but grown in positions that as a rule are not utilised to any profitable purpose, would prove a very valuable addition at a trifling cost.

J. Groom.

Gosport.

Schubertia and Onychium.—The curious fact lately referred to in The Garden, viz., the name Schubertia being applied to two different genera of plants, is not the only instance on record, there being another still more curious, viz, Onychium. While Schubertia (Martius) (Asclepiadeæ) and Schubertia (Mirbel) (Coniferæ) differ by their various specific names, Onychium japonicum (Kaulf.), a well-known Fern, and Onychium japonicum (Blume), an Orchid synonym of Dendrobium, are quite similar through both generic and specific names being the same. Nicholson's "Dictionary of Gardening" for Schubertia (Martius) refers the reader to Physianthus, and for Schubertia (Mirbel)

to Taxodium. Veitch's "Manual of Coniferæ" does not mention Schubertia amongst Taxodium, but I found it in the "Traité des Conifères" by E. A. Carrière. Nicholson's Dictionary mentions Onychium japonicum only as a Fern, but Veitch's "Manual of Orchidaceous Plants" as well as B. S. Williams in the "Orchid Growers' Manual" gives it with the Dendrobes. The first time I saw Onychium japonicum mentioned as an Orchid was in W. Rollisson's general catalogue. I understand that Prof. Reichenbach has now crossed out this name from the Orchid family. Is there any other instance of the same name being used twice?—J. Sallier, *St. Germain-en-Laye.*

NOTES OF THE WEEK:

Primroses fresh and pretty as in a kindly spring come to us from Mr. W. Caudwell, The Ivies, Wantage. They are varied and rich in colour.

Hollies in Dublin.—I send a few sprigs from the College Gardens, Dublin. No exotic berry-bearing shrub I know can approach our native Holly for effect in winter.—F. W. B.

Desfontainea spinosa.—We have here in one of the shrubbery borders a fine bush of this beautiful South American shrub, 5½ feet high and 6 feet through. It has flowered most profusely during the past four or five months upon every little shoot, owing, no doubt, to thoroughly ripened wood. Small specimens of this shrub are most beautiful for house decoration.—J. T. Ebbutt, *Winslade Gardens.*

Royal Horticultural Society.—It is anticipated that there will be six vacancies at least on the council of the Royal Horticultural Society to be filled up by the Fellows at the annual meeting in February next. We understand that the following gentlemen have signified their wish to be relieved of the work which during the present year has been very heavy, viz., Mr. Thiselton Dyer, Professor Michael Foster, Dr. Hogg, Sir Edmund Loder, Mr. Harry Veitch, and Mr. G. F. Wilson.

Christmas Roses from Exeter.—A gathering of Hellebore flowers comes from Messrs. R Veitch, Exeter. The varieties are the Brockhurst variety, the growth of which is especially vigorous; Mme. Fourcade, flowers small and white; maximus; major (Veitch's Devonshire variety), a large pure white flower of fine form, leaves deep green; and a variety imported from Germany, the flowers very pure, and with segments more star-shaped than usually seen.

Chrysanthemum Violet Tomlin.—I herewith send a flower of a sport from Princess of Wales in 1886, which has been grown until the present season. Not having had the opportunity of seeing Violet Tomlin, will you kindly inform me through your columns whether this is the same?—W. Rose, *West Bank House Gardens, Manchester.*

*** The flower was too old and badly formed for any accurate answer to be given. It appears too bright in colour, but otherwise has much of the character of the new Violet Tomlin. Send another bloom in good condition, and by all means preserve the sport.—Ed.

October frosts, which played such havoc in the outdoor gardens round London, would not appear to have been so destructive either in the neighbourhood of Norwich or in the Isle of Wight. I learn that in all the small gardens about Norwich, Chrysanthemums are flowering in profusion, and that scarlet Geraniums, though somewhat dull in colour, are still blooming. Yellow and white Marguerites are still good, and on a south wall in Newmarket Road a healthy plant of Cobæa scandens still bore some thirty flowers and buds. The plant appears to have been put into the ground in the spring. This is, I think, a plant too much neglected as as open-air climber. Strange to say, there appears to be almost a total absence of herbaceous plants in the neighbourhood of the city. How is this, I wonder? From Cowes I learn that Cactus Dahlias are still yielding abundance of flowers, and that the plants are now more luxuriant than they were in August last. Geraniums as fresh as ever, but not producing much bloom, whilst flowers of Phlox Drummondi and Dianthus Heddewigi can be cut in plenty. This is very different to the experience of gardeners round London.—W. H. G.

Gardeners' Orphan Fund.—I have the pleasure to acknowledge the receipt of a cheque for £31 from Mr. O. Thomas, Chatsworth, as the result of the floral concert held at Chesterfield on November 14 in aid of the fund. Very great credit is due to Mr. Thomas and his fellow gardeners and the members of the committee, viz, Messrs. W. H. Horabin, W. R. Bloxham, H. Smale, W. E. Jenkinson, J. Fletcher, J. J. Nelson, G. Parkes, S. Polkinghorne, W. Leighton, J. Turguy, and J. Hutton, who have worked so energetically with Mr. Thomas to achieve such a splendid result.—A. F. Barron.

Hardy flowers in December.—I send you a list, and examples as well, of the flowers I found in bloom in the course of a morning's walk on this, the 4th of December. The season has been exceptional. Instances of excessive severity occurred early in October, and subsequently abnormal warmth has characterised the weather. Undue heat at this season is undesirable, however much we may enjoy it. We cannot but dread the consequences of a too active growth in herbaceous plants, and the blooms they are producing with a winter before us. Violets are in full bloom. My early yellow Polyanthuses have covered the beds with blossoms. Wallflowers, Aubrietias, and Primroses, stimulated by the unusual mildness, are in active growth and bloom. We are still cutting Gloire de Dijon and other Roses.

Tussilago fragrans
Helleborus maximus
Papaver orientale
Erodium manescavi
Erigeron speciosum
Anemone coronaria
Doronicum excelsum
Meconopsis cambricum
Campanula
Linum flavum
Geum coccineum
Vinca minor
Dianthus superbus
Phlox amœna
Alyssum saxatile argenteum
Helianthemum polifolium
Lupinus nankinensis
Hesperus matronalis
Iberis gibraltarica hybrida
Pyrethrum (double)
Linaria purpurea
Aubrietia græca
Gentiana acaulis
Veronica rupestris
Cheiranthus Cheiri, B. C. var.
Cardamine rotundifolia
Scabiosa fl.-pl.
Arabis alpina
Centaurea montana
Erysimum pulchellum
Chrysanthemum maximum
Calluna
Diplopappus chrysophyllus
Crocus odorus longiflorus
Viburnum Tinus
Jasminum nudiflorum
Myosotis dissitiflora
Polyanthus, yellow
Violets, four varieties

—W. Ingram, *Belvoir Castle.*

—— The extreme mildness of the season is producing such an unusual display of outdoor flowers, that in walking round the garden it gives one the impression of being the spring season instead of December. I thought you might probably be interested in the following flowers cut from the open, December 4, in the gardens of Mr. F. D. Godman, South Lodge, Horsham:—

Clematis Lady C. Nevill
Senecio pulcher
Geranium Endresi
Jasminum nudiflorum revolutum
Helleborus niger olympicus
Dianthus sylvestris
Rhododendron Nobleanum
Potentilla nepalensis
Papaver orientale
Anchusa sempervirens
Armeria formosa
Erigeron philadelphicum
Campanula Portenschlagiana
Iberis gibraltarica
Schizostylis coccinea
Veronica rupestris paniculata
Aponogeton distachyon
Allium Babingtoni
Escallonia pterocladon
Doronicum plantagineum var.
Pyrus japonica var.
Helianthemum rosmarinifolium
Lithospermum prostratum
Berberis Darwini
Chrysanthemum maximum Guernsey Nugget
Fleur de Marie
Pentstemons
Geraniums
Pansies

—M. Moody.

—— As a proof of the extreme mildness of this season, I may mention that, besides having Violets, Polyanthuses, double Primroses, Chrysanthemums, and Forget-me-nots in flower outside, our Asparagus is almost ready for cutting, a thing extremely rare, I should imagine, at this time of year in any part of Scotland. The temperature here outside yesterday was 53° in shade.—Hon. Mrs. Elliot, *Clifton Park, Kelso.*

—— As a proof of the mildness of the season, I think it may be of interest to send you a selection of flowers picked from the open air to-day. They are much injured, however, by the heavy rains. Tropæolum canariense and majus were in flower on the walls till a few days ago, when they were cut down by the gardeners when they were training and pruning the creepers. I may mention that this place is situated ten miles west of Edinburgh, and is 550 feet above sea level.—J. A. M. W., *Midlothian, Scotland.*

—— We read in nearly all the papers about Green Peas, Violets, and Primroses being gathered just now, but they seem mostly in the south of England. I send you a bunch of flowers gathered to-day (Dec. 4) from outside. Violets have been very plentiful, but I am afraid it will be at the expense of the spring crop. Many things are starting into active growth.—R. Frisby, *Preston.*

—— This surely is an exceptionally mild season. Here as yet we have registered no frost. Hybrid Perpetual Roses are still plentiful and the blooms compare favourably with those we have had during the summer. Lapageria rosea growing against an open wall has nine fully expanded blooms. It has been planted two years, and this season it has made growths from 6 feet to 8 feet in length. We were quite gay with Dahlias, Marguerites, Geraniums, and other summer bedders until the severe gales which swept over here about a fortnight ago put an end to their beauty.—D. Grant, *Bodlondeb, Conway.*

—— I send you a box containing a few flowers cut from the open borders this morning, so that you may see what very mild weather we are experiencing here just now. Considering that the gardens are 750 feet above sea level, the way the outdoor flowers have kept blooming is something remarkable. Had we not had the 6° of frost on the 1st of October, I believe the borders would have looked as well in the autumn months as in the summer season. The glass outside to-day indicates 50°, and at 9 a.m. I heard a blackbird singing.—J Jeffrey, *Cyfarthfa Castle Gardens, Merthyr Tydfil.*

—— You will see by the enclosed collection of flowers I gathered this morning that the mild weather still continues here.—Jas. Harris, *Woolland House Gardens, Dorset.*

Destruction of British Ferns.—It is well known that scarcely a Fern of any commercial value remains in Epping Forest or the woods around London, but we were scarcely prepared to find evidence of the wholesale destruction of British Ferns in a remote village in Yorkshire. No mercy appears to have been shown. A few years back on an old wall, forming part of the ruined abbey of Rievaux, about three miles from Helmsley, Yorkshire, was a colony of the common Hart's-tongue Fern, that gave as much beauty to the picturesque pile as the clustering Ivy that scrambled in through the west window. Last year not a vestige of a plant was left. The whole had been carted away to sell in the streets of large towns, yet nothing is done to check this shameful practice. There is an act to protect our feathered friends, why not one to shield our native flora from harm?

A disputed prize.—To encourage the growth of Chrysanthemums in the district, my employer, who is president of the South of Scotland Horticultural Society, presented a cup, which the committee offered for a group of Chrysanthemums, the cup to become the property of the competitor winning it three times. The first show was held on Nov. 30, 1887, and did not receive the amount of support expected, there being only two competitors for the cup, and in the other classes little or no competition, the result being a loss of £10 to the society. This year the schedule was issued and the show advertised to be held on the 28th of this month. The committee, dreading another failure, instructed the secretary to communicate with all growers in the district, asking them to support the society. The replies were very unsatisfactory, only one offering to compete for the group, one for specimen plants, and two for cut blooms; therefore the committee decided to hold no show this season. The donor of the cup suggested that it should be withdrawn for want of competition and offered by the society for something else, but the holder claims it as won for this season. What is to be done with the cup? Have the committee power to withdraw

it and offer it for anything else without the consent of the winner of last year? Kindly give your opinion in reply to "A. C. T."—QUERIST.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

ON Monday evening last a meeting of the general committee of this society was held at Anderton's Hotel, Fleet Street, Mr. E. Sanderson being in the chair and supported by a large attendance of members. The hon. sec., Mr. Wm. Holmes, announced that all the arrangements for holding the dinner had been completed, and that he expected Sir Louis Pelly, M.P. for West Hackney, would be present. Twenty-nine new members were elected, bringing the total on the society's books up to 630.

Mr. Harman Payne, the foreign secretary, announced that he had received numerous applications from abroad for the society's catalogue, and that copies had been sent to America, France, Turkey, and other places. It was further suggested by him that, in consequence of an application being received for membership by an amateur in France, a new class of members be instituted for those desirous of joining the National Chrysanthemum Society, but who were living abroad, and it was resolved that the subscription for such be 5 francs for France and Belgium, $1 for America, and 4 marks for Germany, this scale to remain temporarily until Mr. Payne has time to prepare and submit at some future meeting a scheme appropriate for the admission of foreigners.

Much discussion then ensued upon the form which the National Challenge Trophy was to assume, and it was ultimately resolved, considering that the society had not more than £15 to devote to the purchase of the trophy, that a sum not exceeding that amount be spent in the purchase of an electroplated salver or shield. A letter from Mr. Doughty was read on the subject of a conference to be held on the afternoon of the day fixed for the annual dinner, but as the time was too short, it was subsequently moved by Mr. R. Dean, that a conference be held on the first day of the late-flowering exhibition in January. A sub-committee, consisting of Mr. George Gordon, Mr. Lewis Castle, and Mr. Harman Payne, was formed to carry out the details, and any suggestions made to them will receive proper attention.

A letter from the secretary of the Hull society was read requesting that the society should be affiliated, and it was reported that a deputation from Hull had waited upon the officers of the National Chrysanthemum Society who were present at Sheffield to consider the idea of holding the next provincial show of the N. C. S. at Hull. Similar offers and suggestions were stated to have also been received either formally or informally from local societies at Leeds, Derby, and Brighton.

Mr. Holmes then announced that at the Crystal Palace show a meeting of the judges and growers had taken place to consider the advisability of celebrating the centenary of the introduction of the Chrysanthemum into Europe, and that a resolution had been passed asking the National Society to arrange for such a celebration. Upon the motion of Mr. Geo. Gordon it was resolved that the subject be adjourned to the next committee meeting. In the course of the discussion on this point Mr. Holmes announced that he had received a circular from the Ghent society stating that the event would be celebrated there in November, 1889, and inviting the co-operation of the National Chrysanthemum Society. It was also added that the Crystal Palace Company had offered facilities for holding the centennial exhibition, and in the event of their offer being accepted, Mr. Head, the gardener, would be able to grow from 10,000 to 12,000 plants with the view of assisting in the work of comparison and identification of synonymous flowers. Many offers of assistance in other ways have been received, and the probability is that 1890 will be the year selected as the hundredth anniversary of the introduction of the Chrysanthemum into England.

An inquiry was made as to the success of the provincial show, and in response Mr. Holmes considered that it was a success in every way, with the exception of the competition in the open classes. Although no doubt the bad season contributed in a measure to this fact, yet Mr. Holmes was of opinion that the chief reason was want of pluck on the part of northern and southern growers. He affirmed that he was fully persuaded that the south was afraid of the north and the north afraid of the south. This expression of opinion called forth a protest from Mr. Gibson, who disclaimed any such feeling, and attributed the reason of his non-appearance to other causes entirely, as he had all along looked forward to being able to exhibit at Sheffield, but at the last found he was unable to do so. The sitting was a lengthy one, and the meeting broke up much later than is customary.

The last committee meeting of the year was held on Wednesday afternoon at the Royal Aquarium, when there was again an interesting show of novelties.

First-class certificates went to the following:—

ETOILE DE LYON.—This was exhibited in two different characters. The flowers that were certificated were from Messrs. H. Cannell and Sons, Swanley, and from these it could be seen that Etoile de Lyon is a Japanese variety of no ordinary merit. The blooms are of great width, flattish in shape, and with magnificent broad petals of the richest rose-carmine. Those exhibited by Messrs. J. Laing and Sons, Forest Hill, were smaller, almost white, and evidently grown under different conditions. To have a variety like this in full beauty in December is no mean advantage.

MRS. W. A. HARRIS.—Another beautiful Japanese variety, with the colour of Sarnia and the full form of Maiden's Blush. It is one of the American kinds, the colour white flushed rose. As an exhibition flower it ought to take a leading place. From Mr. Beckett, Elstree.

CÆSAR.—This should not have been certificated in the condition in which it was shown. It is evidently an excellent Japanese Anemone variety, the guard florets dull red, and the disc yellow. From Mr. Elliott, Jersey.

CHINESE PRIMULA HAROLD'S PINK.—A single variety of great beauty and distinctness. It represents the Chinese Primula in its highest development, the flowers large, rich rose-pink, and borne in a handsome truss. The growth is also strong and free. From Messrs. H. Cannell and Sons, Swanley.

CHARLES SHARMAN was commended for the richness of its crimson colouring. It is a Japanese variety, and of good form. Shown by Mr. Beckett.

Mr. T. Beckett, Elstree, showed besides the varieties above-named two others of excellent merit, viz, Mme. Dubreuil, which is a Japanese flower of a rose shade, and will make a useful variety, and Pelican, now well known; the creamy white flowers were exceptionally fine for the season. A new Japanese Anemone kind named Triomphe d'Anzin came from Mons. Ghys, France. It is a seedling of this year and of great promise; the thread-like guard florets are pale rose-white, the disc of a deeper tint. A stand of splendid blooms was exhibited by Mr. Mursell, gardener to Mrs. Barton, Tower House, Streatham. It contained two of the finest flowers of the beautiful yellow-coloured Gloriosum that we have seen this season. As here presented this is a light, graceful flower. W. and G. Drover, the monstrosity that the committee were unwise enough to certificate last January, the yellow H. Cannell, and the pure white Lady Lawrence were also represented. Messrs. J. Laing and Sons also exhibited a variety named J. R Pearson, which appears to be a sport from Mlle. Lacroix, as it has much of the character of that variety. It is of a pink colour and full form. A white-flowered sport of Mrs. C. Carey was sent by Mr. Owen, of Maidenhead, and from the same exhibitor came flowers of the Japanese varieties Minnie Palmer, white, like Moonlight somewhat in shape; White Elephant, similar to James Salter; and J. Collins, a flower of a striking orange shade. These were all cut from plants imported from America as late as July last. Mr. Elliott, Jersey, had Jersey Nugget, which is like Temple of Solomon, and Messrs. J. Veitch and Sons, Chelsea, showed J. H. Mann, which is white tinted rose, the florets recurved and broad. Mr. M. Russell, Henfield, Sussex, exhibited a yellow-coloured sport from Princess of Wales named Mrs. S. Coleman. It is evidently of considerable value, but the flowers were stale. Holborn Nugget, a Japanese variety introduced from Japan, was shown by Messrs. J. Carter and Co., High Holborn. It is of a rich self-yellow colour, but thin and papery at present. Messrs. H. Cannell exhibited a Japanese Anemone named Ruche Toulousaine, but it is not so good as Minnie Chate; also Perle Precieuse, a purplish incurved variety; and Lady Dorothy, an incurved variety, a sport from Hero of Stoke Newington. It is similar to Charles Gibson, with the same petal, compact, and considerably lighter in colour. It is worth a certificate. From the same exhibitors came Chinese Primulas Beauty of Kent, single white, and Bridesmaid, which is rose-pink; both were handsome forms.

THE GARDENERS' ORPHAN FUND.

AT a fully attended meeting of the committee of the fund, held at the Caledonian Hotel, Adelphi, W.C., on the 30th ult., Mr. George Deal presiding, one pleasing circumstance was the reception of contributions from collecting boxes at Chrysanthemum shows. Mr. Bates handed in the sum of £2 collected at that recently held at Twickenham. Mr. G. Bishop, local secretary for the district, the sum of £3 6s., collected at Teddington show. Mr. G. W. Cummins, the sum of 6s. 7d., collected at one held at Wallington, and, in addition, the sum of 14s. 9d. from the collecting box at The Grange Gardens, Wallington. Mr. R. Scott, of Moorfield, Manningham, Bradford, the sum of £1 10s. 6d., obtained at the Bradford Chrysanthemum show, and Mr. Wooderson, Bexley, a donation of £1 1s. from the Chrysanthemum committee at Bexley. A donation of £3 from the Yorkshire Association of Horticulturists came from Mr. Garnett, St. John's, Wakefield, and Mr. H. J. Clayton, of Grimston Park Gardens, announced that the committee of the York Floral Fête had voted the sum of £5 to the fund. Hearty votes of thanks were proposed to those through whose instrumentality these sums had been obtained. A letter was read from Mr. O. Thomas, Chatsworth Gardens, stating that the entertainment recently arranged by the gardeners of the district, and held at Chesterfield, in aid of the fund, proved a great success; that the decorations of autumn foliage and berries were unique, and much appreciated by the numerous company. A letter was read from Mr. Drummond, seedsman, Stirling, local secretary for that district, referring to the great difficulty he experienced in getting subscriptions from Scotch gardeners, they evidently being of opinion that the benefits of the fund are for orphan children in the south rather than in the north. This is unfortunate, as it is quite contrary to fact, and the committee regret that such an erroneous impression prevails among the gardeners of the far north. Another gross of collecting boxes was ordered, the cost being £8 10s. The previous gross have already returned the sum of £15 18s., and they are constantly being applied for. A desire to hold another Covent Garden Fête on behalf of the fund was generally expressed, and the matter will come up for consideration at the proper time.

Book on fruit forcing (*T. Vetas*).—There is no book on this subject that we are aware of.

Dion edule.—A plant of this here is now bearing two cones, each about a foot long. The cones are growing side by side.—J. T. EBBUTT, *Winslade Gardens, near Exeter.*

Wistaria sinensis alba.—Does this often fruit in this country? I have a pod like a Scarlet Runner Bean, but it is flat on one side and contains two seeds. What would be the best time to sow?—C. J. CLOKE, *Bulmershe Court, Reading.*

BOOK RECEIVED.

"Bulletin of Miscellaneous Information." No. 24. Royal Gardens, Kew.

Names of plants.—*E. M. G.*—Epimedium musschianum (E. niveum of gardens).——*A. Jenkins.*—1, Francoa ramosa; 2, Oncidium incurvum; 3, send better specimen.

Names of fruit.—*Newark.*—1, Golden Reinette; 2, Duck's-bill of Sussex.

WOODS & FORESTS.

THE WALNUT TREE AND ITS USES.

Though the Walnut (Juglans regia, L.) is now commonly cultivated in most parts of Central and Southern Europe, it is not really indigenous to any European country, but, like so many other useful trees, is an importation from the East. Its native habitat appears to extend from the borders of the Black and Caspian Seas, through the mountain chains of Central Asia to the eastern extremity of the Himalayas or the borders of China. It is abundant in Cashmere, Kumaon, and Nepaul.

The date of its introduction into Europe is unknown, but if it is identical with the Persian Nut mentioned by Theophrastus, and referred to by other Greek writers, which is the opinion of some authors, it is evident that it was known in Greece at least three centuries before the Christian era, and that it was probably originally obtained from Persia. From Greece it probably made its way into Italy, though Pliny says it was introduced into that country from Persia. By the Romans it was dedicated to Diana, whose festivals were held beneath its shade, and it was known by numerous names, such as Nux persica, Nux regia, Jovis glans, Djin glans, and Juglans, the latter of which has been adopted by botanists as a generic title. France, Spain, Germany, and doubtless Britain also owe it to the Romans, but nothing certain is known respecting the times when it was carried into these countries. In Britain the record of its cultivation does not go back further than 1562, but there can be no doubt that it was known long before that time, and in support of its Roman introduction the fact may be mentioned of a Walnut shell having been found 35 feet below the surface amongst Roman remains in digging the foundation of the Royal Exchange. At the present time the Walnut is cultivated more or less in all parts of the continent of Europe to as far north as Warsaw. In France, especially in the central provinces, Germany, Switzerland, Spain, and Italy it is largely grown for its commercial products, and in these countries is a common roadside tree. It is also extensively cultivated in the Asiatic countries where it is really indigenous, as, for instance, in Asia Minor, Persia, and in numerous places along the range of the Himalayan Mountains, especially in Cashmere, where both the nuts and oil form important articles of commerce and yield a very large revenue.

As a proof of the tree not being indigenous to Europe and belonging to a warmer country, may be mentioned the fact stated by Loudon that in 1709 the greater part of the Walnut trees in Europe, and more especially in Switzerland, France, and Germany, were killed or so far injured by frost as to render it advisable to fell the trees. In this country it is one of the last trees to put forth its leaves in spring, and even then it is sometimes injured by late spring frosts. In some countries the shade of the Walnut tree is considered injurious to the Grass or other crops growing beneath it, and Pliny goes so far as to say that the Oak will not thrive near it, but this is probably in some part mere fancy, and has perhaps arisen from the fact of the leaves possessing a peculiar and powerful odour. The Walnut grows to a very large size and is a long-lived tree. Full-grown trees vary in this country from 50 feet to 80 feet high, according to the soil and situation in which they are planted, and have trunks varying in diameter from 2 feet to 6 feet, covered with thick, deeply furrowed, grey bark, and branching out into large, wide-spreading massive heads from 40 feet to 100 feet across. As an ornamental tree in parks the Walnut is very desirable, on account of its fine foliage, and it grows well in any good soil. Several varieties are known, but Nicholson, in his "Dictionary of Gardening" says that the dwarf prolific, Highflyer, and thin-shelled are the most desirable for cultivation. In this country Walnuts are fit for gathering in October, but in more southern countries they are ready fully a month earlier. For keeping, when separated from their fleshy husks, the Walnuts should be spread over to the depth of about 3 inches on a boarded floor in an airy shed or granary, and turned over daily till they are thoroughly dry, when they are fit to be stored away, but if kept for any considerable time they require to be turned over occasionally. When carefully attended to and stored in a place where they are not subjected to great atmospheric changes they may be kept tolerably good for twelve months. Packed in casks in layers of sand they also keep very well, as well as by placing them in sawdust or in jars and sprinkling them with salt. The principal uses of Walnuts are as an article of food or dessert, for pickling, and for the oil which they contain, but besides these they have several minor uses, such as the employment of their husks for making a kind of ketchup, or for dyeing dark brown or black. Formerly they also possessed some reputation as a medicine, particularly for expelling worms, for which purpose, even at the present day, rustic practitioners employ an extract of the unripe fruit. In such countries as Switzerland, Southern France, Northern Italy, Cashmere, &c., where the Walnut tree abounds and produces a large crop of fruits, Walnuts form a portion of the food of the poorer classes at the season when they are plentiful. The trees line the road-sides for miles in many of the above-named European countries, and Loudon says that he knew of a person who travelled from Florence to Geneva eating scarcely anything by the way but Walnuts and heads of Maize gathered by the road-side. In Japan Walnuts are commonly used as a sweetmeat; for this purpose the kernels after being shelled are coated with sugar. With us ripe Walnuts are used only for dessert, but for this purpose, trifling as it may appear, the consumption is very great. Besides those grown in our own country, large quantities are imported from the Continent, chiefly from France, Belgium, and Holland. They were at one time subject to an import duty of 2s. 1d. per bushel, but this was reduced in 1853 to 1s., and altogether abolished in 1860.

The wood of the was Walnut one of the most highly prized by the cabinet-maker before the introduction of mahogany; indeed, it was the chief cabinet wood in this country. No other wood approaches it in depth of colour or in the boldness of its markings, and though a few years since fashion ruled the demand for plainer woods for furniture making, there is always a demand for Walnut, whether from the plain trunk or from the figured burrs. On account of its lightness, combined with toughness and strength, it is the principal wood used for gun-stocks. Walnut wood is imported from the Black Sea and from Italy, the former in logs 6 feet to 9 feet long, and 10 inches to 18 inches square; while that from Italy usually comes in planks 5 feet to 12 feet long, 10 inches to 16 inches broad, and 4 inches to 9 inches thick. Laslett says:—

Burrs or excrescences, frequently measuring 2 feet to 3 feet across by 12 inches to 15 inches in the thicker part, and weighing 5 cwt. to 6 cwt. each, are common to the Walnut trees of Italy and the Black Sea. They are often prettily mottled or figured, and make rich and splendid veneers for the cabinet-maker. Those of the best quality are consequently much prized, and have been known to realise £50 to £60 per ton weight.

John R. Jackson.

Museum, Royal Gardens, Kew.

Timber felling.—The felling of hard-wooded trees should be done in the winter season, and be finished before the buds begin to expand in the spring, except in the case of those kinds of trees which are to be peeled. The axe is the best tool to use in the earlier stages of a plantation's growth, but after trees get to forty years old the saw should be used. When this work is done by the forester's own men, he can generally have the work done to his satisfaction, but when the work is done by the piece by a timber merchant's men, this is not so easily done. Care must be taken to have the trees felled close to the ground, and is more especially necessary where the suckers are desired to grow up as underwood, or to come in for a succeeding crop. In felling trees grown from old stools, we often come across portions of the old stool imbedded in the bottom of the tree, and as this is always partly decayed and of bad colour, it spoils the sale of the timber; whereas, when a tree is grown from a stool cut close to the ground it may be cut off sound and good. Another important point to be attended to in felling is to do as little damage as possible to the standing trees by the fall of those being felled. When felling hard-wooded trees of large size, in the case of those that have several large limbs, care must be taken to prevent the weight of the fall being on one particular limb, otherwise it will probably splinter and render it useless. In hard frost especially, timber is very liable to splinter with falling, therefore extra care is needful under the circumstances.

SHORT NOTES.—WOODS AND FORESTS.

Water in wood.—Experiments have shown that 100 pounds of Ash wood cut in January contain 29 pounds of water, while the same amount cut in April contained 38 pounds of water; 100 pounds of Sycamore cut in January contained 33 pounds of water, and 40 cut in April. White Pine cut in January contained 52 pounds; cut in April 61 pounds of water.

Cottonwood (the name of the timber of some of the American Poplars) makes a handsomer, lighter, and stronger box than can be made of Pine. The nailing machine does not split it, and where the sides and ends are printed there are no hard knots to contend with. The contrast between the white wood and black letters is very pleasing.

The wood of the Dogwood of North America is hard, close-grained, takes a fine polish, and is principally used in the manufacture of mallet handles, toys, hames, shuttles, harrow teeth, and shoes for sleds. The bark is bitter, and on account of bearing considerable resemblance to Peruvian bark, and having some of its properties, is often substituted for it.

Seasoned timber, not prepared by any special process, but protected from dampness and exposed to a free circulation of air, will last for centuries, and so will timber in excessively dry climates. An equal, if not superior durability in timber is observed when it is immersed in fresh water, or imbedded in thick walls, or underground so as to be beyond the influence of atmospheric changes.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

KEW AND THE ROYAL HORTICULTURAL SOCIETY.

IN the press and elsewhere there are signs of an agitation to get the Horticultural Society attached to Kew. What should we think of a society of builders who were subordinate to the secretary of the Geological Society? The work of Kew is clear and large, and its officials have many important things to think of besides horticulture. They could not save the Royal Horticultural Society if they tried. The history of the society for some years past is the most disheartening chapter in the history of English horticulture. It may be that no amount of mending may save the society; all the doctors have tried their hand now and the society is getting more and more a bye-word for mismanagement and misfortune. If no one can mend it, at least let all those who care for it try to save it from being an appanage of the Royal Gardens, Kew. If we ever have a true society and one that will take the many and the vast interests of gardening into its plan, it would be much better that the national botanical garden at Kew and any great gardening society should be quite independent of each other. In that way the public interests would be best secured. If the officials at Kew were to consider the matter fully, they would probably come to the same conclusion. The extent of their vast establishment and its foreign relations can hardly allow of their time being given to a struggling society.

Any societies who do good work are of men who have their heart in the work, and not by those who look over the garden wall, so to say. The scope of gardening has enormously increased within a generation. It has an independent press—in the sense of its direction by those who are gardeners at heart. It is not long since gardeners were snubbed in their own papers and stupefied with botanical and fungological technicalities having generally no earthly relation to their work. We have changed all that, and it will be more difficult than ever to make gardening subservient to botanical professors. The botanist helps us in garden plant nomenclature, and we will not deny our indebtedness to botany; but the true botanist concerns himself with the world's vegetation rather than with gardening. What would farmers think of an agricultural society with officials from a wholly distinct branch of knowledge mixed up with it? Think of the work done by the excellent American Pomological Society and of its good and independent organisation! No one knows the wants and state of any art so well as those engaged in it. The influence of non-gardening personages in the past has been by no means without its disastrous influences on Chiswick. Its history is well known. We cannot speak ourselves, but some of the most competent of living horticulturists tell us that the insults to gardeners and the contempt for garden varieties shown by Dr. Lindley (an able lecturer and botanist) did more to injure the Horticultural Society and Chiswick than any other cause. Nothing is urged here against any useful botanical work being done for horticulture. Mr. Carruthers does good work for the Royal Agricultural Society, but nobody (out of a comic journal perhaps) would propose that the Royal Agricultural Society should be moored to the British Museum! What is to be done if we ever are to have a horticultural society worthy of our gardens is a question not so easily disposed of here. But the elementary condition that it should be an independent and purely gardening society may be laid down at once. Its relations with the national botanic garden should be of the most friendly sort, but the whole recent progress of gardening both in England and America shows the need of gardeners doing their own work.

In relation to this question, the scientific committee that has sat for years deserves some consideration. Its very name is an impertinence, as implying that only the work done by this committee is science. Not a botanical committee, observe, or a chemical or physiological one, but a "scientific!" one. As if to say, We possess the precious treasure of science (=knowledge), but the rest are nowhere! And yet Darwin and some others whose names still live have dug deep in this despised garden. This scientific committee has sat for years and its doings are reported. Can anyone trace anything born of it of the slightest use to gardening?

The connection of the trade with the Royal Horticultural Society deserves consideration. Some say it is now almost a trade society. The true interests of the trade are those of the gardening public. It is doubtful if members of the trade on the council or the certificating committees do any good to either the nursery or the seed trade as a whole, or to the gardening interests. There is in consequence too much jealousy and insinuation. One cannot go to a meeting without hearing evidence of this. Even if the position of one of the trade is perfectly acceptable to gentlemen and gardeners, it is rarely so to his fellows in the trade. That but a very small portion of the nursery and seed trade of the United Kingdom can be represented in the society makes it the more desirable that the trade should *not* take part in the councils or committees of the society. Their knowledge makes them good judges of plants and novelties, but the certificating business is not by any means so important as it is thought to be, though it lends a little pomposity to a society that does little real work for gardening or gardens.

When a Maréchal Niel comes even in our enlightened certificate-plastering days, he makes his way without a certificate; and curiously, too, if he asks for one, he does not always get it—at least not till the public know him. And some things, like Duchesse d'Angoulême, have come down to us from the uncertificating ages to show us what a good Pear is. On the other hand, the Horticultural and Botanic Societies have given hundreds of certificates to plants that are now forgotten. The independence and dignity of the trade and its best interests would be best consulted by its members keeping out of the governing bodies of the society for the above and other reasons, some of which, no doubt, will occur to gentlemen in the trade. If the trade needs a society, the best way is to form an avowedly trade society to protect its interests. The trade, like all the rest of the world, would benefit by the existence of a vigorous and useful horticultural society, and should not be excluded in any way from it—but there is reason to conclude that its members cannot interfere in the working of the society without creating ill-feeling.

DECEMBER IN THE GARDEN.

LAST July we had a fall of snow in the Isle of Wight—the oldest inhabitant never heard of such a phenomenon before; now we are having bright open weather in the month of December, and our faculties are all disturbed again. By far the most appropriate hymn which I could choose for next Sunday would begin with these words:—

Summer suns are glowing
Over land and sea.

Few have any thought about winter. Blackbirds sing as though all their troubles were over, and all they have to do now is to begin nest-building at once. It would only be of a piece with other things if the cuckoo were to be heard in the land, and if only nightingales would return immediately, they would find everything to their mind just now—unquestionably much more to their mind than is generally the case in the deadly month of May. Pope once wrote these words:—

The suffering eye inverted Nature sees,

and his eye would have to suffer a good deal if "inverted Nature" affected him so much. It goes without saying that flowers are in a state of bewilderment. They used to think that the earth completes a journey round the sun in a course of twelve months and they followed the circuit with the utmost regularity, but all that is antiquated and gone by. They no longer have any fixed notions at all; each plant blossoms now without rhyme or reason just as it happens and as it seems good in its own eyes. The consequence of that is that confusion reigns supreme. There is no longer any season for anything—winter, spring, summer, and autumn are modes of expression and nothing more; they are in reality obsolete, and snow in summer and sunshine in winter occasion no surprise.

Let me prove what I say, or at any rate give you an illustration of our abnormal condition. Yesterday there was a fancy bazaar in Ryde for a very good object and I skinned my garden to do it honour. I never saw such a medley of flowers before. Snowdrops and full blown Maréchal Niels, Hepaticas, Gentians, Crocuses, Sternbergias, Cyclamens, and all sorts and kinds of things besides found their way into the selfsame basket and were made up into bouquets by the ladies' hands.

Fancy a Snowdrop and a Maréchal Niel being bound together in a companionship of that sort! Hepaticas and Sternbergias looked each in the face with an air of extreme surprise. Honeysuckles and Christmas Roses shook hands

as they have never done before. Gentians, which ought to be sleeping under their coverlet of snow, are now wideawake. But what is to come of it all? I think we should most of us agree with Shakespeare when he wrote—

> At Christmas I no more desire a Rose
> Than wish a snow in May's new fangled shows,
> But like of each thing that in season grows.

If our great dramatist were in the island now he would have to put up with a good many Roses, I am sure; and as for snow in May, the only difference he would have found this year would be that it came instead in July. No doubt it is all for the best. Of that I am quite sure, but one's horticultural bearings are put out of gear just at present, and the poets of the future, if things are to go on in the same way, must recast their phraseology altogether and find new similes to illustrate their song. I should think that Keble would have written if only he had lived a little longer—

> Soon o'er their heads fierce April airs shall sing;

and as for winter, it would in December at any rate only bring the softest, tenderest associations to their minds. What we have to dread for the future if the year 1888 is to be repeated over again is not so much the time when the leaves are falling from the trees and the days are getting short as that earlier period when the so-called meridian glories of summer chill us through and through, and June brings damp and misery.

I look at the Gentians in my garden just now, and I wonder what they think of it all. Unhappy beings! If I had only left them to themselves they would now be sleeping tranquilly under alpine snows without the slightest fear of any interruption. They would have nothing to excite them into premature effort, and they would all have rest. No ray of sunlight could possibly wake them up, and no alterations of temperature would affect them in any way; but here in my garden they have to put up with everything which it is in their nature to dislike. Instead of a brilliant alpine summer they met with constant rain; instead of being left alone in darkness they are fidgetted every day of their lives, and yet I am quite sure of this; they battle it all out somehow or other; they are certainly alive and strong. There must be a principle of accommodation to untoward circumstances in them which would astonish Dr. Christ. But if you could ask them what they really like, they would say with one accord, "Not winter in summer and summer in winter, as we are having now." It is always rash to prophesy, and I do it with the greatest reserve. But what I look for is this—the vision is ever before my eyes, though my innocents see it not—I expect that according to the precedents of former years we shall have a few more days of warmth; perhaps summer at Christmas is what is the most likely to occur; but then the change will come.

Ice and cold will assert themselves once more, and the poor flowers here will be punished fearfully for procrastination or precocity, as the case may be. When our gardens have been swept clean of everything, we shall begin the round of the year again in a far less presumptuous fashion than what obtains just now, and when Maréchal Niels and everything else of that sort are quite out of the way, a few winter Aconites, or yellow Celandine, or Primrose on a mossy bank will meet with the attention they deserve. H. Ewbank.

Ryde, Dec. 8.

P.S.—As an instance of the extraordinary way of things just now, I would particularly mention that if we have three or four more fine days, Meconopsis nepalensis will be as finely in blossom here as it ever is in the month of June. The topmost bell has opened already. Senecio pulcher is also extremely happy just now.

Rose Garden.

T. W. GIRDLESTONE.

ROSES FOR WET SEASONS.

The past Rose season has been a very bad one for the Tea-scented Roses as far as the possibility of their producing any effect in the garden is concerned, but, on the other hand, it has afforded an excellent opportunity for observing what Roses there are that can so far defy the elements as to continue to expand their flowers bright and fair in spite of pitiless and almost incessant rain. The number of such varieties is limited, yet it is probable that there are more than many people would imagine. At least three dozen Hybrid Perpetuals flowered with complete freedom and produced a brilliant effect in the garden even under the constantly dripping skies of one of the wettest Julys on record and although it may be hoped that such a miserably moist month may not again, at least for many years to come, mar the time that should be summer, it will be worth while to make careful note of the Roses whose blooms were not disfigured or prevented from opening by the rain, in order that in future planting some of them may be included to ensure a certain amount of brightness in the Rose garden, whether the season be hot or rainy.

It is a curious fact that although the Teas were so ineffective during the wet weather, the most striking display in the garden was made by some of their most obvious offspring. Thus no Rose was more conspicuous, more constantly in bloom, nor productive of more magnificent flowers than Bennett's exquisite Viscountess Folkestone. A group of sixteen dwarf plants on Brier cutting stocks bloomed practically without intermission from the last week in June till October, and even during the wettest time the blooms opened quite fair and of great size. The large petals are of a delicate creamy-white tint, deepening to a warm shade of flesh colour towards the centre of the flower, which is perfectly distinct both in colour and outline, and is characterised by the most delicious fragrance. Exhibitors as well as all other lovers of Roses should not fail to plant this exquisite variety, which, although one of the most beautiful and delicately-coloured of modern Roses, is, nevertheless, able to expand and perfect its flowers even in the most unpropitious weather. Another Rose whose blooms were exceedingly prominent throughout the season was Gloire Lyonnaise, a very pretty white lemon-centred Rose, of which Mme. Falcot was reputed to have been one of the parents. This Rose makes a most admirable group in the garden on account of its erect habit and very handsome foliage, which is rarely disfigured by mildew. The flowers may easily be grown very large, and this year were frequently seen to great advantage at many Rose shows, although in a hot season they are insufficiently full for exhibition. The way in which the blooms withstood the steady rain, and developed in spite of it without appreciable injury, was a constant source of wonder and delight; and now that the autumnal character of the variety is becoming established, it will undoubtedly be largely cultivated, especially as a valuable cool-season Rose.

Cannes la Coquette, the beautiful daughter of one of the first and most beautiful of the Hybrid Teas (La France), was as much in evidence as her mother was in retirement, for while there was hardly a first-rate flower of La France to be seen, the blooms of Cannes la Coquette were bright, fresh, and abundant. This was, no doubt, to a great extent to be accounted for by the more erect habit of Nabonnand's seedling, the greater substance of its petals, and the absence from the rosy flesh-tinted flowers of any trace of that lilac shade which so soon gives the Roses in which it occurs a faded appearance, especially in wet weather. Cannes la Coquette is a charming Rose both in the garden and for exhibition, and it flowers with the utmost freedom in autumn, when the flesh tints become deeper and more rosy, and the colouring, pleasing at all times, becomes even richer and more attractive.

The Baroness Rothschild Roses showed to great advantage in the cool weather, as is their wont, although how these erect, cup-shaped Roses are able so successfully to stand through heavy rain is little short of a mystery. Of the three white varieties, Mabel Morrison appeared to require rather more warmth to give size to the not too numerous petals, and Merveille de Lyon, though far the best white Hybrid Perpetual for exhibition in a rainy season, was occasionally disfigured in the garden by a solid flower stuck together by the wet. But Baroness Rothschild and the White Baroness opened constantly fair and free in spite of the fact that their cupped flowers, especially those of the White Baroness, which are never high-centred, stood frequently full of water all day long.

Of deep red Roses, none were less affected in colour by the rain than the handsome Ella Gordon, an excellent Rose that deserves greater recognition than it seems as yet to have obtained. The plant is a good grower, the flowers large, well formed and of a distinct lake-red colour which does not alter appreciably as the flower grows older and never becomes at all dingy. Nearly all the pure rose colours, particularly those of Victor Verdier race, were quite first-rate, notably Marie Finger, the very pretty pale sport from Eugénie Verdier, Caroline Swailes, Mme. Bois (C. Levet, 1886), a beautiful flower of great size and depth and a most valuable addition to the section, and perhaps almost best of all, Suzanne-Marie Rodocanachi, a charming and most constant Rose, always in bloom and a good grower, and a variety that has this year made innumerable friends. Another rose colour with which it would be impossible to find fault if the plant would only grow is Mary Bennett. It was good in the heat and drought of 1887; it was even better in the wet and cold of 1888. Every flower comes in character, that is to say, perfect in form and colour, but the average height of the cut-back plants is about 9 inches. It cannot for this reason be recommended as a garden Rose, but exhibitors will hardly be able to bring themselves to give it up, on account of the extreme beauty of the maiden blooms, and many growers will be tempted into making every effort to establish the plant successfully, if they have once cultivated it at all, until a variety is raised that is not less beautiful in the flower and that is a stronger grower. Perhaps the best way to succeed with Mary Bennett as an established plant would be to grow it on its own roots, a method that has been tried with complete success in the case of Louis Doré, another beautiful Rose, but very dwarf grower, from worked plants of which it was not found easy to obtain first-rate blooms after the first year.

Henri Lédéchaux was wonderfully bright and effective, and few Roses were brighter

throughout the season than François Michelon; while Marquise de Castellane, Heinrich Schultheis, and Comtesse de Paris (Lévêque, 1882), a charming rose colour and amazingly free variety, not to be confused with Comtesse de Paris (E. Verdier, 1864), a not very full crimson Rose, were all good. Those two excellent garden Roses, Anna Alexieff and Anna de Diesbach, were as bright and fresh as ever, and again proved to demonstration the desirability of not giving up Roses that are possessed of sterling qualities merely because they are old or because their form may have gone somewhat out of fashion. Annie Laxton also proved very useful, the distinct deep rose-coloured flowers showing the effect of the heavy rain very little in spite of their being carried quite erect and so feeling the full force of it. Although the flowers were produced in the utmost abundance, there was hardly a single individual that the wet prevented from expanding, and the same was the case with Bennett's Earl of Pembroke, a reliable Rose of much the character of Marquise de Castellane, but very distinct in colour.

Madame Gabriel Luizet's immense vigour and freedom ensured an effective display on the plants in spite of many of the blooms being spoiled by the rain, and this splendid Rose cannot be dispensed with in any garden, whatever the character of the season. The charge which used to be made against it of not flowering in the autumn, a charge which is still heard occasionally in France, cannot any longer be maintained—the perpetual character of the variety, like that of Gloire Lyonnaise and others at first thought to be only summer-blooming Roses, having now been satisfactorily established. Charles Lamb, a Rose of lovely colour, advanced greatly in popularity from the telling brightness of its clear red flowers, which are of fair size and fulness, and are most freely and continuously produced throughout the season. A good group of this variety is always a conspicuous feature in the Rose garden, not only on account of the singular freshness of the colour of the flowers, which attracts attention from a considerable distance, but also because of the vigorous habit and handsome foliage of the plant. Amongst medium reds, Ulrich Brunner, one of the best and most invaluable of all Hybrid Perpetuals, took the lead in every way and was quite unsurpassed in its colour, although admirably supported by groups of Dupuy Jamain and Dr. Andry, the whole forming a thoroughly reliable trio.

Three native Roses were the most prominent of the rich brilliant crimsons, the season appearing exactly suited to Lady Helen Stewart, Duke of Edinburgh, and Crown Prince. Eclair was finer than it had ever been before, and Lord Bacon also showed to great advantage. A. K. Williams was as good and free as ever, though some flowers were somewhat rough and lacking in their usual brilliancy and finish. General Jacqueminot was good, but was excelled by its dark variety Prince Arthur, and Victor Hugo was most free and admirable; while two other native varieties, Earl of Dufferin and Glory of Cheshunt, completed a collection of dark crimson Roses the beauty of whose flowers, in spite of the rain, went far to counteract the dreary effect produced by the hundreds of soiled or soddened and unopened blossoms of other varieties by which they were surrounded.

A group of Lady Helen Stewart was quite one of the brightest things in the Rose garden all through the season, being one of the earliest to flower and one of the last to desist, and the innumerable brilliant crimson erect flowers made a most effective point of colour, while excellent blooms of it were constantly exhibited. Duke of Edinburgh was magnificent everywhere, both in the garden and at the shows, and Crown Prince also was very fine, quite justifying its inclusion by the National Rose Society in their select list of exhibition Roses, being in many winning stands at the Crystal Palace and elsewhere. Victor Hugo, too, more than maintained its reputation, its flowers being produced in the greatest profusion and of the utmost richness of colour. And Earl of Dufferin, the best dark crimson Rose that has been sent out for some years, won the enthusiastic admiration of all who saw it.

Mention must also be made of a very pretty, but unduly neglected Bourbon, Marie Paré, which was always covered with its very pleasing and well-formed, flesh-coloured flowers, and of the charming Hybrid Tea, Camoens, bright rose colour, with yellow base, of whose fresh buds there was never any lack.

Groups of China Roses were constantly bright and good, and deserve to be more extensively planted, notably Cramoisie Supérieure, Fabvier (two of the best crimsons), Mrs. Bosanquet, flesh colour; Laurette Messimy (Guillot, 1887), bright rose, shaded with yellow at the base of the flower, quite distinct, and a very desirable addition; White Pet, very pure and immensely free; and its crimson counterpart, Red Pet.

Of the Teas, few were really effective, beyond some of the bud varieties, such as Ma Capucine with its rosy orange buds; Narcisse, a mass of pale lemon-tinted blossom; and Mme. Chedane Guinoisseau, which, from the pure yellow colour of its petals—as bright in the bud as in the open flower—was constantly beautiful. Of the rest, two only appeared to conspicuous advantage—one, Guillot's very distinct and charming Souvenir de Gabrielle Drevet, whose erect habit kept the pretty rosy flowers at any rate up out of the mud; the other, emphatically the Tea Rose of the year, Lacharme's greatest gain in this class, Mme. Lambard, of which the rose and yellow flowers not only defied, but seemed positively to enjoy the wet and cold. A third Tea gave great promise of being able to expand fair in rainy weather, and though it is yet too early to speak definitely of its value as a garden Rose, the future development of Mme. Hoste (Guillot, 1887), a Rose of very erect habit and with large, pale lemon-coloured flowers of splendid petal, will be watched with the keenest interest.

In selecting Roses, therefore, for massing, it will be well to plant at any rate some of the foregoing varieties, in order that even in the absence of sunshine there may not be a lack of bright flowers in the Rose garden.

ROSES.

To the Editor of The Garden.

Sir,—Unless returns are accepted only from those thoroughly acquainted with the different families of the Rose and who themselves grow a large number of varieties, I cannot see how a Rose election such as that proposed by "C. J. G." could serve any useful purpose.

May I venture to offer the following for consideration as an alternative suggestion. It has often occurred to me that it would be extremely valuable to all interested in Rose culture if certain typical varieties were selected and the opinions and experiences of the best rosarians throughout the country obtained respecting them. For instance, take such a popular, distinct, and largely grown Rose as La France. Brief replies to practical inquiries like the following might, among others, be requested:—

What in your opinion are the distinctive excellences of this Rose both as a plant and as a flower?

On the other hand, in what respects do you consider it falls short of what a perfect Rose should be?

As compared with other Hybrid Perpetuals would you class it as hardy, moderately hardy, or tender?

On what soil would you prefer to grow it?

What stock do you find suits it best, or does it do better on its own roots?

How should it be pruned to secure extra fine flowers, and how for general garden decoration?

By thus studying certain choice varieties separately, information would be gained which must necessarily lead to the higher cultivation of Roses generally, and at the same time to a more intelligent understanding of their individual characteristics and requirements.

Among other kinds worthy of a special investigation might be named A. K. Williams, Maréchal Niel, Mme. Gabriel Luizet, Catherine Mermet, Abel Carrière, and Comtesse de Nadaillac.

What ardent rosarian, however experienced or inexperienced he may be, would not welcome the appearance of so unique a series of cultural directions as must surely result from inquiries similar to those I have indicated? The remarks as to treatment might appropriately be accompanied by a coloured or other portrait of each variety selected, together with any interesting particulars that may be obtainable as to its origin, history, &c. M.

ORCHIDS.

W. H. Gower.

THE LYNX FLOWERS.

(Stanhopeas.)

I am continually receiving inquiries respecting these plants, which are but little known at present to Orchid growers, although between thirty and forty years ago they existed in quantity in our collections. In 1842, seventeen species are enumerated as existing in the then celebrated collection of Mr. Clowes at Broughton Hall, Manchester; in 1849, Mr. Loddiges' catalogue enumerates about three dozen species and varieties; in 1853, I had twenty-six kinds under my charge in the Kingston Nurseries; in 1861, in the catalogue published of the Schillerian collection, about three dozen kinds are given; and in 1863, about the same number existed in the collection at Kew, many of these, however, being different kinds to those existing in the Hamburgh collection of Consul Schiller. How many kinds were grown by Mr. Wilson Saunders in his celebrated garden at Reigate I am unable to say, but a large number were congregated together. But where are they now? They are seldom seen, and very few know anything about them. Why is this? The plants are easily grown, free-blooming, and the flowers are singularly formed, the majority yielding a delicious aromatic perfume; then why have they fallen in public estimation? I think the reason is well explained. The individual blooms are said to be very fugitive. This I grant, and so are the blooms of the queen of flowers, the Rose; but no one would cast aside the Rose because its flowers are short-lived. Then, again, it was said the perfume was too strong to allow of the flowers being mixed with others in the dwelling-house. Well, one does not want to cut all the flowers expanded, and why not leave those of the Stanhopea? Again, it has been said the perfume is too strong to bear in the house in which the plants are grown. To this I may say that it is through the grower not giving air. I have in former times frequently been into Orchid houses which were quite unbearable through bad ventilation, without the addition of the perfume from Stanhopeas or any other flowers; indeed, it is but few of the kinds that have a very strong perfume, and this is spicy and aromatic and not disagreeable. The Orchid

growers of the present day, however, do not object, and they begin to show signs of their regrets that this family has been so ruthlessly cast aside in this country, their great champion at the present time being Sir Trevor Lawrence, who treasures these and many other little-known plants in his charming garden at Burford Lodge. A coloured plate of a fine species (S. platyceras) drawn in that garden appeared in The Garden, June 9 (p. 534). The genus is named in honour of the Earl of Stanhope. Lindley estimated the species below the number we now know, and if the cultivation of the family were encouraged, there is little doubt but that new kinds would be found to repay the research.

It remains a fact that Stanhopea tigrina was figured nearly 250 years ago under the name of Lyncea by Hernandez, who discovered it in Mexico; so this species was one of the first exotic Orchids to be honoured by an illustration.

Stanhopeas do not require much warmth, the cool end of a Brazilian house suiting them well. They like shade, however, and a liberal supply of water when growing, but it may almost entirely be withheld in winter. They appear to me to flower most profusely when the baskets have become full of roots, and I should think one of my inquirers must have allowed cold water to trickle down the spike when the buds were small, and so destroyed them. The principal species and varieties now to be found in cultivation are described in the article accompanying the plate referred to.

Odontoglossum grande. — This beautiful species has been imported largely by Mr. Shuttleworth, and numerous examples are now flowering, and amongst them some of the most gorgeous varieties we have ever seen. If white-flowered Orchids are objectionable, this is a species which should satisfy, the flowers being rich yellow and bright chestnut-brown. It is very easily grown, and one of the showiest when in flower, and cannot be too highly recommended.

Angræcum Chailluanum is a rare West African species now flowering with Sir Trevor Lawrence. In habit of growth it somewhat resembles A. caudatum; the leaves are two-ranked and strap-shaped. The flowers, produced on a somewhat drooping spike, are pure white, the sepals and petals and lip being narrow and lengthened into tail-like points; the spur is several inches in length, and is greenish yellow. It requires the heat of the East Indian house.

Cypripediums are now very showy in Mr. Shuttleworth's establishment in the Clapham Park Road. Amongst the kinds are very fine forms of C. Chantini, which has a fine boldly spotted dorsal sepal, the upper portion of which is snow-white, also a very highly coloured form of C. Harrisianum, C. Sallieri, and Sallieri Hyeanum. They are both very beautiful kinds, but the one named after the Belgian grower is by far the best. There are also good forms of C. Leeanum superbum and C. marmorophyllum, which must be reckoned amongst the finest of the English hybrids.

Warrea tricolor.—This fine old plant usually blooms through the summer months, but is just now in full beauty in the Wilton House collection at Southampton. The flowers, produced upon a spike bearing from six to ten or more, are somewhat globose, the broad sepals and petals being white or yellowish white; the lip is suffused with reddish violet on a white ground, and traversed with numerous broad, purplish lines, whilst on the disc are three elevated fleshy ridges, which extend to the base. It is a Brazilian plant, and thrives well in the Cattleya house.

Lælia Dormanniana.—I now find this charming plant flowering in numerous collections round London. It is a supposed natural hybrid, the rich colouring of its flowers being very welcome at this season. The sepals are deep green, suffused with a vinous-red, the side lobes of the lip large, varying from white to rose colour, whilst the middle lobe is of a rich deep purplish crimson. It is a native of Brazil, and is a decided acquisition to the winter blooming Orchids.—W. H. G.

NOTES OF THE WEEK:

Early Asparagus.—On December 9 we had a dish of Asparagus from an open-air bed. The bed is a young one of the large French kind planted nearly two years ago.—G. J., *West Surrey.*

Louis Kropatsch.—We learn that our correspondent has been appointed head gardener at the Imperial Gardens, Laxenburg, Upper Austria, H. J. Ehrlich, the former gardener, having been transferred to the Prater, Vienna.

Helleborus, Riverston variety.—I send you some blooms of Helleborus, Riverston variety, with stalks from 8 inches to 10 inches long. It is a plant of erect habit, and specimens of it in tubs are now splendid in a cold house.—W. B. Hartland.

December Peas in Scotland.—Mr. J. Brown, The Gardens, Petmathen, Oyne, has sent us a small gathering of Dr. McLean Pea, picked in a cottage garden here on the 7th inst. This is another evidence of the mildness of the weather in Scotland.

Coloured Primroses from Ealing.—Enclosed are some blooms of hardy coloured Primroses gathered in the open air at Bedfont on Friday last. Owing to the wet summer and the mild, open autumn, they are blooming with wonderful freedom, and are gay with a spring-like effectiveness. The plants will again flower in profusion in spring.—R. Dean.

Cyclamen hederæfolium. — What beautiful marbled leaves this plant has at the present time. In situations where it does well it should be planted for the sake of its foliage alone. Groups by the edge of the woodland walk, not too much under the shade of trees, would make a pretty feature in open weather all through the winter. Where it does well, the leaves attain huge dimensions, the marbling of many of the natural sown seedlings being most charming.—K.

Lilium neilgherrense is now nicely in flower at Kew, a fine group on one of the shelves in the temperate house being very charming. It is only about 2 feet in height, but the flowers are very large, about 9 inches long, glossy, creamy white, with golden yellow anthers. The arrangement of the leaves, shape, &c., remind one very much of the rare L. nepalense shown at the Drill Hall a short time since. Flowering at this time of year, it is a fine subject as a pot plant, requiring only ordinary care.—K.

Devon Rosery Gardeners' Relief Fund.—We understand that there is just now a bed vacant in the Convalescent Home of the Gardeners' Relief Fund, and Messrs. Curtis and Sanford, of Torquay, would be glad to hear of any gardener from the north or near London whose state of health would render a change into the neighbourhood of Torquay, Devonshire, for a period of rest beneficial. The home is perfectly free, and the funds are for the use of *bona fide* gardeners only.

Violet Marie Louise.—I send you a few blooms of Marie Louise Violet; also of the old Neapolitan. The latter variety has been often spoken against, and some would like to remove it from our gardens; but when well grown it has no equal for fragrance. Our plants are blooming freely in frames at the present time, and although the variety is not quite so free as Marie Louise, it cannot well be dispensed with.—John Crawford, *Coddington Hall, Newark.*

*** Flowers were received of both the Violets mentioned. We should certainly be sorry to lose the fragrant Neapolitan variety. There is plenty of room for both kinds.—Ed.

Notes from Shirehampton. — The mild weather is astonishing. A Polyanthus Narcissus is in bloom in the open ground; Hepaticas are throwing up bloom here and there. Unlike many others who have written to The Garden of late, I have had plenty of bloom of both kinds of Sternbergia, the broad-leaved kind being always a week or two earlier. I plant mine in sand and almost on the surface. The nurserymen who have a good stock of Schizostylis coccinea ought to be able to sell it well this season. I never saw it doing so well. Pentstemon glaber is throwing up a fine spike of bloom. Chimonanthus fragrans has been in bloom for three weeks grown as a standard at the bottom of a bank. It is curious how much the flowers seem to develop if taken indoors. I see no buds yet on Iris stylosa either in the open or in the house. I hope this summer will not have been too wet to allow it to bloom. I have had it in bloom here by October, and always pick buds in quantity at Christmas.—C. O. Miles.

Tulips at the Paris Exhibition, 1889.—Six beds, each about 225 square feet, have been planted with late Tulips from the new collection of breeders of Messrs. E. H. Krelage and Son, Haarlem, Holland. The Tulips are planted in beds in the large Grass plot surrounding the fountain basin in front of the Palace of the Trocadero. These Tulips, which usually flower about the middle of May, are expected to be ready at the opening of the exhibition or shortly afterwards.

Primula obconica varies in degree, as is the character of most flowers. Some of the varieties of it are a great advance over others, and this was most noticeable in a batch of plants shown by Mr. Moore, of Holmwood Gardens, Kingston-on-Thames, on Tuesday last at the meeting of the Royal Horticultural Society. The usual run of forms has pale washy flowers, small, weak stems, and fairly robust foliage, but in the kind under notice the flowers were large, of excellent colour, and produced on strong stalks. There are few more useful plants than Primula obconica and P. floribunda, but the fault of the former is a want of decided colour.

Randia macrantha.—Some of the Randias used to be called Gardenias, and this species and R. Stanleyana were the two best known in cultivation. They are very much alike, but the latter has smaller leaves than R. macrantha, and the flowers coloured creamy-yellow, with purple blotches; whereas in R. macrantha they are pure ivory white (not yellow, as described by some). A plant now flowering in the Palm house at Kew is 5 feet high, not unlike an Arabian Coffee in habit, the leaves shining green and the flowers terminal on the branches. Each flower has a tube 9 inches long, thin below, widening above, 1 inch across the throat. The petals are oval, spreading, recurved, and somewhat fleshy. This is an interesting stove plant, which might be made to fill a big gap in the winter season, for it usually blooms in mid-winter. The flowers are similar to those of Portlandia grandiflora.

Fuchsias in mid-winter.—Several very large specimen Fuchsias are now heavily laden with flowers in the large temperate house at Kew. Fuchsias are almost invariably at rest in December, but there appears no reason why, with a little management, they should not be made to serve as winter-flowering plants. At all events the specimens referred to are supposed to be flowering now, because in the summer-time they hardly produced any bloom, but started into a second robust growth in autumn, and a fine display of flowers is the result. If a few plants were prevented from flowering in summer, checked in growth by drought for a little while in August, and then started again, we should then see if Fuchsias could not be made as useful in the winter as zonal Pelargoniums and such like plants are when treated specially with a view to late flowering.

Orchids in flower at the York Nurseries.—In a large collection of Orchids there is, as is well known, always something of interest in flower, even at the dullest season of the year. When walking through the Orchid houses at York Nurseries the other day I saw, amongst others, fine varieties of the following kinds in bloom: Cypripediums Veitchi, œnanthum superbum, superbum marginatum, Sanderianum, callosum, Haynaldianum, Argus, Sedeni, candidulum, Spicerianum, and insigne, the latter in numerous varieties, some very distinct. Cattleya Harrisoni, an old kind, was very beautiful with its pale mauve petals and sepals and ivory-white spur on the lip; Odontoglossum macranthum gloriosum, with six spikes; O. crispum, a splendid variety beautifully blotched with crimson; Oncidium unguiculatum, and Warrea Lindeni. There is promise of a fine show of bloom in the Lælia house, especially of Lælia anceps and its many varieties.—H. J. C.

BODNANT HALL.

"Bodnant," signifying the abode by the stream, is the charming residence of Mr. H. D. Pochin, an enthusiastic horticulturist. One could scarcely believe that so much could have been accomplished within the space of a dozen years as has been done here.

Bodnant is situated only a few miles inland from Colwyn Bay and Llandudno, on the North Wales coast, and about ten from Bettws-y-coed. Although in such a sheltered position, it commands from the west terraces some of the most beautiful and extensive views to be had in the principality, and some of the finest mountain ranges are to be seen rising tier above tier, until the noble head of Carnedd-Llewellyn, the second highest Welsh mountain, is seen towering up 3482 feet above the sea-level. To the right of these are the grand Conway mountains, and to the left are the fine wooded hills of the estate. In the valley the river Conway, noted for its fine fishing, winds its way to the ocean.

The dell, or wild garden, through whose whole length runs a stream, is very beautiful. After crossing two Ivy-clad rustic bridges, we come to the pinetum, containing a choice collection of Conifers, all of which have been planted a good distance apart to prevent them disfiguring each other in after years. The trees make splendid growth every year. Picea Nordmanniana, planted in 1876, was 22 feet high and furnished with branches to the ground-level; Abies magnifica, 18 feet; A. lasiocarpa, 22 feet; a fine variety of Picea nobilis, 22 feet; A. grandis, 33 feet, coning freely; A. Pinsapo, 15 feet; a magnificent plant of A. Alcoquiana, 20 feet; C. Deodara, planted in 1881, 18 feet; good examples of A. Veitchi and firma, planted in 1879, are now 17 feet high; a splendid specimen of A. Douglasi was 40 feet high and feathered to the ground. Many of the Pinuses are also doing well. An addition has been recently made to this pinetum, the entrance to which is over a curiously constructed stone bridge, built to represent the natural strata of stone. When this becomes a little more aged it will be very ornamental. Some more very choice Conifers have been recently added, including Abies Parryana glauca, which bids fair to do well. In some places I have seen good-sized specimens of this tree looking sickly and semi-deciduous.

Along the banks of the stream are planted large clumps of Narcissi, autumn Crocuses, Orchis maculata, Primroses, and Ferns. To the left the ground, rising to the height of 80 feet, is covered principally with large deciduous trees and an undergrowth of Polypodium and patches of Berberis stenophylla and Darwini, Daffodils, &c. Proceeding a little further up the hill, we come to a miniature Niagara Falls, 40 feet wide and 20 feet deep. Mahonias and St. John's-worts are effectively planted on the banks of this water. Large overhanging trees, common Bulrushes, Spiræas, Calthas, Osmundas, &c., are growing along the edge of the water.

Near the upper end of the lake is a small island planted with Pampas Grass and Arundo conspicua, with a pretty margin of common Ivy down to the water's edge. Here are four Cedars now 22 feet high with a spread of branches of 20 feet, and close to these is a good weeping Larch overhanging a steep bank. In early spring the Yew dell is enlivened with masses of Narcissus, Snowdrops, Glory of the Snow (Chionodoxa Luciliæ), Arabis, Myosotis, wild Hyacinths, &c. The ground about here is very rugged, and the colours are so arranged as to be seen from various points. Leaving this shady part we come to the herbaceous border, about 400 yards in length. The same idea is carried out here as with the shrubs, that is, grouping each kind in separate clumps, each family by itself, and not mixing the strong-growing with the weaker ones, as is often seen.

A patch of the curious Sea Holly (Eryngium maritimum) planted in a good proportion of sea sand is doing well. I never saw this plant in such health so far from the sea before. At the end of this border is the mausoleum, which has its separate garden containing choice Heaths, Yuccas, &c. The walk leading to the vaults is hewn out of the solid rock, the sides of which are covered with Cotoneasters, &c. The principal sorts of Heaths growing on these rocks are E. vulgaris aurea, E. v. pygmæa, E. v. rigida, E. v. alba, E. v. Alporti, multiflora alba and rubra, several forms of mediterranea, herbacea, and tetralix, varieties indigenous to the neighbourhood; also the pretty Menziesia alba. Dotted here and there are a few Silver Birches, making the whole look very natural. On the top of the slopes is a bank of Diplopappus, its golden shoots showing well behind the dark green Ericas. Prunus Pissardi bids fair to do well and become a striking subject. A Rose bower, 100 feet long, is covered with choice Tea Roses, all of which thrive splendidly, and are all but



View in the grounds at Bodnant Hall, Denbigh. Engraved for The Garden.

perpetual flowering. This bower forms a connecting link between the dell, the lawn, and the flower garden.

We now come to the rosery, one bed of which is filled with the Japanese Rose (Rosa rugosa) now covered with its bright fruits. This Rose, I am told, is never infested with aphides of any sort. Another large bed is planted with Austrian Briers. Several beds are filled with Hybrid Perpetuals on seedling Brier stocks, such popular sorts as Senateur Vaisse, Baroness Rothschild, Merveille de Lyon, Dupuy Jamain, Ulrich Brunner, &c., being extensively grown and flowering freely. Close by is a small pool of water covered with Aponogeton distachyon, perfuming the atmosphere for a long distance. Many clumps of rare shrubs that require greenhouse protection in other parts are quite at home here. On this part of the lawn is a fine old spreading Oak. In front of the hall a pretty little flower garden, well arranged and kept, looks well. On some spikes of Lilium Martagon dalmaticum, 7 feet high, I counted forty fine blooms. Another novelty is found here—a female plant of Garrya elliptica, full of its Grape-like fruit. I also noted a healthy specimen, 8 feet high, of Sciadopitys verticillata. Aralia Sieboldi is quite acclimatised and thrives well. Magnificent golden specimens of Elæagnus are objects of great beauty in winter. Gaultheria Shallon grows vigorously, producing its Lily-of-the-Valley-like flowers very freely. Escallonias, as might be expected, are quite at home; that somewhat rare variety, E. Phillipiana, is very handsome, looking as if covered with snow. Japanese shrubs flourish, and are extensively planted. Retinosporas soon make fine specimens here, R. pisifera measuring 14 feet high and 13 feet through. In a sunny position, Tropæolum polyphyllum, trained over an umbrella-shaped trellis, is growing and flowering freely. This is a plant deserving more extensive cultivation. A fine assortment of Hollies, which do well, is also grown. The variegated varieties are very highly coloured, upsetting the theory of those who suppose that stunted growth produces the highest colour.

Another noble feature awaits us a little further on in the shape of a Laburnum bower. The yellow Laburnum is trained over an arched trellis 200 feet long and 14 feet wide, and when in full bloom must be a sight not easily forgotten. At the end of this bower is a large bed of choice Pæonies.

The vineries run parallel with the front of the hall and conservatory. The front walls facing the terraces are covered with Tea Roses, from which good blooms have been produced in January. The vineries contain the usual assortment of varieties, all of which, from the samples seen, seem to do well. In an intermediate house is a remarkably fine plant, 16 feet square, of Begonia nitida trained on the back wall. It was literally covered with bloom The rest of the house is filled with Palms, Dracænas, Caladiums, &c. At the back of this is a nice fernery, which adjoins the conservatory, 55 feet by 40 feet. On the roof are trained red and white Lapagerias, Tacsonias, Clematises, Bougainvilleas, &c. Along the front, semi-circular stands filled with pot plants present a rather more artistic appearance than the usual wooden stages. Other houses are filled with the requisite winter-blooming stuff, of which a large stock is required.

The kitchen garden is a rather small one compared with its surroundings, but no space is wasted for common things. On one side of this garden is a late Peach house 210 feet long filled with the finest sorts of Peaches and Nectarines in the best of health. Creepers are being trained on the hall and stable. The east side is already covered with that indispensable autumnal-tinted creeper, Ampelopsis Veitchi; on the other walls are Cratægus Lælandi, Escallonias, and Ceanothus in good variety. Near the drive were fine specimens of Hodgin's Holly, a perfect cone 31 feet high and 26 feet through, and of Abies Albertiana, planted in 1879, now 30 feet high. Apples are at home at Bodnant. The unfavourable weather, however, this year has been felt, as the crop is the poorest known, although some varieties, such as Ribston, Blenheim, Duke of Devonshire, Bedfordshire Foundling, Golden Noble, Newtown Pippin, are fairly good. A tree of Peasgood's Nonsuch, trained on the roof of a north shed, produces fine fruit. Stone fruits were poor, but bush fruits and Strawberries were good. J. H. Goodacre

PROPAGATING.

Seedling Ferns.—Ferns that pass through their earlier stages during the winter months will in the case of many kinds need careful attention throughout that period, especially if the weather is dull, as should decay once set in amongst them just as the first few fronds are being pushed up, it will frequently carry off great numbers, unless the young plants are pricked out into other pots. As prevention is better than cure, the aim of the cultivator should be, if possible, to prevent any decay setting in, and in order to do this a good place for the store pots is on a shelf not far from the glass, for though the young plants are during the summer greatly benefited by the close atmosphere of a propagating case, such conditions will not suit them in the winter. Where there is no shelf suitable for the purpose, a good deal may be done by raising the store pots above their associates, and thus ensuring a less stagnant atmosphere than if stood on the stage or bed with other subjects. There is nothing gained by pushing on their growth at this season, for if kept as quiet as possible during the winter they start away with renewed vigour in the spring Where it is intended to sow any Fern spores, the operation had better be delayed till the new year, as they then germinate at once; whereas if sown now, various Mosses and confervæ quickly form on the surface of the soil and choke up the young plants.

Montbretias.—Early in the year I planted out a few of the new Montbretias as well as the older M. crocosmiæflora, and on lifting the plants lately I find they had considerably increased. Some, of which I put out but a single bulb, had formed two or three more, and the long Couch-like rhizomes had already made considerable progress, in many cases having travelled 6 inches from the parent bulb. In some the point of the rhizome had already pushed up leaves and formed roots of its own, so that the central bulb was surrounded by a circle of its offspring. In this respect the bright-coloured varieties, Bouquet Parfait, Etoile de Feu, and Phare, were in a much more advanced state than the lighter kinds, such as Solfaterre and Gerbe d'Or. Montbretias can be also readily increased by seeds; indeed, there are but few bulbs that flower so quickly after the seeds are sown. In proof of this I may mention that seed sown early last spring produced a crop of young plants, some of which flowered towards the end of the summer.

Hard-wooded cuttings.—Some of these which have been in a close propagating case or under a bell-glass for a considerable time will, if examined, be found to have formed a good sized callus, and after that to remain in an apparently dormant condition. When cuttings are in this state, especially if they have been in some time, and the soil has perhaps turned a little sour, the action of rooting is greatly assisted if the cuttings are taken out, and re-inserted into fresh compost. If the callus is a large one it is an advantage if a protuberance or two on it be cut off with a sharp knife, as a fresh surface is thus formed from whence roots are often pushed out.

Sonerilas.—These pretty little stove plants attractive both in foliage and flower will strike readily from cuttings of the young growing shoots put in during the spring, but besides this they generally ripen seed if favourably situated, and from this an almost unlimited number of young plants can be raised. The seedlings are rather delicate during their earlier stages, and on this account the seed should be sown in the spring, as by this there is the whole of the growing season before winter sets in. From the minute character of the seed care should be taken not to bury it too deeply, the best covering being a pane of glass over the top of the pot. T.

KITCHEN GARDEN.

A GOOD WATER SUPPLY.

It is hardly possible to over-estimate the value of a good supply of water. None but those who have experienced it are aware of the worry and loss attending a deficiency, and it is very certain employers will do well to pay attention to those who urge that some provision should be made for storing a quantity of water in gardens where a scarcity is often felt. When it has to be fetched from a long distance, a sufficiency is rarely obtained, and in any case very much labour and expense are expended with comparatively poor results. It has been my lot to manage a garden wholly dependent upon very precarious supplies, the principal of these being shallow ponds that were liable to dry up in a hot summer or when water was most needed, and a deep well that could be quickly emptied. In this case, as well as numerous others that have come under my notice, the expenditure of a few pounds on the construction of large tanks for storing water would have saved much horse and manual labour as well as ensured a better supply of fruit, flowers, and vegetables. A timely application of water acts more beneficially than much heavier supplies do later on, and when it is conveniently near, the gardener can act more as he likes or at the right time without having to consult other people in the matter. During the past months many tons of water have passed away into the drains of most gardens, only a very small portion of it being collected and stored, and may be before midsummer is reached a scarcity will have been felt. I am aware that constructing tanks is no light undertaking, the work of excavating to the necessary depth, wheeling and carting away of the soil, and in some instances rock and clay, being far greater than apparent at first sight. Much of this can usually be done at this season of the year by garden labourers, and horses and carts can also usually be obtained just now, if need be, on easy terms. The principal expense, then, consists in forming good concrete or well-cemented walls and bottom, though this ought not to frighten anyone who appreciates a well-appointed garden. A circular tank, measuring 12 feet in diameter and 6 feet in depth, would hold about 4000 gallons of water, and there ought to be two or three of such, or larger, receptacles for rain-water in every good-sized garden. Where these tanks are located must depend upon circumstances. As a rule, the kitchen garden slopes gradually or abruptly to the south, the fruit, forcing, and plant houses being on the upper side, and in all such cases a tank might be formed in the centre of the garden and another near the bottom, in addition to those constructed in or among the various houses or outbuildings. All the water from the various roofs could be conducted to the last, and the overflows from these connected with the middle and lower tanks. Clear water not being needed for the garden crops, it ought to be possible to

conduct much of the drainage from the floors and borders of the houses, as well as the water from walks and other sources, to the garden tanks, which, therefore, would not be wholly dependent upon rainfall. Such arrangements are by no means unknown, and must be considered most economical in every respect.

Of late years it has become the custom in the neighbourhood of towns, and also in some large country seats, to draw the water required for the garden from reservoirs of spring or well water, all, or the greater portion of the rain water being allowed to run to waste. When tanks are provided for warming and softening this naturally hard and very cold water, the arrangement answers very well, but when it is used direct from the pipes, with the addition of water from the hot-water pipes, the effect is not nearly so satisfactory. In the same manner a free use of cold, hard water applied in the summer greatly cools and impoverishes garden ground, and those who take such a delight in drenching their gardens by the aid of a hose are not doing nearly so much good as they imagine. Rain-water, when it first falls, carries both warmth and food to the roots of plants, as it is warmer than the soil a few inches below the surface, and being also impregnated with ammonia and other substances brought down with it, there is no doubt about its superiority to the much filtered cold, hard water. When stored in covered tanks it loses heat, and in our case also becomes much harder. All things considered, therefore, I much prefer to have water from open tanks or ponds, and with plenty of this there is much less need for the use of either liquid or artificial manures. In this district exceptionally fine Fuchsias are grown for exhibition, and one of the oldest and most successful growers assured me much of his success was due to the constant use of nothing but soft water. If this proves so beneficial in one instance, it follows that it would be equally so in many other cases whether under glass or in the open. If hard water must be principally relied upon, there is no reason why some attempt should not be made to soften it. A few hours' exposure will improve it somewhat, but if run into open tanks for a period of a week it would become warmer and also have absorbed a certain amount of ammonia from the atmosphere.

In most establishments there is a considerable waste of sewage water, no attempt being made to utilise it in any way. If this was run into a covered tank or tanks formed in or conveniently near to the kitchen garden, the greater portion of it could be pumped out and used as required. Not merely is this liquid manure valuable when the crops are growing, but it may also be applied with advantage to the fruit borders and Grass-covered land during the winter months. Used in showery weather it has a wonderful effect upon all growing crops; in fact, it may be easily overdone. In connection with a large private establishment in one of the home counties there are three immense sewage tanks to which both those in charge of the gardens and the farm have free access. Each tank in its turn, or every third year, is emptied, and the sediment duly dried and pulverised is found to be of the greatest value for manurial purposes. W. Iggulden.

Potatoes in frames.—One great advantage resulting from the practice of placing sets of Potatoes into small pots and starting them well before planting out into frames is that by the strongest being selected, an evenness of growth is ensured in the frame, which is not always possible when the tubers are planted into the soil direct. If 100 sets be placed in pots at any one time, it will be found, when the growth of the best is 9 inches in height, that the latest have only just started. Now all may be planted in one frame perhaps and at the same moment, but if the strongest are selected first for putting out and the weakest left to the last, when digging begins the frame may be cleared effectually in rotation. Perhaps some few of those in the pots may not be worth planting out, so that something is saved; still with careful selection of tubers that should not be the case. It is even desirable to place the tubers in shallow boxes into gentle warmth, and as near the glass as possible, to push shoots first, say, an inch in length. Potato forcers find this plan to be very advantageous, not only because growth is accelerated, but also because rogues or diseased tubers are soon detected. An occasional sprinkling with water will help the tubers to germinate rapidly. Potatoes when forced, whether in pots or planted out in frames, are required to produce fine new tubers, and as evenly as possible, with the greatest possible rapidity. That essential is aided by rubbing off from the seed tubers before they are potted or planted all but one shoot, that, of course, being the strongest, as one stout shoot, if producing fewer tubers than where there are several shoots, always produces finer and more even ones.—A. D.

PEA-PICKING.

There is a winter as well as a summer-time for Pea-picking. In summer, when Peas are largely grown for market, large numbers of women can be seen gathering the green pods for sending to the great vegetable markets. In winter, Pea-picking consists in going over the seed Peas received in late summer and early autumn from the seed farms and selecting the bad from the good, the latter being required for sale purposes. Some of our larger wholesale seed houses in London employ a large number of women at this work. One or two houses have as many as 120 or more daily engaged in this work. They work in compartments, something like those seen at a large telegraph office; the bench is flat, with a hole near the front of it, and underneath a sack is placed to catch the Peas that are allowed to fall through the hole. Women who are accustomed to the work perform it with great rapidity, drawing the sound Peas with both hands to the sack mouth and deftly picking out with their fingers the bad ones, which are placed in a vessel provided for the purpose. Men are employed to keep the pickers supplied with Peas, to measure what each picks, and place it on record to their credit. The usual rule is to pay so much per bushel, and the price paid varies according to the sample. In a season favourable to the harvesting of Peas there are comparatively few bad ones, but in a wet and cold one like that we have just passed through, when the conditions are unfavourable to proper ripening, the samples are bad and the refuse much larger. Thus in a good season pickers are sometimes paid as low as 4d. per bushel; when very bad, as much as 1s. The average earnings are said to be about 9s. per week. Older and more experienced pickers earn more. Some of the women who are in constant employment are paid regular wages; the remainder, who are taken on for the season, find employment during the remainder of the year in market gardens, shelling Peas in the markets, and in other duties performed by women.

A good sample of Peas will yield about four quarts of waste to a sack of four bushels; in the case of bad samples it will rise as high as three pecks or even one bushel. It can therefore be seen, seeing that the pickers are paid for the good Peas, how it is that a less price is paid when the sample is good than when it is bad.

The waste is not lost; it is sold on Mark Lane as Pea-pickings for feeding purposes for cattle, and especially for sheep, to whom it is given sometimes whole, and sometimes it is ground up fine and mixed with other feeding stuffs.

Longpod and Windsor Beans are passed through the same process, and the waste is utilised for feeding purposes. The waste of Scarlet Runners and dwarf French Beans is not so saleable, not being so well adapted for animal food. R. D.

KITCHEN GARDEN NOTES.

Hotbed Material.

Hotbeds play an important part in the production of much valuable early garden produce, also in the raising of numerous plants for putting out early in the vegetable garden, and the time has arrived for collecting and preparing a good heap of material. Where they can be obtained, nothing answers so well as Oak and Beech leaves, either with or without the addition of strawy stable or farmyard manure. This season owing to the long-continued spell of wet, dull weather, the leaves are not drifting together nearly so well as usual, and a sufficiency will not easily be collected, those from the park trees being what we mostly rely upon. From whatever source obtained, all ought to be brought together and thrown into a heap where they will, should the weather continue mild, soon commence fermentation. The strawy manure should also undergo a similar preparation, and after being turned twice, be eventually mixed with the leaves. If the material has to be used principally in the open air, very little further preparation is needed; but if it is to be formed into beds in a heated house, there is more likelihood of its becoming much too hot. In this case, therefore, the heap of leaves and manure should be allowed to become quite hot in the centre, being then turned inside out, and in the course of about a week ought to be sufficiently sweetened and prepared for any purpose. When a large heap of leaves is wanted for late hotbeds, the best way to keep them from heating at the present time and thereby being spoilt is to heavily trample them together, the decomposition of solid masses being much slower than in the case of loose heaps. When stable manure is used with an addition of an equal bulk of leaves it is apt to become violently hot, the rank heat and injurious gases given off destroying or much injuring any delicate plants confined over them. More care must therefore be expended upon its preparation, and a greater watchfulness for sudden changes in the beds, brought about say by a change from a cold windy period to milder weather. A few hours' neglect often ruins Seakale, Rhubarb, or some confined crop being forced by it. Farmyard manure gives a sweeter heat, but it is very slow at the outset and requires much time in preparation. It does not so quickly become dry in the centre of the mass, but it may have attained a destructive heat before the moisture is evaporated. Sometimes the beds lose all heat, nothing but fresher and drier manure putting new life into it, and altogether farmyard manure requires more skilful treatment than either stable manure, leaves, or the two in mixture. Spent tan is more suitable for beds in forcing houses, and it is sometimes used for frames and in pits. It is liable to generate very troublesome fungoid growths, but if leaves are freely mixed with it this is less likely to happen. Not being given to heat violently, especially when used in the open air, it requires no preparation; in fact, we have frequently found it necessary to mix a small quantity of quicklime with it in order to raise the heat quickly. A solid mass about 3 feet deep composed of fresh tan and leaves answers well for forwarding Carrots, Radishes, Potatoes and other crops in frames and pits. In this district spent Hops are plentiful, and are frequently used in hotbeds. They are apt to heat very violently and ought to be moderated by partially exhausted leaves.

Compost Heap.

A large heap of fine light mould is of the greatest value where vegetables are largely grown and plants raised in frames, and it is also of good service for covering seeds sown on heavy land. Advantage should be taken of dry, open weather for collecting and mixing suitable materials, storing as much as can be got together in readiness for use as required. Old potting soil and the rubbish generally that accumulates in a potting shed ought to be sifted over, all the mould being saved and the rubbishy por-

tion burnt. With this excellent material may be added the soil from old Cucumber, Melon, and Tomato beds, rotten tan, fine peat, leaf-soil, and ashes from a heap of burnt rubbish and soil. Such a compost will grow clean good Carrots and Radishes, and, with the addition of an equal portion of fresh fine loam, answer well for Potatoes, Turnips, Beans and Lettuces under glass. It is very suitable for surfacing over the beds intended for raising Celery and various other vegetables, and, should the winter prove mild and wet, seeds sown on heavy land will germinate badly unless surrounded by a light compost formed of some or of all the materials I have named.

The Frame Ground.

This cannot well be kept in a very tidy or presentable condition, and for this reason space for it is generally found outside the garden walls. As it happens, the most convenient position is most frequently on the north side of the garden, or at the back of the houses and sheds, little or no shelter being afforded. The frame-ground ought really to be surrounded, on the most exposed sides at any rate, by fairly high walls or a close-paled fence, and this for several reasons. In the first place, it is more secluded, and therefore not such an eyesore to those who object to various unsightly heaps and appliances; next, the shelter afforded against cold winds materially conserves the heat in the beds; and last, but not least, the walls or fences can be utilised in various ways. I have seen extra early crops of Peas and other vegetables raised under the shelter of these outside walls or fences; also heavy crops of Tomatoes and Capsicums; while Mushroom beds formed against them also prove very profitable. Especially valuable are these comparatively low and sunny walls for the culture of Tea Roses. In the open these rarely do well; but when planted in good loamy soil at the foot of a warm wall, they flower continuously for several months in the year. In addition to the good shelter afforded by walls, our frame-ground is also sunk 3 feet below the ordinary level, and instead of forming isolated beds for the various frames used, the whole of a well-drained pit, 36 feet long, 24 feet wide, and 3 feet deep, is gradually filled with the heating material, and the frames arranged as closely together as is possible consistent with free access to them. Thus arranged, there is less need of forming deep beds, about 3 feet of leaves and stable manure giving a steady gentle heat in nearly all weathers. No linings are needed for any kinds of vegetables, Cucumbers only excepted, and these are not much grown in frames very early in the year. Where it is impossible to sink the beds below the level, some provision has to be made for keeping the leaves together. In this case we should prefer to enclose the requisite space with stout posts or stakes, with hurdles fastened to these for keeping the heating material together. When the beds are required for Cucumbers or Melons, it is advisable to well thatch the hurdles with either straw, Gorse, or Bracken, this tending to exclude cold winds. Such an enclosure should be formed large enough to hold several frames, and would be found very serviceable without being very untidy in appearance. If not wanted for other purposes during the summer, the frames may be removed and the bed utilised for growing Vegetable Marrows and ridge Cucumbers. These large heaps rarely become dry in the centre, and ours are always sufficiently decayed to be wheeled on to the ground in the winter whenever the weather permits.

W. I. M.

Gardeners' clubs.—My proposal is very simple and cheap, viz., that gardeners in every town and village might unite and establish a club where they might form a horticultural library and take in periodicals. Gardeners of all classes might meet during the long winter evenings and instruct one another in horticultural matters. The club could be established very cheaply if every member would pay a small fee monthly for books, rooms, &c., on the same lines as our brethren on the Continent do, and I feel sure if there were such an establishment under the management of the leading gardeners and properly worked, the young gardeners would appreciate their profession much more. I throw out this suggestion, hoping some of your numerous readers may see their way to take some steps in the matter.—J. S.

Flower Garden.

DOUBLE SUNFLOWERS.

In again replying to Mr. Appleton on this subject, I agree with him as to surplus names and confusion. I may also add that from my point of view it does not enhance the value of a plant one iota whether it be recognised by the "specialists" of London, Edinburgh, or Dublin; indeed, as regards a floral certificate of merit for the one in question, such a distinction would be refused on account of age, and why for age puzzles me, as most plants certificated are old in their special localities all over the globe unless they are actually seedlings.

I would never have raised this question through the pages of The Garden, but that I know I am in possession of a quilled Sunflower in contra-distinction to the "ten-year-old" unfixed sport from the normal form. As regards Mr. Appleton's multitudinous multiflorus varieties, I do not know them and claim but one single sort; this I believe to be "major," and it is very beautiful and flowered most profusely this autumn. But to return. Mr. Appleton says, "It seems a remarkable thing if he ('Soleil d'Or') has been in possession of it for that length of time that such a form is still so little known." But your readers know that at the battle of Isandula, when the black men cut to pieces in camp Colonel Pullen and the entire 24th Regiment, many of them probably thought there was no such thing left in the outside world, from their surroundings, as another white man. Also that for thirty years prior to 1884 and its first Daffodil conference, there were men in England, even experts, who never heard of the great Welsh Chalice flower, and that the celebrated Dean Herbert could not believe in the existence of such a thing as Narcissus cyclamineus. Even coming down later, it is less than two years since I saw it stated in the columns of The Garden, and this by a supposed high authority(?), that a hybrid Narcissus could not be produced between a Corbularia and an Ajax, to say nothing of the present dispute about the multitude of white tortuose Daffodils that are appearing in printed lists of specialists, all of which no doubt existed for centuries in some isolated quiet nooks in the rural haunts of old England. Mr. Appleton's idea of the normal form and its sporting character of ten years places him in the camp with Joshua, or, later still, that of Cardinal Barberini, while "Soleil d'Or," the force of his quill and his quilled flowers of the sun may be but efforts of imagination and idle notion.

This being my doubt, my opinions remain un-



Helianthus anemonæflorus.

changed, and in the camp with Galileo, writing, it may be, what is poetical foolishness about—

The earth's movings, the Sunflower earthy,
turning on its god when he sets
The same look which she turn'd when he rose.

But to clear up all further doubt in the matter, through the kindness of the Editor of THE GARDEN and the aid of a good artist, I give its readers illustrations of two forms, in order that they may look on two pictures.

SOLEIL D'OR.

Aubrietias.—How prettily these hardy tufted plants are blooming this autumn! Their behaviour this season has been unusual, as from the spring onwards they have had no check and have been constantly growing. If the plants be not injured by snow or hard weather they should bloom with unusual effect very early next spring. When, as last year, the growths are withered up by heat and drought, so that the plants appear as if dead, nearly all the winter is needed to produce fair-sized tufts, and the blooming season is late. Should the winter remain open, there will be a little bloom showing all through; but, apart from that, the broad tufts of foliage form very pleasing dressings to rockwork or borders. My only variety is violacea, which is the finest and richest coloured of all, and seeds very freely.—A. D.



Double quilled Sunflower.

Wintering Tigridias.—Though the Tigridias will, in many places, pass through the winter in the open ground without any care or attention, yet in others the bulbs are liable to decay, especially if the season is wet, and where such is the case it is better to lift them in the autumn when the foliage dies down. I find that they keep best when they are lifted, the old leaves cut off, and the bulbs laid on a shelf in a good dry shed till they are thoroughly ripened. Then I store them in boxes of perfectly dry sand, and keep them where they are just secure from frost, when they pass the winter without injury. One point to especially guard against is to see that the sand does not get damp, and another is to keep a sharp look-out for mice, as they are very fond of the bulbs.—H. P.

Primula Auricula in flower.—"K." may be assured that it is not at all unusual for P. Auricula and its many varieties to flower at this season of the year. Plants in the open ground as well as those in pots, the former especially, are throwing up autumn trusses, but I am happy to say that there are comparatively few trusses on the plants in pots. Growers of Auriculas in pots invariably adopt the practice of pinching out the pips from autumn trusses, leaving the stem to decay. Autumn flowers are very misleading, and it is the spring bloom that should be depended upon to reveal the true character of the variety. Only to-day I have picked from a plant of alpine Auricula Sydney a flower that presents this variety to view in a very different character to what a spring-produced flower does. I like to see the truss of some varieties showing itself in the autumn if it will only keep down until the spring. If the fine grey-edged Lancashire Hero behaves in this way in autumn, it will frequently produce green-edged flowers in spring. My only chance of having green-edged Prince of Greens in bloom in time to show in April is by its throwing up in the autumn. My best plant is in this condition now, and I have hopes of showing it next April.—R. D.

ROOTS AND ROCKWORK.

I QUITE agree with you in your condemnation of the use of stumps and roots of trees in connection with rockwork. The practice is in bad taste, and in certain positions objectionable from a sanitary point of view. Rotting vegetation is in itself unwholesome, and it is the means of inducing and encouraging cryptogamic growth, which tends to vitiate the air, which in a garden should be as pure as in any place. Decaying wood supplies the pabulum requisite for the support of various species of fungi, Mosses, and Lichens; in fact, these are the active agents in hastening the destruction of diseased or rotting trees and wood. In that aspect their presence is valuable, but which, as they multiply and attain their full development, scatter myriads of spores, every gust of wind bearing them far and wide, but always filling the air with such objectionable particles immediately about the rootery. I have filtered the air where rotting wood and fungoid growth abounded, and I have also observed how thickly the snow gets covered with impurities, and have thus satisfied myself that a source of danger to delicate lungs existed in spots popularly supposed to be unobjectionable. Of the two I would prefer to breathe the air of towns with the corrective particles of carbon in it than that of woods or gardens with piles of decaying wood and a parasitic growth of cryptogams throwing out clouds of organic particles infinitely small and infinitely numerous, all ready to discharge their destructive functions on an injured or weakly tree, or, perhaps, may find a congenial resting-place in some warm-blooded animal rendered sensitive by failing powers to its action.

Because many of the germs of the parasitic plants I have mentioned are microscopically small, they are none the less insidious and dangerous. Woodmen are not the healthiest of labourers, like the lumbermen in America; they are often pale and cadaverous in aspect. The impurity of the air they breathe may be one of the causes. I can sympathise with the builder of the Kew rockery not having supplies of stone at command. My remarks concerning rotting wood and its attendant dangers apply to positions in woods or damp hollows rather than open breezy spaces like Kew.

W. INGRAM.

Belvoir.

Flowers in December.—The large number of letters that were published in THE GARDEN of last week point to the extraordinary mildness of the season, not only in England, but in Wales and Scotland. It seems that winter is attempting to atone for the cold unpleasant spring and the wet sunless summer; but too much trust cannot be placed in the weather. A frost of great severity might come and catch those who have risked tender plants in the open too long, as the Chrysanthemum growers experienced last October. It is to be hoped we shall have winter as it ought to be—to check the premature growth, to ripen the green wood, and to pulverise the soil. A December that is like April is not an unmixed good, as we shall find if it lasts much longer. Amongst the gatherings of flowers sent was one of great interest from Mr. Ingram, of Belvoir Castle Gardens, and comprised many kinds, from the fragrant Wallflower to the winter Heliotrope or Coltsfoot. The Belvoir Wallflower is rich orange and very fragrant, and, judging from the small bunch sent, excellent for the garden. It is grown in many places. Doronicum plantagineum excelsum has been sent by two or three correspon-

dents. It has flowered for a great length of time, the colour of the blooms being rich yellow. A few plants should be in every border. To judge how mild the weather is, Mr. Ingram sent Linaria purpurea, the Yellow Flax (Linum flavum), the spicy Coltsfoot, Gentiana acaulis, the showy Phlox amœna, Erigeron speciosum, Chrysanthemum lacustre (which has been remarkably fine this autumn), Vinca minor, Iceland Poppies, and Anemone coronaria, besides a variety of other things. This shows that it is not a few straggling blooms on autumn-flowering plants that are left, but that many alpines and border subjects proper to the spring are also appearing in the garden.

Pot or garden Marigolds.—The frost of a few weeks ago which destroyed so much in the way of half hardy things spoilt the flowers on the plants of Marigolds, but left the plants comparatively uninjured. They have burst again into growth, and, helped by the mild weather and sunny days, are yielding a great deal of bloom just now that is very acceptable for cutting from and comes in very useful indeed to mingle with Chrysanthemum flowers for house decoration. My plants are mainly single varieties, raised from two or three good forms, and they are delightful both for garden decoration and cutting from; their orange hue is not found in any of the Chrysanthemums. I have one very large single variety with flowers of the finest form and high-coloured also. I have seen some single forms quite pale coloured and almost white, with not a few intermediate shades ranging from sulphur to deep golden yellow.—R. D.

Christmas Roses dying.—The symptoms indicated by "G. C." (p. 503) indicate that the Hellebore disease (Peronospora Ficariæ) is at the bottom of the mischief. It is a fungus, and from all quarters I hear complaints this season. It does not seem to affect Hellebores generally, but confines its ravages to the H. niger section especially. The fungus itself is a sort of white flocculent or mildew-like growth, and the black spots and rotting stalks and leaves are its after effects. So far as I know there is no remedy. It is most disastrous.—F. W. B.

—— It is want of vigour that causes the foliage of "G. C.'s" plants to die off in the manner described. The soil being so light and poor they have not been able to become thoroughly established. Some soils are naturally so unsuitable for the growth of Christmas Roses, that nothing short of giving them something quite different will cause them to make good flowering crowns. It is probable that the two hot dry summers experienced previous to this year exercised a very weakening effect on the plants. On the principle that a few thoroughly well-grown specimens are preferable to many badly cultivated plants, I should advise the making of the soil in a manner that will guarantee success. In the first place, choose if possible a position open to light, but from which the sun passes away by mid-day. A north aspect will do, but an east one is rather better, as the plants there get all the early morning sun. It is better to plant Christmas Roses all together rather than in isolated clumps, as they can then best get whatever care in planting and after attendance they need. In "G. C.'s" case I should mix some good loam and plenty of rotten manure with the natural soil. The more loam the better, and if rather heavy so much the better, as it will correct the too porous nature of a light soil. If this is done at once and the plants set out before the new year they will probably make a fair growth next season.—J. C. B.

SHORT NOTES.—FLOWER.

Rock Cistus.—Would any reader kindly give me the botanical name for the true Rock Cistus?—W.

A correction.—On p. 503 of The Garden, December 1, for Biota corymbosa and Aster corymbosa read Biotia corymbosa and Aster corymbosus.

Carnation Surls Queen.—"Rochampton, Surrey, Feb. 20, 1776. John Fenn won this medal with Carnation Surls Queen." Such is the inscription on a "reward of merit" in the shape of a beautifully engraved solid silver medal that has quite recently come into my possession. We know that George II. died Oct., 1760, and on the face of the medal is a beautifully engraved portrait of the king, who probably may have been a patron of the Carnation Society at Roehampton. In Sweet's "Florists' Guide" there are numerous good plates of fine Carnations, and this work was published in 1829 and 1832, but there is no mention of Surls Queen. Does any Carnation grower remember seeing it?—W. B. Hartland, *Cork*.

FLOWER GARDEN NOTES.

Hardy flowers.—A writer in the *Saturday Review* of November 10 last thus writes:—

Whether it be owing to the caprice of fashion, the craze for "carpet bedding," the imperative demand for a lawn-tennis ground in the most desirable locality within the immediate precincts of the house, or possibly the urgent necessity for economising that has caused so many landed proprietors to retrench in every possible direction, it is very rarely that anything approaching to the old style of garden is seen about a modern country house. It is not the fashion now-a-days to care about a garden for its own sake. A few brilliant flower beds, flanked by the inevitable lawn-tennis ground, are sufficient for all practical purposes, and what more can be required?

Rather hard-hitting this, and not very complimentary to the efforts of The Garden, which has striven so hard for many years to revive the interest in hardy flowers generally. But "Saturday Reviewers" are not all gardeners, and the whole tone of the article of this writer shows an ignorance of both gardens and gardeners, but as on this head I shall have more to say in a future article, I, for the present, shall confine myself to the question of hardy flowers, or, as the *Saturday Review* puts it, "the old style of garden." I am perfectly certain that he does not know what is meant by the term. We have during this mild weather been busy amongst flowers, increasing the stock of some, re-arranging others, and manuring all, and by way of answer to our "Reviewer," I may say that within the last six or seven years our stock of such plants has been more than trebled, and this is due in some degree to the "necessity for economising." And here it is that our critic displays his ignorance, inasmuch as the "craze for carpet bedding" is far more expensive to carry out than is "the old style of gardening." The merest novice in gardening would understand why this should be the case; no house room required for plants, no fire-heat, no labour of spring propagation, and last, but certainly not least, no bedding out; consequently the labour that would be expended on doing these can be utilised for other work, of which there is always a pressure at that time of year. So much for our critic's knowledge, with which remark we will dismiss him for the present. In the re-arrangements made of hardy perennials, we have striven as far as possible to spread, if I may be allowed that term, the gaiety over the entire borders. What I mean is this: species that flower, say, in June—as, for instance, Pæonies—we have planted in groups at regular intervals throughout the borders, and so on with other species. We shall thus secure a general display of the same species of flowers at all seasons throughout the borders without having a too strict regard for uniformity of height. The regular drill-sergeant style of planting in lines according to height seems sadly out of place with plants so variable as perennials are in height and form of growth, and, of course, like most plants, the better they are done, the richer the soil, the more rapidly do they spread. At one time we found it necessary, in order to fully furnish the space set apart for such plants, to dot about the borders small evergreen shrubs, and right well they looked, but they have long since been removed to give space for the flowers. I mention this incident that others having the same greed, but too few perennials, may, for the time being, adopt the same way of furnishing the borders. I would further add that additional neatness and protection from frost of the roots of plants more susceptible of injury, because so recently cut, will be given to the borders by a coating of Cocoa fibre refuse, a most inexpensive protection.

Fine foliage effects by accident.—A curious title, but a true one. The originals are on view at this place, and their formation was never intended, hence the word accident. Years ago it was intended to make a piece of rockwork—home made, of course, and therefore done in a very primitive fashion, but planted in the most modern way with Aubrietias, dwarf Phloxes, Thymes, Sedums, Saxifrages, and many others, together with suitable shrubs, such as Cotoneasters, Periwinkles, small-leaved Ivies, &c. In course of time the whole got so completely furnished, that, beyond keeping it free of weeds, no labour was expended on it, the plants being allowed to have their own way, of course with the inevitable result that the weak have had to succumb to the strong, which latter, though they may not be considered rock plants in the strict sense of that term, are infinitely more effective and striking, and therefore, from everybody's point of view except a botanist's, of much greater merit. There is all the rugged beauty of irregular formation without the bare stones, dead plants and weeds so common to rockwork generally. The only loss is the flowers in spring and summer, but I consider the present beauty at this dull season outweighs their loss, not to mention the saving of labour by this way of covering rock and root-work. Cotoneasters in full berry are just now the gems in the picture, their dark green foliage being set off to the greatest advantage by long strings of variegated Periwinkle pushing up through and hanging over the branches. There, then, is the small-leaved variegated Ivy and the green-leaved Periwinkle in similar association, and, over and above all, small plants of Retinospora plumosa aurea, Retinospora filifera, variegated Box, and the small, erect-growing Lawson Cypress. Some ledges of stone are quite concealed by the growth of the common Stonecrop, Saxifrage, and strongly scented, flat-growing Thymus hirsutus, and these hold their own against all comers, the densest overhanging growth having no detrimental effect on either. It is sometimes necessary to devise ways and means to conceal undesirable objects, and also to get rid in the easiest manner of a heap of bad soil or builder's refuse, such as sand, rubble, mortar scraps, and the like. This fell to my lot a few years since, and to-day the mound so formed and furnished after the manner named above is in every way a desirable and withal a beautiful object. Of course, after using up all the rubbish that had to be got rid of, the mound was shaped into form by the addition of good soil, and after it had become consolidated was planted, and by free supplies of water to the plants the entire mound was fully clothed the first season.

General work.—The planting of shrubs and trees as weather permits, levelling uneven parts of lawn, and laying down fresh turf. Rolling done now, that the turf is so wet, will be doubly effective. It may mar the present appearance of the lawn, but that is a small matter compared with the permanent consolidation of turf that is likely to accrue from the operation. Worm casts are always an eyesore. Lime water is a sure destroyer, but only practicable on a small scale. Where there is a large space to go over, a scattering of lime over the lawn, immediately before rain, is the best mode of riddance. Cut turf margins of walks, repair drains, and re-gravel walks. Wet-weather-made walks are invariably firm—a condition that is not only most comfortable for walking on, but least conducive to weed and Moss growth. W. W.

Tobacco.—The uselessness of attempting to cultivate Tobacco as a mercantile crop in this country seems now to be generally admitted, as indeed it might have been at the first, for we lack the needful climate to produce Tobacco which will satisfy the requirements of the smoker, and no power can overcome in outdoor culture the want of sunheat. But we still can cultivate Tobacco plants for the beauty of their foliage and the perfume of their flowers without troubling as to the tastes of the smoker or the deficiencies of climate. Tall well-grown Tobacco plants of the most robust forms with their grand foliage form noble decorative plants, and if their lives are not of long duration, the plants are obtained at trifling cost. The sweetly scented Nicotiana affinis, if grown in heat, we can enjoy literally all the year round, and whilst the foliage is acceptable, the flowers are pro-

ductive of great pleasure. I have grown this year under the name of Dicurnus a variety which is said to be dwarfer than affinis, but whilst the plants bloomed profusely at 20 inches in height, I am not sure that affinis would not do the same under similar conditions of culture. It is curious, but a fact, that the flowers of these night-scented Tobaccos bear some resemblance, only on a much enlarged scale, to those of the night-scented Stock. Has the formation of the flower anything to do with the expanding and emitting of perfume in the darkness? That is an interesting subject upon which some of our Kew friends may perhaps discourse with some force. A list of the night-blooming plants would be useful and further the information as to whether all are perfumed, and if so, what connection exists between the existence of the perfume and the night-blooming.—A. D.

NOTES ON HARDY PLANTS.

The Doronicum variously called draytonense, plantagineum maximum, and excelsum is not only one of the earliest flowers in spring and a continuous summer bloomer, but the plant is a cheering object all the winter through, for if placed in sheltered nooks where its brittle leaves and its more brittle stalks can have protection from the wind, it will display tufts of herbage of the most verdant character all the winter through, and, if there should be a spell of fairly open weather, flower-heads may appear. Even now under a west wall it is an attractive plant; long since its summer stalks were cleared off in their dried-up state, and the new growth presents quite a different aspect to that of summer. During the summer it carries its big glistening yellow heads at a height of from 3 feet to 4 feet; whereas now the plant is almost stemless, the golden heads nestling among the leaves. It is one of those plants that one can scarcely have too many of.

Dryas Drummondi.—At the present time this species exceeds in beauty the better-known and favourite D. octopetala. Long after D. octopetala has lost its autumnal tints and the leaves have turned flaccid and shapeless, the larger ones of this kind remain in good form and colour. The bronzy-green and leather-brown leaves so neatly displayed have an almost red line round the beautifully crenate edges, which, with the red stalks, give a lively effect to a moderate-sized patch. This description applies to specimens grown on a well-raised bed of good rich leaf-mould, loam, and sand, not, however, lacking moisture, even in dry weather, and the position fully exposed. In the propagation of this desirable yellow-flowered kind there is little or no difficulty, provided two points are attended to, viz., nice cuttings of the previous year's growth, about 3 inches or 4 inches long, and their insertion just when new growth begins in spring. Firmly set in pots in peat and sand, mostly the latter, stood in a cold frame and kept moist and shaded, every cutting may be expected to grow. It is a good plan to turn out and set a potful of say eight or twelve such rooted cuttings as one plant during summer. The advantage of this method is a strong patch in a shorter time than from one plant however strong.

Geranium hymenoides.—This species surely cannot be known, either for its good qualities as a rock plant or its hardy constitution. Its habit is distinct, and it is never out of flower from early summer to nearly the end of the year. At the present time its flowers are as fresh as those of early summer, and there are buds in plenty. It is also one of those dwarf shrubs that may often, during a few continuous fine winter days, be seen in flower. The leaves resemble those of the ordinary Pelargonium. It reaches a height of from 8 inches to 12 inches, and should be grown in loose stony soil and full exposure. If grown in shady situations the plants may not withstand the winter, otherwise it is quite hardy.

Bellidiastrum Michelii, with its Daisy-like flowers, may not be an attractive plant during early summer, but I like it more for its untimely than its summer flowers. It is ever trying, even when leafless, to expand some of its buds, of which it can be seen to have a goodly store. It is because of the pretty effect of one or two perfect heads, the size of half-a-crown and white as snow, that I felt prompted to make this note. Imagine big Daisies in November on stout stalks only 2 inches high! J. Wood.

Woodville, Kirkstall.

CHRYSANTHEMUMS.

E. MOLYNEUX.

THE PRINCESS TECK FAMILY.

During the last few years the varieties of Chrysanthemums have increased so fast, that they now may safely be called families or types of particular forms. Many new kinds have come into existence from sports, and vary only in the colour of the flowers. One of the most popular and certainly most useful families in the whole incurved section is the one above named, numbering as it does six distinct varieties, all having the same characteristics in growth and form of flower, varying only in the colour of the blooms. Taken at all points, it contains the most useful incurved varieties we have. For exhibition they rank among the foremost by reason of the excellent form of the flowers, distinctness in colour, and the natural contour of the blooms. Lastly, the dwarf character of the growth of the plants, as compared with that of some other varieties, renders this family amenable to cultivation by all growers, either large or small. Another advantage which this family possesses over any other in the incurved section is its adaptability to produce late blooms under treatment requiring so few details of culture. Being naturally late flowering, the season can be easily prolonged. The whole of the batch are very useful for producing late blooms. The production of exhibition blooms requires a special knowledge of the variety as to its mode of growth and bud-formation. Early propagation must be practised, as the plants need a long season of growth, the varieties not being nearly so stout or fast growing as some sorts. As a rule, cuttings are not freely produced, the plants often showing a stubbornness in throwing up cuttings from the base of the old stool. The soil in the pots, after the plants have been cut down, should be kept rather on the dry side for a time if there is no sign of suckers appearing on the surface. A gentle bottom-heat and daily syringing of the stems are often necessary to induce growth. This family shows a tendency to premature bud-formation during the early stages of growth, thus giving a check to the plants, which is not easily got rid of. Grow the plants freely on, encouraging them in every manner to make strong shoots, as it is impossible to have them too strong. The pots at the final potting should not be of more than 9 inches diameter, as roots are not so freely made as in some varieties. The soil should be slightly lighter in character than that used for the more robust kinds.

Selecting the buds is very important in the growth of this family. I am convinced that more bad blooms are had by taking the buds at a wrong time than from any other cause. If the buds are selected too early the blooms are flat, very little incurved, and quite pale in colour, while the florets come narrow and pointed. If the buds are taken before August 20, seldom is it that they develop into perfect blooms. From the date named to September 10 is the best time at which buds may be taken to produce perfectly incurved blooms. When the buds first form they appear so small and weak that the wonder is how they can grow into the fine flowers. Towards the autumn the leaves assume pleasing autumnal tints, and as the leaves are of a drooping character, this bronzy hue is the more effective; this is a sign of good culture in this section. For producing late flowers, top the plants when about 4 inches high and again as growth proceeds until the first week in July. The cuttings need not be inserted before the beginning of February, growing the plants on freely afterwards. Owing to the firm character of its growth and an entire absence of gross wood and leaves, blooms of this family are not nearly so susceptible to damp while expanding, neither does a gentle heat injure the substance of the flowers, as in the case of the other kinds. Owing to the late bud selection, the plants should be housed with the first batch, thus allowing more time for the steady growth of the buds.

As the varieties are so well known now, with the exception of the later raised kinds, it is not necessary for me to describe each one at length, but just enough to enlighten the beginner as to its distinctness in character.

Princess Teck is the original variety, its form not having yet been excelled and hardly equalled by that of any other sort in this section. The colour is white, suffused with pink.

Hero of Stoke Newington is rose-pink in colour, and the first of the sports from the parent variety. Flowers from this variety are generally of larger size than those of the parent. It is a capital variety for the middle row of a stand of twenty-four cut blooms.

Mrs. Norman Davis is a rich golden yellow sport from Princess Teck; occasionally the colour is shaded bronze in the centre. This is a good variety for producing late blooms.

Lord Eversley is a pure white sport. The points of the petals are tipped green when expanding, but when thoroughly developed the blooms are pure white. This variety is good for cutting down to produce dwarf plants which will flower late, and consequently is much valued for decoration.

Charles Gibson.—This variety sported from Mrs. Norman Davis, and is described as cinnamon fawn with a deep bronze-red centre. Being so distinct in colour it will be much valued for exhibition purposes.

Lady Dorothy, a sport from Hero of Stoke Newington, is the last of the family, and resembles very closely Charles Gibson in colour, with the exception, perhaps, that it has rather more gold in the centre florets.

Chrysanthemum odoratum.—Some time since notes upon various scented Chrysanthemums appeared in The Garden, but I do not remember having seen any mention of this variety, which is, I believe, comparatively new and as yet but little known. It is one of the Japanese section, but the blooms are too small and too regular in outline to stand in the front rank, while the colour, a kind of lilac-mauve, does not render it in any way conspicuous. It is, however, of that sturdy habit so desirable in a Chrysanthemum grown for decoration alone, and, besides, possesses a strong violet scent, as pronounced indeed as in that old variety Progne, whose bright, amaranth-coloured blossoms are still amongst the most sweetly scented. Out of a great number of Chrysanthemums with scented blossoms that have come under my observation, I should be inclined to place these two varieties, odoratum and Progne, before any of the others.—H. P.

Chrysanthemum Mrs. Alpheus Hardy.—Judging by the American horticultural papers, this Chrysanthemum is attracting a very great amount of attention in the United States, and more particularly in the neighbourhood of the establishment of Messrs. Pitcher & Manda, New Jersey, who are the fortunate possessors of what is described as an entirely new departure among Chrysanthemums. In this variety the petals are broad, incurving towards the centre, and pure white. These remarks would also apply to several other kinds, but the peculiar feature of this variety is a profusion of hair-like

growths on the florets, more particularly on the upper half, which certainly must give to a bloom a very singular appearance. This variety was imported direct from Japan, so that it would seem that the horticultural treasures of that country are not yet exhausted, for besides this some of Mr. Cannell's finest new varieties of last season were also direct importations. Now that the Chrysanthemum is such a popular plant in both hemispheres, it is probable that a number of other well-marked varieties will make their appearance.—H. P.

CHRYSANTHEMUMS IN NORTH AMERICA.

By this mail I forward you a few photographs of my November garden (taken in the middle of November) which will serve to show what a wealth of flowers, by very simple and inexpensive appliances, may be had at this usually bare season. With the exception of a score or two in pots, my plants are bloomed where grown during the season. When the usual hard frosts of October threaten, those at the side of the house are protected by a light temporary frame. If plants in such a position are kept quite dry, they will usually finish blooming before severe frost comes. I have about 250 plants standing in a perfectly open position in double rows about 18 inches apart each way, and with 30-inch paths between. When sharp frosts threaten, a tent, which can be opened or closed as the weather requires, is readily pitched in a few minutes. My tent, 20 feet by 30 feet with 14-feet ridge and two masts, is made of light sail duck, well corded, and with proper side poles and guys. The walls are detachable by snap-hooks from under the curtain which serves to cover the connection. Tent-pegs, of course, make the walls secure when lowered. To furnish heat I have a 2-inch flow and return pipe around three sides of the tent (it should encircle the square) attached to water heater in cellar. The pipes being provided with union joints are readily taken down and stored away. Our season has been exceptionally wet this year, and heat has been used mostly to keep moist air in circulation, but we have had two nights with a temperature of 20° Fahrenheit, and the plants are not injured in the least. Last season this tent was heated by oil stoves, which produce sufficient heat, but will smoke.

Of course, I raise no fancy trained specimens in such close quarters; growing for amusement and private use, my object being to secure as large a supply as possible of good characteristic flowers on long stems with little labour. My plants are set out early in May with a strong stake to each, and watered mostly overhead. When coming into bloom the plants are securely fastened to long strips of wood running from end to end of the rows. The plants usually average over 5 feet in height. It is not contended that this method of protection is perfection, but it offers a very satisfactory one for the early and part of main crop at least, even when one has glass which can perhaps be more profitably used. When blooming is over the tent occupies small storeroom, while extra glass cannot be condensed. Jno. N. Gerard.

Elizabeth, New Jersey.

*** With the above communication were sent photographs showing good examples of Chrysanthemum culture in New Jersey. Some of the photographs we hope to engrave.—Ed.

SHORT NOTES.—CHRYSANTHEMUMS.

Two good single varieties.—Lady Brooke, bright yellow flowers of a Buttercup shape, and Lady Churchill, dull brick-red, are capital varieties of single Chrysanthemums for producing blooms at this time of the year.—E. M.

Chrysanthemum Mrs. Langtry.—Now that the bulk of the large-flowered varieties of Chrysanthemums are over, this single-flowered pale pink sort is particularly useful for supplying cut flowers, especially as a most pleasing perfume is emitted from the blossoms. At the present time (December 8) we are cutting nice bunches of flowers from the side shoots which have grown from the main stems from which the blooms at the top have been cut. Persons who are in want of sweet-scented flowers at this season should grow a few plants of this variety.—E. M.

Pompon Chrysanthemum Maroon Model.—This variety is one of the most effective sorts grown. As its name implies, it is maroon in colour. I lately saw a specimen 4 feet in diameter and carrying over 200 even-sized blooms, which were raised sufficiently far above its foliage, which was a deep green, to be effective without hard training. The buds had been thinned, thus rendering all the blooms of about one size. On a plant with fewer blooms, and consequently larger ones, the colour was deeper. These plants were exhibited at the late Liverpool show, where trained specimens of this section are perhaps better done than anywhere else.—E. M.

NOTES.

The number of new, or supposed new varieties, especially in the Japanese section, increases so quickly now-a-days, that if the cultivator intends to remain in the foremost rank, it becomes necessary to revise annually the list for future cultivation. Exhibitors especially know well the advantage of being in possession of the new varieties which have merits above those of some older varieties, as such kinds, if really acquisitions, are more valuable on the exhibition table than the older varieties. At the present time, too, there is such a craving for novelties amongst the public, that new varieties are bought in by some people in considerable numbers, irrespective of any information as to their qualities except that contained in catalogues. It often happens that, after a whole year's labour, the supposed improved variety is considerably inferior to many old sorts. My advice to those persons who have no opportunity of judging for themselves as to the good qualities or otherwise of varieties sent out as new each season is not to grow them until a knowledge of their qualities has been gained. It is far better to grow an extra plant or two of known varieties upon which dependence can be placed. If a new sort is recommended by a person having a knowledge of it, this is a safeguard which may be acted upon. Many of the new varieties which have proved to be acquisitions to the Japanese class are much shorter in growth, which certainly is a step in the right direction. Many excellent varieties, owing to their excessively tall habit of growth, are not suitable for many cultivators whose convenience for housing the plants is of a limited character; consequently, they are deprived of such sorts which, owing to their good qualities, would materially assist them in competition at the exhibitions, as well as prove a source of pleasure where the plants are cultivated for home use only.

Those persons who contemplate the cultivation of Chrysanthemums during the year 1889 will now require to select the best varieties for their purpose in the various sections, and those who have previously had a collection under their charge will need to revise their lists. Of course, personal taste will influence the cultivator somewhat in the selection of varieties, if the plants are grown mainly for exhibition. My advice is, grow plenty of varieties so that a good margin may be allowed for selection, because it is seldom that all the sorts are equally good the same season. Where new varieties have to be bought, either as cuttings or plants, my advice is, order early, as then there is a better chance of obtaining strong plants than would be the case if the order was delayed. E. M.

Wall and border Chrysanthemums.—Referring to "J. C. F.'s" article in The Garden (p. 529) on Pompon and border Chrysanthemums, I would just add that many of the single varieties are most useful for the purpose. I have had more bloom from single Chrysanthemums in the borders and against the walls this year than from any others, and the varieties that have had abundance of bloom were Mrs. Langtry, Patience, Pure Gold, and White Perfection.—George Wall Duek, *Chard, Somerset.*

GARDEN FLORA.

PLATE 679.

NEW ZEALAND BLUEBELLS.

(with a coloured plate of Wahlenbergia saxicola.*)

Amongst all the dwarfer European Bluebells in cultivation there are few so readily established and give such little trouble with a maximum of pleasure as do these beautiful New Zealand forms. They are the only two species in Australia and New Zealand, and unlike their European congeners, the Edraianthus, the seedlings spring up on all sides, while the plants are also increased by creeping underground stems. They have been voted tender—a charge they are not guilty of in the neighbourhood of London at least, where the damp, fogs, &c., are most trying to plants of this description. W. saxicola makes a charming plant for shaded nooks on the rockery in rather free soil, leaf-mould and sandy loam being preferable. In such positions we have seen it in full flower, even when the hardy North American Asters have been blasted beyond recognition. Wahlenbergias are of so dwarf and compact a habit, and withal so free-flowering, as to claim a place in the most select collections, and the smallest rockeries will suit them as well as the largest ones. They are easily kept within bounds. As pot plants wintered in cool frames we have seen no lovelier sight; they are most suitable for standing in corridors, windows, &c., flowering as freely as they do when planted out. The Edraianthus, or more properly Wahlenbergias, as they have been transferred to that genus now, are almost too well known in English gardens to want detailing here. E. dalmaticus we have found a gem either for the rockery proper or the flat peaty rock-bed, where we have seen it flower profusely throughout the summer months. E. pumiliorum and E. Pumilio seem to us very similar, and so far we have been quite unable to detect sufficient difference to warrant two specific names, both plants received under the above names coming so very near E. graminifolius as to make confusion worse confounded. E. serpyllifolius has Thyme-like foliage in dense tufts, producing numerous purple, Bluebell-shaped flowers. E. tenuifolius, E. Kitaibeli, E. caricinis are all worth notice, and should be included in all rich collections of alpines.

The slender New Zealand Bluebell (W. gracilis).—This seems to be even a more variable species than the one figured, and is by some taken as the type which includes W. saxicola as a variety, and Robert Brown remarks that they are closely allied, however different they may look. This species, however, differs from the next conspicuously in its much branched stems, usually prostrate, and narrow toothed leaves covered with hairs. W. gracilis is figured in the *Botanical Magazine* as Campanula gracilis (t. 691). It is extremely variable in the degree of branching, in the situation of the leaves, their serration, and hairiness. A perennial with square, hairy, much branched stems, the leaves mostly opposite, very narrow toothed, and hairy. The flowers terminal, solitary, usually erect, but nodding while in bud, blue, large, and very attractive, flowering all through the summer. The varieties are stricta, littoralis, capillaris, and polymorpha. New South Wales. Introduced and

* Drawn for The Garden by H. G. Moon, in the Royal Gardens, Kew, July 14, 1888. Lithographed and printed by Guillaume Severeyns.



NEW ZEALAND BLUE-BELL (WAHLENBERGIA SAXICOLA

flowered by Mr. Curtis in the Botanic Garden, Lambeth Marsh.

The Bluebell of Otago (W. saxicola).—This beautiful species, which will be found in the accompanying coloured plate, was introduced many years ago to English gardens, and figured in Hooker's "Icones Plantarum" (plate 818) under the name of W. albo-marginata, owing to some supposed difference in the leaves from those of the plant originally described. The following note accompanies the figure: "No species like it has been anywhere described. A nearly allied one has been published in the 'Flora of New Zealand,' but having angular scapes almost invariably and entirely leafless, with the radical leaves everywhere quite glabrous, scarcely, if at all, thickened at the margin, and the margins never white." It has been decided, however, to be merely a form of the above species, which seems to be a very variable plant, some with leafy, others with leafless stems, and other modifications. Indeed, anyone who has studied our native Bluebell will readily understand how the above plant may vary from the lower leaves being stalked to their becoming elongate, acquiring a branched leafy stem bearing few or many flowers. Although cultivated in many gardens and generally admired, it does not seem to have been largely distributed, and it is questionable whether it has yet found its way into the trade—at least I am told it was not to be bought a few years ago. This seems curious, as its entire hardiness, even in exposed situations, is undoubted, and its rare beauty, when allowed to establish itself thoroughly by seeding about, is unequalled, in our opinion, by any other plant of similar habit in the Bluebell family. One of its chief and most useful characteristics is the length of time it continues in bloom; beginning in June, it continues until the severe frosts set in towards November, and in such an open season as the present it is full of bloom now. We have tried it as a pot plant in cold frames, and, unless in the dead of winter, it flowered continuously. As a greenhouse plant it is easy to conceive its flowering all the year round, and that with no more attention than is usually given to plants of a herbaceous nature. The different forms vary in the size as well as the colour of their flowers, the one figured being amongst the best, almost pure white, but for the pale bluish lines as shown in the plate. The other form most common is a deep blue one, but the flowers are smaller, and it is altogether too much like a dwarf Campanula. W. saxicola, as may be gleaned from the above, makes a handsome rock plant, and when left undisturbed and allowed to shed its seeds freely about, gives the cultivator no trouble worth speaking about, and yields such a profusion of bloom as to make a highly attractive picture. It can also be readily increased by division of the roots. It is a native of the mountains of New Zealand and Tasmania. D. K.

Fruit Garden.

FORCING STRAWBERRIES.

Where ripe Strawberries are expected by the end of February or early in March, no time should be lost in looking over the earliest layered plants of Vicomtesse Héricart de Thury and La Grosse Sucrée Strawberries, and selecting therefrom a good batch of those having the plumpest crowns for forcing. These plants should then be taken to the potting-shed, have the drainage examined, the bad leaves and a little of the surface soil removed, and some pulverised horse-droppings and sound loam, in the proportion of three-parts of the latter to one of the former, added as a top-dressing. The pots should then be plunged slightly in a bed of new leaves, within a few inches of the glass, in a pit where a night temperature of from 45° to 50° can be maintained. Give sufficient water to settle the soil, after which further supplies will probably not be required more than once before the flower-spikes appear. This they will do in a few weeks, provided the plants had been well grown and the pit kept close. The pots should then be washed and placed on the shelves near the glass in the forcing house. It is not desirable that a blank should occur in the supply of ripe Strawberries from the time the first dish is sent to table until the fruits can be gathered out-of-doors towards the end of June; therefore a fresh batch of plants should be prepared and started, as indicated above, every week or two, according to the demand for and the accommodation provided for the forcing of the same.

Temperature.—In the forcing of fruits, like plants and vegetables, the cultivator should first consider the most favourable conditions under which the best examples are naturally produced out-of-doors, noting the maximum and minimum temperatures prevailing during the various stages of the plant's growth. These temperatures should be aimed at, varying them a little, if need be, to suit the other occupants of the house. Thus a night temperature of from 45° to 50° while the plants are in flower, and 10° higher by day, with fire-heat, will be ample, running it up 10° higher with sun-heat, but during the interval from the setting to the ripening of the fruit the night temperature should be gradually increased to 60°, or higher if necessary, with a corresponding rise in the day temperature.

Cropping the plants.—This matter requires both judgment and decision on the part of the cultivator. As the plants come into blossom, a camel's-hair brush or a like soft substance should be passed over them about mid-day, when the pollen is dry, to assist them in setting the fruit. This operation should be repeated daily until a good set of fruit is obtained. But on the approach of spring, with an increase of light and sunshine, the brush may be dispensed with, as a good set can be secured without its aid, the hand being passed over the expanded flowers, which will then be plentiful and strong, or a gentle spray from the syringe being enough to distribute the pollen. When the fruit is set, ten or a dozen of the best berries of uniform size should be selected for the crop, so that they may all swell and ripen together, thereby enabling the fruit to be gathered and the plants hardened off if required for future use. Having selected the best berries, leaving a few more or less according to the strength of the plants, pick off all the superfluous fruit and flower-spikes that show between this and the ripening of the crop as soon as they appear, so as to direct all the strength of the individual plants to the swelling and ripening of fine large fruits.

Atmospheric moisture and ventilation.—There cannot be any hard-and-fast line laid down as to the distribution of moisture in forcing houses, for, like the admission of fresh air, it must be regulated in accordance with the weather, temperature of the house, and the stage of growth of the occupants. Strawberry plants started under the influence of fire-heat should be syringed once or twice every day until they come into flower. Then a rather dry and buoyant atmosphere should be maintained until the fruit is set, when the syringe should again be brought into use, using it, however, sparingly and with judgment in dull weather. Should the houses in which Strawberries are being forced be air-tight, it will be better to leave a little air on at night when the plants are in flower, and again when the fruit is ripening, and to ventilate freely during the day, weather permitting.

Watering the plants.—Upon the manner in which this important operation is carried out depends in a great measure success or failure in the culture of plants in pots. When the plants require water at the roots give sufficient to moisten the whole ball of earth and roots, and from the time the plants send up their flower-scapes until the fruit begins to colour they should have some fertilising agent applied in a liquid state alternately with clean water. Care, however, should be exercised in watering the plants not to pour it indiscriminately over the fruits and crowns, but to pour it in at the side of the pot. The same care should be observed in the application of liquid manure. This, though answering the same purpose in swelling the fruits to large dimensions, does not impart the same bright colour to the fruit when ripe as results from the use of artificial manures, either applied as a top-dressing before giving clear water at the roots or in a liquid state. A vigorous and well-directed use of the syringe and clean water should keep both red spider and aphis in check. However, as regards the latter, it will be advisable to fumigate the plants lightly on two successive evenings before the blossoms open and again after they have set, which will rid the plants of these pests should the syringe fail to dislodge them. President and Sir Joseph Paxton will make a good succession to Vicomtesse Héricart de Thury and La Grosse Sucrée. The fruits of the two varieties first named, packed individually in soft leaves in shallow drawers enclosed in strong boxes, travel better than those of any other varieties I am acquainted with. H. W. Ward.

Longford Castle.

High colouring of Apples.—In The Garden, Dec. 1 (p. 516), "A. D." says, "Madresfield must be exceptionally favoured with sunshine to secure the high colour in the Apples shown at the Chiswick conference." Be this as it may, I decline to accept the theory, but am more inclined to the idea that other causes, more especially to the influence of stock *v.* scion, contributed to the aforesaid results, seeing that these our highest coloured Apples were grown on dwarf bush trees worked on Crab stocks that had been twice transplanted, and occasionally since, previous to being grafted. It is thought these trees will not require further transplanting for several years, and even if they do, the labour is not nearly so formidable as may be thought. In transplanting we carefully preserve the long tap root of the yearling Crab, and equally as carefully replant. By bringing the tap root into a horizontal position, a complete network or wig of fine feeding roots is secured without impairing the constitution of the stock. Looking at the extraordinarily high colour found in nearly all common Crab Apples, does it not seem feasible for the Crab stock to exercise certain influence over the offspring of the scion so grafted on to its foster parent? whereas it is only stocks raised from the pips of these inferior cider kinds of Apples that possess sufficient vigour and that hardy constitution necessary to graft upon, but which if not budded or grafted would in ninety-nine cases out of 100 produce worthless Crab Apples. Our experience of stocks raised from high quality Apple pips is, that they lack the necessary vigour, become mildewed, and absolutely refuse to grow freely.—W. Crump, *Madresfield Court.*

Smearing fruit tree stems.—I have seen but little evidence in this locality of the sort of tar and grease smearing of fruit tree stems alluded to by "W. C.," but it may be common in some other districts. The most objectionable form of smear, if the term is applicable, which I have noted occasionally in orchards is the whitening of the stems of trees up as high as a man can reach with some lime-white mixture, the avowed object being to destroy both confervæ and insects. Very likely the object sought is obtained if the wash be of fresh lime, but the result is that the tree stems bear a ghostly aspect for months afterwards; indeed, all the trees look unsightly and ridiculous. Whenever it may be thought desirable to dress tree stems for the purpose named, a mixture or wash will be quite as efficacious if some cow manure or clay be added to give the wash the colour of the tree stems, and the infusion of half a pint of paraffin to three or four gallons of the mixture will help the dressing without harming the bark of the trees. When in this district hares were fairly plentiful and did tree stems considerable harm, it was the custom to dress the stems some 2 feet in height with vegetable tar, this proving efficacious without harming the trees. Paraffin water, or indeed any noxious mixture harmless to the trees, will answer the same purpose. Hares are now such rarities here, that coating tree stems seems to be seldom performed. Without doubt free cultivation of the soil about the roots of the trees, allied to occasional dressings of manure, not only helps to ward off confervæ and other bark parasites, but also insect pests of all sorts. The leaf roller moth, the greatest insect enemy to fruit trees, is much less

abundant where the soil about the trees is frequently forked than when the soil is rarely moved. Deep forking about fruit trees proves to be doubly advantageous.—A. D., *Middlesex.*

—— Noticing "W. C.'s" article in The Garden (p. 501) on smearing stems of fruit trees brings to mind a circumstance which came under my notice a few years ago. A friend of mine bought about 500 young Apple trees to renovate an old orchard and to plant a new one. The trees were planted with great care, and commenced to grow freely, but some were much infested with American blight and scale. Unlike the lady mentioned in "W. C.'s" article, he came and asked my advice before trying any experiments himself. I recommended the use of soft soap at the rate of half a pound of soap to three quarts of water, with which he painted the branches and stems of all the trees in November, going over the infested ones twice in the following spring. Previous to the first painting, the trees infested by American blight were carefully pruned, removing most of the diseased branches and burning them on the spot. The trees were closely watched the following summer, and any spot where the American blight made its appearance was given an application of the soap water. The following winter the trees were thoroughly dressed again, and the last time I saw them, which was three years after the last dressing, there were neither blight nor scale to be seen, and the trees were healthy and growing well. I have no doubt a similar application would answer equally well with the larvæ of the winter moth. I quite agree with "W. C." that the use of tar and also of paraffin should be discouraged, as both are highly injurious and great damage is often done by the use of them. I have seen sad mistakes made with them amongst Vines and plants.—J. H.

DEFECTIVE FERTILISATION OF MUSCATS.

I have a house of Muscat Vines which produce bunches which, if they were to set well, would average over two pounds each; but they do not, and I would like the advice of Mr. Coleman in the matter. The roots have the run of inside and outside borders, which were well made about twenty years ago and appear in perfect condition now, the soil being full of roots. The inside border is not so full of roots as the outside one, which is completely matted quite to the surface. I keep the outside border well mulched with long litter. I maintain a night temperature of from 65° to 70° when the Vines are in flower, and a day temperature of 70° to 75° with a rise to 80° or 90° from solar heat. I have tried dusting the bunches with Hamburgh pollen, but have not observed any benefit from it. I keep the house dry when the Vines are in flower. If I try syringing I would like to know at what hour of the day it should be done, and whether gently or with force. T. B.

North Devon.

*** In every particular save one, the flowering period, "T. B." has most clearly stated his case, so concisely indeed that I have peculiar pleasure in giving an outline of the treatment to which I should subject the Vines in question. Notwithstanding the fact that the external border is literally matted with fibres, I should first of all satisfy myself by a careful examination that strong roots in the course of twenty years have not got away into a cold, crude, or possibly a dry subsoil, a condition which may be pretty well tested by the way in which the berries colour and keep after they are ripe in the autumn. As this liberty whilst forcing a strong growth and large shows would militate against a good set, much as one dislikes disturbing a mat of fibres, the first imperative step would be working inwards from the front of the border just far enough to catch and cut the truants above the surface of the drainage. The internal border less full of roots I should regard with still stronger suspicion, as it is quite certain that they must have gone down in search of moisture which may have been withheld when they required it; they may be dead, or, equally likely, they may have turned out to feed on ammonia from the stable litter and the copious rainfall of North Devon. Having satisfied myself that the outside and inside roots are in good condition, or employed myself in placing them under control in good compost, I should next ascertain if they have been too sparingly supplied with water, a very important element where borders are literally eaten up with roots. These points cleared up to my satisfaction, a great anxiety would be removed, as I should then know partial sterility might be due to slight mistakes or mishaps in matters of internal detail. In this respect, however, "T. B." seems to have worked on rational lines, as 65° to 70° by night and 80° to 90° from solar heat say at mid-day, all other matters being right, should ensure a good set of Muscats in a light and properly furnished vinery. But following my own course, were the house in question placed under my charge, I should say prune before the 1st of January, and keep these ungrateful Vines as cool as possible until they show signs of breaking naturally towards March. When this stage is reached give the internal roots a good soaking with soft water at a temperature of 90°, and introduce a body of warm Oak leaves to raise the temperature of the border to 60°, for, much as we may value a profusion of roots, they are of little use unless they are active and capable of supplementing the stored-up sap long before the time arrives for fertilising the berries. Mild fermenting leaves being plentiful, I should say turn off the winter covering of litter, face the external roots with a good body 12 inches to 18 inches in thickness, restore the litter to keep the leaves in position, and allow this covering to remain until the wood is ripe in the autumn. With this gentle aid from the leaves, supplemented by the hot-water pipes, the house may be kept 50° to 56° at night, 56° to 60° by day, rising 10° from sun-heat until all the buds are thoroughly on the move; but as soon as the bunches become prominent, rub off all weak shoots, discontinue or greatly modify daily syringing, raise the temperature 5° at night and the same through the day, to draw them out and let the minimum heat touch 70° by the time they come into flower. Prior to their arrival at this stage divest each shoot of all the bunches but one, naturally the most promising, stop it at the second joint to throw force into the bunch during the time it is in flower, but do not be too hard on the laterals until the berries are set.

When flowering becomes pretty general, discontinue the daily forking over of the leaves; not so the damping of the walls and floors with warm water when the sun is shining, as moisture at this time supports and feeds the delicate organs now perfecting the pollen. Let the temperature range from 70° in the early morning, 80° to 85° through the day, 10° higher with the sunheat and 75° when the fires are banked for the night. If the fermenting leaves have started the roots into action and the borders are comfortably warm, a steady circulation of air, rendered light and buoyant by fire heat, will ensure a good set, but, knowing the Muscat to be a capricious Grape, the bunches should be carefully fertilised with Hamburgh pollen from day to day when the temperature has reached the maximum. A camel's-hair brush plied with a light hand and constantly replenished from the Hamburgh Vine or store of preserved pollen is the best instrument for carrying the pollen to the stigma, as it removes any viscid matter without injuring the point of the tiny berry, as sometimes happens when the moist, warm hand is drawn down the bunch. Simply dusting the bunch with pollen, the plan adopted by "T. B.," is hardly sufficient, as, independently of the waste, only a few of the berries or flowers upon each bunch may receive the grain of pollen, whilst the natural pollen, unless the weather is very bright, requires setting at liberty. If "T. B." tries syringing, the water, equal to the maximum temperature of the house, should be plied with a gentle hand through a fine syringe not later than noon on fine days, but the majority of Grape growers question its efficacy where the fruit would not set quite as well without this aid. The main points in setting all Grapes are warm healthy borders well filled with active roots, careful management of the temperature and atmosphere of the house, a free circulation of air, the avoidance of cutting draughts, a mean temperature somewhat higher than is requisite through any other stage, especially through the day when the pollen is most active, and last, but not least, an element which all men desire, but none can command, an abundance of bright, but soft sunlight.—W. C.

STANDARD PEARS FOR BRITAIN.

1. BEURRE SUPERFIN.
2. MARIE LOUISE.
3. DOYENNE DU COMICE.
4. WINTER NELIS.
5. JOSEPHINE DE MALINES.
6. EMILE D'HEYST.
7. GLOU MORCEAU.
8. THOMPSON'S.
9. BERGAMOTTE D'ESPEREN.
10. ALEXANDRE LAMBRE.
11. NOUVELLE FULVIE.
12. OLIVIER DE SERRES.
13. COMTE DE LAMY.

Early Pears.—Citron des Carmes, Doyenné d'Ete, Williams' Bon Chrétien, Beurré Giffard, Jargonelle, Seckel.

Cooking Pears.—Catillac, Uvedale's St. Germain, Gilogil, Bellissime d'Hiver.

Perry Pears.—Taynton Squash, Thorn Pear, Barland, Yellow Huffcap, Moorcroft, Longlands, Chaseley Green, Aylton Red, Red Pear, Rock Pear, Dymock Red, Oldfield Butt, Holmer, Red Pear, Rock, Bosberry Scarlet, Lumberskulls Marden.

Our readers will remember that last year we raised the question of the needless number of Pears, and the necessity of confining ourselves to the best kinds if we are to have the best results. Many articles and notes on the subject appeared last year. Our list stands as above. The list will always be open to improvement, but not to great increase of number. We shall always be glad to hear of or see fruits of high merit not included in the above, also local fruits, of which there are probably some very good ones. Faults, too, of any of the above which warrant their exclusion from the standard sorts may be considered. We shall attempt the engraving of fair specimens of all the series, but to get them well done in photography is very difficult. The list is not, it will be seen, one for the seasons. The first aim is to fix attention on Pears of the highest quality.

Bottling Grapes.—I have a house of good late Grapes which I intend bottling. I understand they must be kept cool and dry, and that shade is essential; but is it absolutely necessary they should be kept in the dark? An answer through The Garden will oblige.—A. B.

*** If your good Grapes are quite ripe and the Vines clear of foliage, cut and transfer them to the bottles before the end of the year. Keep them in a dry, cool temperature, ranging about 45° when the weather is mild, and 5° to 7° lower should gentle firing be found necessary. Indirect or side light will do them no great harm, but direct light from skylights is highly objectionable. Knowing how quickly light takes the colour out of ripe black Grapes, it is only reasonable to suppose the effect to a certain extent will be the same after they are bottled. Avoid, then, as much as possible full exposure even during the dull, dark days of winter, and more especially in the early spring when the sky becomes clear and the sun begins to shine brightly. Another reason why all good growers prefer keeping their Grapes in the dark may be given. An equable temperature and a dry atmosphere must be maintained at any price. Glass which admits light is thin and porous; it lets in warmth when the sun shines, cold when the external temperature ranges low, and condenses moisture when a change follows. If these fluctuations go on for any length of time the Grape room secret is destroyed; hence the advantage of rendering the windows as impervious as other parts of the building to the

ingress of warmth, cold, or moisture by padding, double glazing, or stout close-fitting shutters. If you have not already made yourself thoroughly acquainted with the editor's chapter on "Bottling Grapes" in his "Parks, Promenades, and Gardens of Paris," lose no time in doing so. The book should be in the hands of all English gardeners.—W. C. [We hope to give an article on this subject in the course of a week or two.—Ed.]

THE HARDY FRUIT GARDEN.

Although the best half of the season for planting hardy fruit trees has gone by, and a period covering at least two months of dead cold weather must elapse before this work is resumed, the busy practitioner may find full employment for all hands whenever they can get upon the ground. Pruning and training in large gardens form a heavy and not unfrequently a chilling item, but these operations must be faced out by those whose lot it is to spend many hours from day to day against cold brick walls, especially when advantage is not taken of the mild open weather which follows close upon the fall of the leaf. Here we commence with Currants as soon as the leaves are ripe, vary the work by washing the trees with soapsuds, dressing the ground with quicklime, top-dressing and lightly forking the surface. Raspberries come next, and as these require supports, the stakes are prepared under cover on wet days, placed in position when the weather is favourable, and the canes, after being well thinned, are tied up, but not beheaded, as we sometimes suffer severely from spring frosts, and find the best and ripest buds can be retarded for a week or two by deferring this operation until the sap begins to rise. Some imagine that the canes are weakened by this delay, but I do not think it makes any difference to the quantity or quality of the crop, and seeing that the Raspberry is herbaceous, I question if the removal of the superfluous canes of the current year might not be left over until the spring. Old canes, of course, are cut out as soon as the crop is over, first, to let in sun and air; and second, to get rid of litter before the top-dressing is applied to the stools or rows as the case may be, but on no pretence whatever is spade or fork put into the ground so long as the crop remains. Plums on walls follow close upon Raspberries, and as these require annual spur-pruning to keep them close at home and thorough drenching of soapsuds, their proper manipulation takes up much time. They are, however, worth it, as all admit that Plums, next to Apples, form the most profitable hardy crop grown, whilst some are so enamoured of choice dessert varieties that they cannot extol them sufficiently. Quite recently a correspondent who would have us live on this fruit, libelled late Peaches as a sort of set-off to his statement that the best walls in our gardens might be better occupied if planted with choice Plums. All fruits are improved by full exposure to sun and light, but the Plums coming so early into flower, we find from long experience that west walls in good average situations not only ripen Golden Drops and late Gages perfectly, but being shaded from morning sun they escape spring frosts, whilst on south aspects they require more protection than we give to Peaches. By all means let us have Plums early and late, and the best of all other fruits in profusion, and then there will be room for late Peaches of excellent quality. I have said that Plums should be spur-pruned to keep them within reasonable distance from the wall, for if this is not done they lose the influence of reflected heat, and at the same time look untidy. When the trees have been neglected for a number of years partial spur-pruning will not restore them, but here even there is a way out of the difficulty, as we have cleared all the spurs off every branch, with the exception of one or two at the extremities, and they have refurnished by the end of the second season. Old Apricots and Pears may be treated in the same way, that is, provided the trees are sound and in good health and the roots are satisfactory. Spur-pruning, indeed in old gardens is an operation which requires more attention than is given to it, especially where insect pests hold vested rights, and a profusion of puny blossoms set an abundance of fruit as deficient in size as it is in flavour. Where time admits wall Plums should be detached and well washed so soon as they are nailed in again; but lacking the strength, few there are who cannot find ways and means for giving the trees and walls repeated drenchings with soapsuds from the garden engine. Trees loaded with Lichen, a most excellent refuge for insects, may be cleaned in a single winter, whilst for every hour devoted to winter washing, days will be saved in the spring, when the best directed efforts do not always prevent the young wood and tender fruit from being crippled by aphis. Continuing my remarks, I may say the pruner should proceed from Plums to Cherries, but instead of spurring in the sweet or dessert varieties, especially where the soil is cold and the trees are subject to gumming, the main branches should be kept a good distance apart to admit of laying in an even spread of shoots of the current year between them. Wall Cherries which can be grown on the extension principle, and do not receive much, if any, animal manure, as well as large standard trees planted on warm hazelly loams, do not often gum, whilst others that are overfed and hard pruned exude gum at almost every spur and fork, and soon pay the debt of Nature. Lifting and relaying the roots in good fresh loam to which a plentiful supply of old mortar has been added, checks gumming for a time, but once the trees get out of order returning vigour brings back the disease, when a cold wet summer carries them past recovery.

Morellos pruned and trained, as we prune and train Peaches, do not often gum, but then they are hardier than sweet Cherries, and so they had need be, for, taken all in all, few fruit trees are so hardly treated. The aspect considered good enough for the Morello faces due north or possibly east, the drip from the coping generally falls upon their stems and roots, and very few growers think of thinning, no matter how heavy the crop of fruit may be. All this good nature on the part of the trees is placed to the credit of their extreme hardiness, but pruning, or rather the system of pruning and laying in plenty of young wood, or allowing it to grow away from the wall throughout the summer, whilst enabling them to take liberal supplies of food and water, has much to do with their health and fertility. But why confine Morellos to north walls? Why not take a leaf out of the Plum champion's book, and give a tree or two a better site? They need not occupy the post of honour on a south wall, as they would do equally well, if not better, facing west, whence very fine fruit might be gathered early in the autumn.

Apricots

on the best aspects ripened much later this year than usual, and the fruit was fine, but indifferent in flavour. Lack of solar heat, of course, placed us on a level with Scoth growers, whose Apricots generally run abreast with Peaches, and sometimes lag behind them, but for all this the trees have made a good growth and the buds look promising, two facts which strengthen a statement I have often made to the effect that this tree does not receive half enough water in dry seasons. As few fruit trees perspire so freely, flag so quickly, or cast their buds so profusely, Apricots should have a good root-hold in a border composed of sound calcareous loam which will not soon dry out. But, the better to prevent this, the wall-paths, with drainage beneath them, of course, should not be disturbed; neither should heavy mulching be withheld, as the latter, combined with copious supplies of water, will prevent the feeders from striking down into the subsoil. Borders at the present time are in good average condition, but none too wet to ensure the safety and steady development of the flower-buds; therefore, in order to maintain this, they should be well dressed with old lime rubble, so necessary to all stone fruit trees, and covered with fresh stable litter so soon as pruning and training are brought to a close. A set of most perfect and fruitful trees at Badminton are prevented from sending their roots into the vegetable part of the border by the introduction of broad planks set on edge about 6 feet from the wall, which is at least 16 feet in height. The space allotted to the roots may be likened to an old Cocoa-nut mat; it lies dead level on the surface for the convenience of flooding in summer, and receives a plentiful supply of mulching from the ducal stables annually. These trees a few years ago were voted a complete failure. But then their roots had to make long pilgrimages in search of moisture, which they did not find in sufficient quantity—at least at the right time; now, placed under restraint, the water-barrel with its merry ring administers to their wants; they hold their buds and branches, and are marvels of fertility. When and how to prune Apricots is a matter upon which all are not agreed; but, considering that the Apricot is the first tree in flower, I think November and December, if not frosty, are the best months. Winter pruning, however, is not the heavy business it was forty or fifty years ago; in fact, those who pay attention to disbudding and summer pinching, beyond thinning out and shortening back a few of the old spurs and cutting out faulty branches, find very little to do. That little, nevertheless, should be done well, and as nearly all the varieties fruit most freely upon spurs, next, after a general examination and smoothing over, the knife should be very sparingly used. Unless actually paralysed or dead, the removal of large branches should be avoided, but when this operation does become necessary, a few young shoots of the past summer's growth should be laid in to relieve any particular limb of an extra flow of sap, and at the same time to get the unsightly gap filled up again. Such growths in old trees need but little, if any, shortening, as summer pinching will furnish them their whole length with spurs close to the wall, the best place for ripening their fruit the following year. When young trees make extra vigorous shoots, one is almost tempted to use the knife in winter, but this running away in summer can be checked and balanced by pinching the points out of the strongest, by lifting and relaying the roots early in the autumn. Apricots being so subject to most serious injury from the attacks of the weevil of a small beetle sometimes met with on Vines, and the caterpillar or grub of a small moth which appears with the young leaves, they should be well washed to free them from the eggs before they are nailed in, and the walls, especially if old and full of holes, should be thoroughly drenched with soapsuds. Although these pests are most troublesome after a hot, dry summer and comparatively scarce after a cold, wet one, the position of the trees against dry, warm walls favours the survival of larvæ, which spring into a plague when conditions are favourable, as we have so lately experienced in our Oak and Apple plantations; hence the importance of making the onslaught an annual affair, especially as our home-made insecticide is an excellent stimulant.

Pears,

both on walls and trained as pyramids, may now be pruned and put in order as opportunity offers. Heavy rains from south and west are still driving up against the walls facing these aspects, and we are thankful, as the dry subsoil is still drawing moisture down from the surface. Pears on Quince stocks planted in well-drained borders cannot have too much water during the early season of growth, neither can the roots be kept too near the surface. To ensure these conditions and economise summer labour when all hands are busy, these borders should be well mulched with good manure immediately after the trees are trained, and then, considering the long spells of drought to which we are now subject, they may require an artificial drench after the fruit is set in the spring. In the pruning of Pears the old spurs should be thinned and shortened back more or less every year, otherwise the trees will exhaust themselves in the production of myriads of weak flowers and puny fruits, which means a great deal of thinning in the spring. Some varieties of Pears set their flower-buds at the end of rather long, straight growths, which the practical pruner leaves intact in winter and shortens back where he finds them fruitless in the spring. The old Jargonelle may be taken as the type of this class of Pears, and being very early in flower, these long, straight pieces, where practicable, should be tied in to the main branches

for safety from frost. Others, again, which produce wreaths of spur wood ramifying into numerous flower-buds frequently form two or three buds close to their union with the branches—the best place possible for the formation of a new spur, but robbed by the elongated spurs already too far away from the wall and shaded from the sun, they make very little progress. These, then, are the old spurs, which should be well thinned by cutting back to the incipient buds each winter until the whole of them have been removed, when it will be found that the character of the most ragged trees has been completely changed, and the quality of the fruit from the new set of spurs now close to the wall well repays the time and patience devoted to spur-pruning. Next after spur-pruning comes cleansing, for Pears, like all other fruit trees, have their enemies, including the Pear aphis, the Pear weevil, some moths, the saw-fly, the slug worm, and the Pear tree oyster scale. Others, for their name is legion, might be mentioned, but the remedy for the destruction is fatal to all, and winter is the proper time to apply it. Scale, for instance, first of all should be disturbed by scrubbing with strong soap water, and then fixed by painting with a stiff clay mixture, to which Gishurst compound or soft soap, half a pound to the gallon, has been added. Tobacco water, gas tar, or paraffin, half a pint to the gallon, added to the solution of clay will answer equally well, the secret of success consisting quite as much in sticking the pests as in poisoning them. A good smear or paint of this kind put on in winter will remain well into the following summer, and when it peels or washes off the bark will be found fresh and bright, and quite free from all parasites. War, however, must not end here, as the larvæ of some enemies will be lurking in the loose soil and mulching or in cracks and holes in dilapidated walls. To catch these the loose mulching may be removed and burned preliminary to a good surface dressing of quicklime, fresh loam, and the spring mulch of manure. To cleanse the trees thoroughly they should be detached, and when liberated the cheapest and quickest method of dealing with the walls will be found in the application of a wash composed of soot and oil, toned to an old brick-red by the addition of Venetian red. This wash is most suitable for stone, wood, or parti-coloured brick walls, which may be improved by being reduced to one shade, whilst really good brick walls, to which the application of any colouring matter might be objectionable, can be equally well cleansed by repeated drenchings with good soapsuds. Indeed, where complete unnailing is too great an undertaking, our home-made insecticide is the only and perhaps the best remedy.

Apples.

The pruning of garden Apples, from habit more than any other reason, we invariably leave till the last. Figs and Peaches excepted, trees on Doucin stocks do not grow very fast, but the wood they make is good and fruitful, and finishes from base to tip without being shortened. Were I planting an acre or a few acres of spade ground with Apples, I would select dwarf trees on this stock, but beyond thinning and training to give the young shoots the proper set in a horizontal or slightly rising position, I would allow them to extend to their fullest extent. The greatest enemy the Apple grower has to contend with is the woolly aphis or American blight. There are plenty of washes that will kill all the perfect insects they touch, but one may wash time after time, and still warm weather in spring will bring some to light. We have cleaned young trees against walls even as well as out in the open by means of soapsuds and paraffin, half a pint to a gallon, whilst upon old trees offering more shelter we have plied the same thickened with loam to the consistency of paint, working it well in with a painter's brush until every crack and hole has been quite full of it. If well done, the remnant after a dressing of this kind is very small and feeble, but still the fight must be followed up by close attention with paraffin and water throughout the following summer. Newly purchased trees should always be dressed before they are planted. W. C.

Stove and Greenhouse.

THE CENTENARY OF THE FUCHSIA.

It is exactly a hundred years since the first Fuchsia was introduced into Europe (in 1788), under the name of *Fuchsia coccinea*. Since that time travellers in the mountain regions of tropical America have met with numerous species, of which they have brought home dried or living specimens. A. de Candolle recorded twenty-six species in his "Prodromus;" this number was increased to forty by Dietrich in his "Synopsis Plantarum;" and at the present day we can reckon up a hundred very distinct species. As for the varieties which have been produced by crossing various species in cultivation, it is impossible to form even an approximate estimate of their number. M. Porcher, in the fourth edition of his work on the Fuchsia, published in 1874, describes or mentions more than 300 varieties selected from amongst the finest; and if one could set down the number of all that have been raised it would be something prodigious, few kinds of plants being so readily hybridised as the Fuchsia.



Fuchsia microphylla.

We cannot within the limits of this paper enter into any details either of description or even of names of varieties, a subject that would require a volume or more; but we thought that some of our readers would like to know, in the case of the varieties which they cultivate, from what primitive types they have sprung, or at least to what groups they belong. We therefore subjoin a sketch of the different sections under which authors have classed the species of Fuchsia in the wild state, together with short descriptions of all the species which have been introduced into cultivation.



Fuchsia fulgens.

Different authors have divided the species into different groups. De Candolle classifies them as follows:—

First Section.

Tube of calyx cylindrical or obconical, attenuated above the ovary or compressed; leaves opposite or in whorls, very seldom nearly alternate; ovaries disposed in two rows in each cell.

1. *Breviflorœ.*—Flowers having the (detached) tubular part of the calyx shorter than, or equal to, the lobes; stamens included.

2. *Macrostemoneœ.*—Flowers having the (detached) tubular part of the calyx shorter than, or equal to, the lobes; stamens exserted.

3. *Longiflorœ.*—Flowers having the (detached) tubular part of the calyx two or three times as long as the lobes.

Second Section.

Tube of calyx with a knob-like swelling at the base above the ovary; ovules very small, arranged in no definite order around a central placenta; leaves alternate.

This section contained only a single species (F. excorticata) at the time when De Candolle published his "Œnotheraceæ."

In The Garden for 1877 (p. 70) Mr. B. Hemsley proposed another mode of classification based on the analogies which, with hardly any exceptions, exist amongst all the species of the same country, viz.:—

A.—*American species which have petals.*

Under this section he comprises—

1. The species from Bolivia, Peru, Ecuador, New Grenada, &c., which generally have the tube of the calyx longer than the sepals, the stamens rarely longer than the petals, and the petals frequently shorter than the sepals, but broader.

2. The species from Brazil, which have the sepals as long as, or longer than, the tube, and the stamens much longer than the petals.

3. The species from Chili and Patagonia, the characteristics of which are, in Fuchsia magellanica, referable to those of the Brazilian species; and, in the other species, to those of the Mexican Fuchsias.

4. The species from Mexico and Guatemala, comprising Fuchsias with very small flowers, of which F. microphylla is the type, a small group allied to F. splendens, and the curious F. arborescens.

B.—*American species which have no petals.*

This section comprises Fuchsias, found on the mountains in the N. W. part of S. America, which have no petals and yet have very remarkable flowers—the largest in the genus. These present the appearance of epiphytal plants, growing on rocks and trees, and some of them produce their flowers before the leaves appear, or before they are fully developed.

C.—*Species from New Zealand.*

This section is composed of three or four species, which are distinct from all the American kinds. They have alternate leaves, and no petals or very small ones.

This classification of Mr. Hemsley's, although not based on the scientific principles which are generally observed in sub-dividing a genus, yet possesses the merit of almost infallibly indicating the native country of any of the species of Fuchsia without needing any other distinguishing marks.

Endlicher proposed the following classification which has been adopted by Messrs. Bentham and Hooker in their "Genera Plantarum":—

1. *Eucliandra.*—Flowers polygamous, petals spreading, stamens very short, berries few-seeded.

2. *Fuchsia.*—Flowers bi-sexual, petals rolled up, stamens exserted, berry many-seeded.

3. *Skinnera.*—Flowers bi-sexual, petals small, seeds very small. New Zealand.

Following the classification of De Candolle, we shall now rapidly review the species which are grouped under each paragraph.

First Section.

I. Brevifloræ.—This group, which corresponds to part of Mr. Hemsley's third and fourth paragraphs, is composed of small-flowered Fuchsias, which are nearly all in cultivation.

(a) *Species in cultivation.*

F. microphylla (H. B. K.).—A charming shrub, on account of its diminutive size, its numerous divaricated branches, and the tiny red flowers with which it is profusely covered when in bloom.

F. lycioides (Andrews).—One of the oldest introduced species, brought home from Chili by Menzies about the year 1796. It has now almost gone out of cultivation.

F. thymifolia (H. B. K.).—A species allied to microphylla, but of much less account. It is distinguished from microphylla by its pubescent leaves, which are hardly toothed, and by its greenish sepals.

F. bacillaris (Lindley).—A pretty little species with flowers of a lively rose colour, the petals of which are very broad in comparison with the sepals.

F. cylindracea (Lindley), the name of which sufficiently indicates the shape of the flowers.

F. acinifolia (Scheidweiber).—A very small-leaved species, introduced about the year 1840, and now lost to cultivation.

(b) *Species not yet introduced into cultivation.*

F. tetradactyla (Lindley).—Guatemala.

F. Notarisii (Lehmann).—Mexico.

F. spinosa (Presl).—Chili.

II. Macrostemoneæ.—In this group are comprised a small number of cultivated species. It is rather poorly represented in the wild state.

(a) *Species in cultivation.*

F. magellanica (Lamark), *macrostemma* (Ruiz and Pav.).—The species which was first introduced under the name of F. coccinea. Several wild or natural varieties of this have been described as species by various authors, and as such have been cultivated far and wide. Such are

F. conica (Lindley).—So named from the form of the calyx.

F. globosa (Lindley).—So named from the globular shape of the flowers when in bud. According to Don (whose view is quoted by Mr. Hemsley on p. 72 of The Garden for 1877), this Fuchsia would be the progeny of F. conica. It is possible, if it is only a variety that it has been raised accidentally, but it occurs in the wild state. According to some authors, it has been found in Chili, and we ourselves met with it in May, 1876, near Ipiales, in New Grenada. It is the only form of F. magellanica that we have observed in the wild state. There are, therefore, strong reasons for believing that it is not a case of hybridism, and the constancy of its characteristics will perhaps ultimately cause it to be unanimously recognised as a distinct species.

F. discolor (Lindley), *F. gracilis* (Lindley), and its variety *F. decussata* (Ruiz and Pav.), *F. recurvata* (*Botanical Magazine*), and *F. araucaria* (Philippi) are also considered to be spontaneous varieties of F. magellanica, the hybrids of which raised by cultivators are now innumerable.

F. coccinea (Ait.).—A Brazilian species figured in the *Botanical Magazine*, t. 5740, which was for a long time confounded with F. magellanica.

F. arborescens (Sims.) resembles anything but a Fuchsia. F. racemosa and F. syringæflora are varieties of this species, which is a native of Mexico.

F. alpestris (Hooker), imported from Brazil, is a large-leaved species, but the flowers are not very brilliant. Rare.

F. paniculata (Lindley).—Allied to F. arborescens, and introduced into Europe from Guatemala in 1856. It is not much cultivated.

(b) *Species not yet introduced into cultivation.*

F. ovalis (Ruiz and Pav.).—Peru.

F. pubescens (Saint-Hilaire)—Brazil.

F. integrifolia (Camb.); *F. pyrifolia* (Presl).

F. radicans (*Botanical Register*, 1841, t. 66).—Brazil.

F. verrucosa (Hartweg).—New Grenada.

III. Longifloræ.—This, the most numerous group of all, is in great measure composed of the Fuchsias of the N.W. region of South America, and almost exactly corresponds to Mr. Hemsley's first section, and to the sub-genus *Fuchsia* of Endlicher.

(a) *Species in cultivation.*

F. corymbiflora (Ruiz and Pav.).—A species with large leaves and terminal clusters of flowers of a uniform dark red colour. A variety with white flowers has been raised.

F. boliviana (Roezl).—A species allied to F. corymbiflora, introduced into England twelve years ago, and of which nothing is known very precisely.

F. fulgens (Sesse).—A brilliant Mexican species with large toothed leaves and long vermilion-red flowers, pendent from the ends of the branches.

F. dependens (Hooker).—Allied to F. corymbiflora, but with smaller leaves, which are disposed in whorls of four.

F. apetala (Ruiz and Pav.).—A species whose flowers have no petals; not so handsome nor so well known as the following one.

F. macrantha (Hooker) was found in Peru by Mathews, and in Colombia by Lobb, who sent it to Europe. Its flowers, which are devoid of petals, have a very long calyx of a dark purplish red colour, and rank amongst the handsomest. Unfortunately, the plant is tender.



Fuchsia splendens.

F. petiolaris, H. B. K. (*miniata*, Planchon and Linden)—A native of New Grenada; has axillary flowers, with a light purplish vermilion calyx and small petals of a red-lead colour.

F. venusta (De Candolle).—A species allied to the preceding one, with wavy petals of an orange-vermilion colour. Found by Humboldt and Bonpland in New Grenada.

F. serratifolia (Ruiz and Pav.).—A handsome shrub, with axillary flowers of a lively carmine-rose colour. This Peruvian species has supplied our gardens with numerous varieties.

F. spectabilis (Veitch).—Introduced from Ecuador about the year 1848, and remarkable for the length of its flowers, the tube of the calyx being nearly 4 inches long, and of a purplish red colour; petals spreading, vermilion-red.

F. splendens (Zuccarini)—A Mexican species, which has the calyx-tube very much compressed at the base, and of a purplish red colour; sepals green, petals yellowish.

F. cordifolia (Benth.).—Found by Hartweg in Guatemala and introduced by him into Europe. Allied to F. splendens, from which it is distinguished by its cordate leaves and its longer flowers.

F. penduliflora.—A species recently introduced, with flowers in axillary and terminal clusters, calyx-tube crimson tinged with maroon.

F. sessilifolia (Benth.).—A handsome shrub, with long clusters of pendent flowers, and oblong, lanceolate, sessile leaves. Native of Colombia.

F. simplicicaulis (Ruiz and Pav.).—A species which comes near F. corymbiflora and F. dependens. Calyx-tube of a lively rose colour, petals cochineal-red.

F. triphylla (Lin.).—The oldest known species of Fuchsia. Flowers axillary and in terminal clusters of a uniform cochineal-red colour. Leaves in whorls of three.

F. caracasensis, Gardn. (*F. nigricans*, "Flore des Serres"), is no longer in cultivation.

(b) *Species not yet introduced into cultivation.*

F. confertifolia (Gardner).—Peru.

F. Hartwegi (Benth.)—Near Huambia.

F. hortella (H. B. K.).—Colombia.

F. sylvatica (Benth.)—Ecuador.

F. umbrosa (Benth.)—Ecuador.

F. canescens (Benth.).—Colombia and Peru.

F. scabriuscula (Benth.).—Peru.

F. agavacensis (H. B. K.).—Peru.

F. ampliata (Benth.).—A superb Peruvian species.

F. quindiuensis (H. B. K.).—Quindio.

F. longiflora (Benth.).—Andes of Quito. Rare. A very handsome species.

F. loxensis (H. B. K.).—Peru.

F. corollata (Benth.)—Colombia. A very ornamental plant.

F. curviflora (Benth.).—Colombia.

F. denticulata (Ruiz and Pav.).—Peru.

F. insignis (Hemsley).—Ecuador.

F. hirsuta (Hemsley).—Peru.

F. memlezanacea (Hemsley)—Caraccas.

F. salicifolia (Hemsley).—Peru.

Second Section.

In this section only one species was known for a long time. This was cultivated under the name of *F. excorticata*. Its odd-looking flowers being more curious than attractive, it has now fallen out of cultivation, or nearly so. A second species was subsequently added, under the name of *F. procumbens*. This, like the other, is only interesting as a curiosity. Both are natives of New Zealand. A form intermediate between these two, also a native of New Zealand, and named by Hooker *F. Colensoi*, has not been as yet introduced into Europe.

This last-named Fuchsia closes the list of the known species.

While travelling through the mountain regions of South America, which is pre-eminently the native country of the genus, I fell in with a number of the species above-mentioned, and made a plentiful collection of specimens of as many as twenty-two of them. Of these species sixteen had been already found by travellers

who preceded me, two are new kinds, and four, the specimens of which are imperfect, have not yet been determined. I succeeded in collecting *all* the species discovered by Humboldt and Bonpland in their memorable expedition, and also many of the species observed by Hartweg.

The following is a list of the species collected by me :—

F. corollata (Benth.).—Numerous stations in Ecuador and Colombia.

F. venusta (H. B. K.).—Between Villeta and Fucatativa; also in Colombia.

F. caracasensis (Field and Gartner).—Alto de San Juan and Salento, Colombia.

F. dependens (Hooker).—Near Pasto, Colombia.

F. agavacensis (H. B. K.)—Numerous stations in Ecuador and Colombia.

F. *triphylla* (Lin.) —Central Andes of Ecuador.

F. sessilifolia (Benth.).—Buenavista, Colombia.

F. globosa (Lindley).—Ipiales, Colombia.

F. scabriuscula (Benth.).—Corazon, Mindo, Ecuador.

F. hirtella (H B. K.) —Mediacion, Colombia.

F. verrucosa (Hartweg). — Fusagasuga, Barroblanco, Colombia.

F. quindiuensis (H. B. K.).—Alto del Tabano, Colombia.

F. ampliata (Benth.).—Corazon, Mindo Tuza, Ecuador.

F. longiflora (Benth.).—Mindo, Ecuador.

F. corymbiflora (Ruiz and Pav.).—Alto San Antonio, Colombia.

F. petiolaris (H. B. K.).—La Ceja del Quindio, Ibagué, Colombia.

F. vulcanica (Ed. André, sp. n.).—Branches, leaves, and peduncles covered with a dense, short, white, bristly pubescence. Branches roundish, with short joints. Leaves sessile or sub-sessile, ternate or quaternate, elliptical or oboval, shortly pointed, loosely toothed. Flowers not numerous, solitary, axillary; peduncle short (about half an inch); ovary oblong, bristly. Calyx of a cochineal-red colour, bristly (especially in the young flowers); calyx-tube slightly curved, gradually widening from the base up, and about 1¾ inches long; sepals oval-triangular, acuminate, three-fifths of an inch long and nearly one-fourth of an inch broad at the base. Corolla glabrous, of a lively vermilion-cerise colour; petals rounded, suborbicular, one-third shorter than the sepals; stamens and style projecting. Volcan de l'Azufral, Colombia.

From the characters of its flowers this Fuchsia comes next to F. ampliata, from which it is distinguished by the remarkable pubescence on its branches, leaves, &c., which is perhaps unique in the genus Fuchsia; also by its sessile leaves and various other characteristics.

F. Scherffiana (Ed. André, sp. n.).—Branches rounded, covered with fine stiff hairs; leaves opposite or ternate, leaf-stalk about two-fifths of an inch long, and covered with short stiff hairs; blade of fully-developed leaf lanceolate-oblong, acuminate, about 4 inches long, nearly 2 inches broad, very faintly toothed, ciliated, bearing short hairs on the mid-rib and veins on the upper surface, and on the mid-rib on the under surface, the other parts being almost glabrous. Flowers not numerous, solitary, axillary; peduncle slender, nearly half an inch long, covered, like the ovary, with short hairs. Ovary oblong, about one-third of an inch in length. Calyx almost glabrous, and of an orange-red colour; calyx-tube nearly 2 inches long, narrow and cylindrical from the base up for more than one-third of its length, then gradually widening and again becoming cylindrical; sepals oval-lanceolate, long-pointed, two-fifths of an inch long and nearly quarter of an inch broad at the base. Corolla of a cochineal-red colour; petals oblong-elliptical, with a rounded cuspidate apex, and somewhat shorter than the calyx; stamens and style projecting.

This species is intermediate between F. petiolaris and F. triphylla, from the former of which it is distinguished by its rather short-stalked and very much elongated leaves, by its ovary being oblong (and not almost globular), by its narrower sepals, and by its petals being glabrous (those of F. petiolaris having a few hairs scattered over them). It differs from F. triphylla in having the leaves more elongated in shape, and the flowers few in number, of larger size, and not produced in clusters at the ends of the branches.—E. André, in *Revue Horticole.*

Heliotropes in winter.—It is surprising how seldom Heliotropes are employed for supplying cut blooms during the early winter months. There is nothing nicer in the way of flowers than a bunch of Heliotropes, and one seems to appreciate its fragrance more in winter than at any other time. I remember once at bedding-out time a number of plants being left over, and instead of throwing them away I potted them on, stopping them until the end of August. They make capital little bushes well established in 6-inch pots, and up to Christmas they gave me a good supply of cut bloom. I stood them all together in a light span house, no more heat being given than was necessary to keep out frost. They should of course be grown in the full sun, and when the pots are filled with roots get frequent doses of weak liquid manure. Plenty of water is indispensable, or the foliage will suffer and much of it will drop later on.—J. C. B.

A beautiful group of stove plants.—The stove at Burford Lodge is just now very gay, the principal plants which contribute to the display being handsome plants of the richly coloured Impatiens Hawkeri, which are more freely flowered than I had ever seen them, and contrasted well with the large white blooms of Begonia nitida. Small well-flowered plants of Begonia John Heal, with its charming carmine flowers, and the pure white-flowered Impatiens platypetala alba were very effective. To these may be added the bright spathes and ornamental leaves of many Anthuriums, for which this garden is justly celebrated. Here also was flowering the somewhat sombre-coloured African plant, Tinnea æthiopica, but which, however, makes amends for its want of colour by its violet-like fragrance, whilst upon the wall was the beautiful Begonia corallina, which I recently noted as being so very fine in the Rouen Public Garden. All these are plants worthy of note as being beautiful December flowers.—W. H. G.

Pentas carnea.—The blooms of this plant are by no means brightly coloured, yet it is an extremely useful subject where a supply of flowers has to be maintained throughout the winter months, as a few healthy bushes may (provided suitable treatment is accorded them) be relied on to furnish a regular supply for months together. It is of easy cultivation, for cuttings strike readily enough at any time during the growing season, when all that is then required is to shift them on into some fairly light soil. To encourage a bushy growth they should be pinched two or three times during the summer, when if a suitable position in the stove be assigned them, they will be studded with bloom by winter. When the clusters of flowers are cut, no more of the stem should be removed than is absolutely necessary, as other shoots that flower directly are at once pushed out. There is another Pentas, viz., kermesina, the blooms of which are a good deal richer than those of the other, and on that account it forms a useful companion to it, but the habit of the plant is less robust than that of carnea. This last I have raised from seed in abundance, but as cuttings strike so easily, such a mode of propagation is not generally needed, especially as seedlings are usually less free blooming in a young state than plants raised from cuttings.—T.

SHORT NOTES.—STOVE AND GREENHOUSE.

Old double white Chinese Primula, together with the red-flowered form, are still two of the most useful of the Chinese Primulas. They are excellent plants to cut from.

Luculia gratissima.—This greenhouse evergreen shrub is now flowering in the York Nurseries. I do not know if the plant in question is a special variety or not; certainly I never remember before seeing such fine individual blooms, forming as they do magnificent globular trusses of highly fragrant blossoms. The plant is about 4 feet high and as much through, being planted out in a brick tank or trough, through the bottom of which one of the hot-water pipes passes. This may have something to do with the vigour of the plants.—R. P.

Trees and Shrubs.

NOTES FROM COOMBE WOOD.

The foliage of the Conifers, Hollies, and Evergreens generally is in its richest dress during the winter season; there is nothing to overshadow or hide the varying shades of green, glaucous, brown, pale yellow, &c., that appear in a well planted garden, as the shrubs, even where partly hidden in summer by the leafage of deciduous trees, can be seen through the delicate interlacing of the leafless branches. In a nursery few effects of this kind are obtained, but it is worth a visit to the beautiful and picturesque grounds of the Messrs. Veitch at Coombe Wood to observe the peculiar and distinctive richness of many of the Conifers on a strong loamy soil. The summer of 1888 will be long remembered for its excessive wet and cold, but it has been of untold good in recruiting the health of the parched shrubs and trees that managed to live through the drought of the previous summer. Those who live only for pleasure grumble at the trials such a year as the present brings, but if instead of rain we had fierce sunshine, very few shrubs or small trees, even where artificial aid could have been given, would have survived. In few places is a dry summer more felt than at Coombe Wood. The nursery is on the side of a hill, the rain rushing along the paths and scarcely soaking in more than an inch unless of long continuance, but the shrubs are now in the rudest health, from the waving masses of Bambusa Metake, which grows as well in dry as in moist ground, to the somewhat miffy Retinospora squarrosa. The common B. Metake is often considered only suitable for boggy ground, and we have no wish to remove it from the banks of a stream, pond, or lake, but there are many knolls and well-raised spots where the ground is dry that could be reserved for this rich green Bamboo. It would be difficult to find a more handsome shrub than Phillyrea laurifolia or Vilmoreana, which is as dense, rich in colour, and vigorous as almost the Laurel itself, and to which it bears a likeness in its splendid leaves. Quercus cuspidata develops into a bushy tree, that reminds one of a well-grown Camellia; it is glossy green, hardy, but rather slow of growth, if we may judge from a specimen that has taken twenty years to reach no great height. There is a variegated form of it that is not very hardy, but it is extremely pretty in pots. The broad breadth of Diplopappus chrysophyllus made a break from the shrubs, and a mass of the autumn-flowering variety of the common Mezereum could be detected by the delicious and powerful fragrance of the purple flowers that individually are larger than those of the type. A clump of it in the garden, backed by evergreen shrubs, would make a spring-like picture in the weak sunshine of a winter's day. Hard by were in full bloom the deciduous rosy purple-flowered Rhododendron davuricum atrovirens and Pyrus Moorloozei, a spreading, somewhat pendent hardy Pyrus, with scarlet flowers and Quince-like fruits. Hundreds of buds were ready to expand. It reminds one strongly of P. japonica, and if the present warmth continues would keep flowering until the new year. Thuja Vervæneana is now in its best condition, but T. occidentalis is far richer and brighter, a group in the garden having a striking effect by reason of the deep bronzy brown tone of the foliage. It is of quite a golden shade in summer and

preserves its colours well. The varieties of Abies are amongst the most healthy of the coniferous shrubs at Coombe Wood. Abies Veitchi, introduced from Japan by Messrs. Veitch's collector, Mr. Maries, in 1879, does well on the hillside, and bears a certain resemblance to the noble Nordmanniana, but the growth is more compact, erect, and rigid, quite unlike that of the beautiful glaucous-coloured A. pungens glauca, whose peculiar greyish tint is anything but displeasing. A specimen on the lawn or amongst a group of green-foliaged Conifers of similar character would give life to the garden scenery. As beautiful in its way is the graceful Hemlock Spruce (A. canadensis argentea), that has distinct filiform foliage. Cedrus atlantica glauca has erect, glaucous growth, and on that account is of value; and amongst the varieties of Cupressus we find a variety of character, from the compact, bushy, yellow-tinted, but not sickly C. Lawsoniana alba-spica nana (an ugly name) to the dwarf, dense-growing "compacta" variety of the Nootka Sound Cypress (C. nutkænsis). C. Lawsoniana, of course, must not be left out, as it is indispensable in a well-arranged garden. This does not, however, pretend to be a list of every good Conifer; it is merely the record of a few that do well in a particular nursery.

Junipers are full of health and vigour, and it would not be easy to find a more interesting section. The dwarf, spreading J. canadensis, that is found around Hudson's Bay, the icy region of Labrador, and Canada, is a useful garden species, so is the variety aurea. Retinospora filifera aurea, that has pendent filiform growth, golden in colour, and graceful, is a beautiful Conifer, and the golden forms of the distinct R. pisifera and R. obtusa are also valuable. But on no account have too many variegated shrubs. The rich self green-leaved types are the most noble and the most vigorous. The more variegation there is in a plant the more tender it becomes, and too many variegated things produce a sickly, weak effect to be strongly condemned. In a garden of ordinary size no variegated shrub is necessary; such things are entirely out of place. Messrs. Veitch have two Euonymuses which are more hardy than the majority of variegated varieties. One is E. japonicus aureus marginatus, which is less liable to run to the original type than E. j. aureus, but both are hardy, and this is a great point. In Kingston there were several vigorous specimens of these two varieties in the villa gardens, and they go well with the hardy, rapid-growing type.

Hollies, as has been remarked before in The Garden, are a mass of berries, and it is not often we have seen the variety fructu-luteo so laden with its yellow fruits as this year in the Coombe Wood Nursery. It is a handsome garden Holly, yet not so showy as the compact-growing variegated Waterer's Holly, which has the leafage margined with gold. There are several thriving specimens in the nursery, and they are amongst the best features at this season.

Ivies in variety are grown well, and there is greater demand for them than one might have supposed from the comparatively few good sorts that are to be seen in gardens. It would be mere repetition to write at any length on this beautiful race, as it was treated at considerable length in The Garden of Nov. 24, p. 492. The one that finds the readiest sale is the green-leaved, rampant-growing Emerald Gem; while azorica, the large-leaved dentata, that sometimes has leaves as large as a plate, Caenwoodiana, the vigorous, somewhat untidy-growing Rægneriana, angularis, chrysophylla and palmata are also in the list of the best Ivies for general use. Of the variegated kinds, too many of which should not be used, argentea rubra, argentea latifolia, and aurea densa are worth growing. Madeirensis variegata, although a glorious Ivy, is too tender for cold positions. Acuta is a green-leaved variety with somewhat the character of dentata in its leaves; the growth is strong and free; it will probably make a useful Ivy. Glymi is a very robust, free-growing variety, with deep green cordate leaves, veined white; it is a first-class kind, but as yet little known.

The above are a few notes that will guide the intending planter in a few of the things that should receive his attention. There are few matters in gardening that require more thought than the selection of Conifers; they are peculiar in their habits, each species or variety being suitable for one kind of soil or position, while the utmost care is requisite in grouping. The beauty of such shrubs is often spoilt by ill-assorted arrangements, too close planting, and other points that the experienced planter knows well how to guard against.

The Petty Whin (Genista anglica) imparts a very pleasing appearance to our heaths and commons, more especially as it blooms most profusely at a time when flowers are scarce. Of low stature, rarely exceeding a foot in height, it is a somewhat unpretentious plant, but the glistening spikes of yellow flowers manage to peep out from amongst the leaves of much taller growing subjects, and not unfrequently those of its near relative, the common Gorse or Whin. When the latter is out of flower, and but a mass of spiny leaves, and when few plants dare to send forth a flower, the Petty Whin bursts forth in all its splendour of green and gold. Sandy wastes are its favoured haunts, and I cannot remember having seen specimens where the soil was stiff and damp. It is worthy of culture, not only for its golden flowers, but on account of these being frequently borne at a time when our wastes and hedges seem lifeless and uninviting.—A. D. W.

The Rest Harrow (Ononis arvensis).—Some time ago I was shown a low old-fashioned wall, where soil had become largely incorporated with the mortar, carpeted with the Rest Harrow in full bloom. I was taken quite by surprise, for I never imagined that so humble a native plant could be put to such a use. The flowers, probably owing to the plant being exalted and placed on almost a level with the eye, seemed much larger than usual and of the deepest pink imaginable. Good soil and frequent thinning of the branches exert a wonderful influence in the appearance of the Rest Harrow, it then becoming well furnished and bearing flowers of unusual size and beauty of tint. Sometimes the Rest Harrow attains to a foot in height, but more commonly it is found as an undershrub of low, creeping habit, and inclined to send forth roots wherever the branches come in contact with the ground.—A. D. W.

Aralia Sieboldi.—Plants of this species are now blooming in my cold greenhouse and the inflorescence is quite ornamental, in the form of a large panicle with numerous ball-like trusses of flowers. It is curious to notice how five pistil-like points issue from the circumference of each individual flower. They must secrete something in the way of an attractive juice, for every blow-fly near finds its way to it, and to-day (the 27th), notwithstanding that it is raining heavily and dull in the extreme, the flies are apparently feeding. A plant that has stood in the open ground for five years is blooming also, but not nearly so finely as in the case of plants under glass. All the buds were destroyed in the winter of 1886–87, but the plant has recovered, and now is very healthy. It is the cold, biting winds of winter that appear to disfigure it most. Here at Ealing, where the subsoil is gravel, with a deep bed of loam, there can be seen fine specimens that are highly ornamental objects in forecourt gardens. I think it might be planted out in many places with advantage, and I fancy it will prove hardier than was generally supposed when first introduced to this country from Japan.—R. D.

HARDY HEATHS.

It is interesting to note the fine variety of these, even when growing in a climate as severe as any in Britain—that of the Derbyshire hills. The past summer will long be remembered for its wet, cheerless days; the flowers of the summer garden were never so dull as in 1888. The only things that were a credit to the garden were the hardier Roses and other hardy plants. Among these, Heaths are rarely grown in quantity or in any bold artistic way. They are on the rock garden or in small beds, but rarely does anyone arrange them as they naturally grow—in masses, groups, and fringes by streams or banks, with Ferns and Grass in company. In Derbyshire, rather late this year, Mr. Smith, of the Darley Dale Nurseries, near Matlock, took us on the hills to see his Heaths and like plants. We were greatly pleased to note their beautiful colours when grown freely in quantity and in perfect health, as they are here.

We possess not only the fine colour of our wild Heaths (and there are none prettier), but a variety of delicate colours—sports or variations from our wild sorts and the other European or hardy kinds. Among these, if we had the whites alone, it would be a gain; they are so pretty, and the effect of the mass is so refined. The white forms of the Scotch Heath and of the common Heather are rather numerous and most valuable, especially the strongest kinds; some sorts, with a variegated or yellowish hue, we do not care for. All our Heaths, including the hardy varieties that will grow in this country, are so compact in habit, that little beyond curiosity can be gratified by selecting kinds dwarfer than the wild types. There is no need of them except for the rock garden. Less good even are the variegated forms. Our gardens would be all the better if nurserymen would cease the pursuit of variegated things, most of which are disfigurements to a garden.

One sees so few hardy Heaths among garden plants, that many must have no idea what a number of good kinds are to be had. The varieties of the common Heather are the most numerous, and are very important, even as covert plants and to give variety. Among them are Erica vulgaris alba, E. vulgaris alba elata, E. vulgaris alba Hammondi, E. vulgaris alba hypnoides, E. vulgaris alba pilosa, E. vulgaris alba rigida, E. vulgaris alba Searlei, E. vulgaris alba tomentosa, E. vulgaris Alporti, E. vulgaris coccinea, E. vulgaris cuprea, E. vulgaris flore-pleno, E. vulgaris Foxi, E. vulgaris minima, E. vulgaris pygmæa, E. vulgaris tenuis. From the above we omit most of the small and merely curious forms of the common Ling or Heather.

The Cornish Heath (Erica vagans) has several varieties, and very pretty and vigorous bushes they make. But more precious from its fine variety is the Scotch Heath (Erica cinerea). Of these, there are the varieties E. cinerea alba, E. cinerea alba major, E. cinerea alba minor, E. cinerea alba multiflora, E atropurpurea, E. atrosanguinea, E coccinea, E. nigra, E. pallida, E purpurea, E. rosea, E. rosea multiflora. We think these forms of our own Heaths more valuable generally than the exotic kinds, because their absolute hardiness allows of their being used everywhere even in the roughest and most exposed ground; whereas one could scarcely say this of the pretty garden E. carnea and its varieties, valuable as they are in spring for the garden. The forms of E. tetralix are beautiful—E. tetralix alba, E. tetralix alba mollis, E tetralix alba præcox, E. bicolor, E. Mackiana, E. rubra—and quite hardy, as of course are the beautiful Irish Heath and its white form.

Valuable, too, for gardens, though not so trustworthy for the whole of our cold and hill country, are the introduced species such as E. codonodes, E. stricta, and the varieties of the Mediterranean and Tree Heaths. It is of the use of these pretty dwarf

and hardy shrubs in country seats that we wish more particularly to speak. Their use is so limited in gardens—too limited, as we think—that it would be worth while in many cases to use them in a bold way about coverts, on the fringes of woods, and by drives. We mean where they do not occur naturally. Even in this case, however, it would be well to plant the white and other forms among the wild sorts, clearing the ground a bit and giving them a chance to get rooted. There are so many complaints now of absence of covert, owing to the close shaving of the fields, that we feel sure it would be an advantage for game to have pieces of these Heaths in suitable spots. They would be better far and prettier than the weedy soft Grass and herbs which often fringe woods and drives, and die off in the winter. The size and varied form of the Heath bushes make a good covert for birds, while they are infinitely prettier in the landscape or foreground than soft green growth.

In making a drive which passes a long way through woods and cultivated fields in a hilly district, we are cutting off the cultivated field from the drive by a belt of the common native Heaths and their most vigorous forms, including Alport's Crimson Heather mentioned above. These planted in a picturesque way will form a permanent fringe to the fields. Where the forming of the road leads to any "turned-up" ground in or near woods we shall do the same thing, adding the Sloe or cut-leaved Bramble here and there for variety and mixture. This we do for two reasons, the beauty of the Heathers at all times (they are in flower in summer and autumn when people are most at their country places), and as a far better cover than the rough Grass and soft green stuff. In many places it is the custom to mow the almost useless Grass near drives; it is not often worth while, and using the Heaths, &c., frees us from all need of mowing. In height they are just the thing for a pretty woodland finish—never too big nor too little, and nicely varied in form. This variety would be more telling still if the bushes were not put in regularly and at set distances, but in groups and colonies, with other things or Grass between, so that small birds could run about in the sun among them. This plan has allowed us to do away with the ugly iron hurdle fences separating arable fields from the drive. The easy fringe of Heather makes a pretty margin to the drive, and cuts off sufficiently the raw earth in winter and the crop in summer. Those who care about landscape effects will appreciate the relief of getting rid of an iron fence set like a gridiron before a fine landscape.

In northern and hilly and marshy places, where our native Heaths abound (as they do even within an hour's rail of town), an interesting plan is to try and establish groups of the white and other varieties of the various wild species among them. There are, too, garden uses for these hardy Heaths apart from such as we suggest. Those who have extensive rocky gardens would do well to make good use of the Heaths as Sir W. Armstrong has done at Cragside; but rocks are not necessary. We saw last year some very large and effective beds of Heaths in Sir W. Bowman's garden in Surrey. It is the bold artistic arrangement that is called for, and not the niggling, dotted botanical way. The plants should tell their story in the garden as plainly as they do on the hills. Their flowers are pretty and welcome to all; they come at a good time; we can depend on them as we cannot on many flowers in wet, cold years. A good feature would be permanent beds of them in the pleasure ground or flower garden, especially where people see the advantage of enduring instead of temporary beds. As to soil, Heaths love peat soils best, and probably for success in a large number of kinds peat is essential; yet we see the common Ling thriving on clay soil and on sandy ones like that at Hampstead, and in the nurseries about Edinburgh they do well in fine sandy loam. The stronger sorts are not fastidious, and deserve to be tried on soil where there is a chance of their thriving.—*Field.*

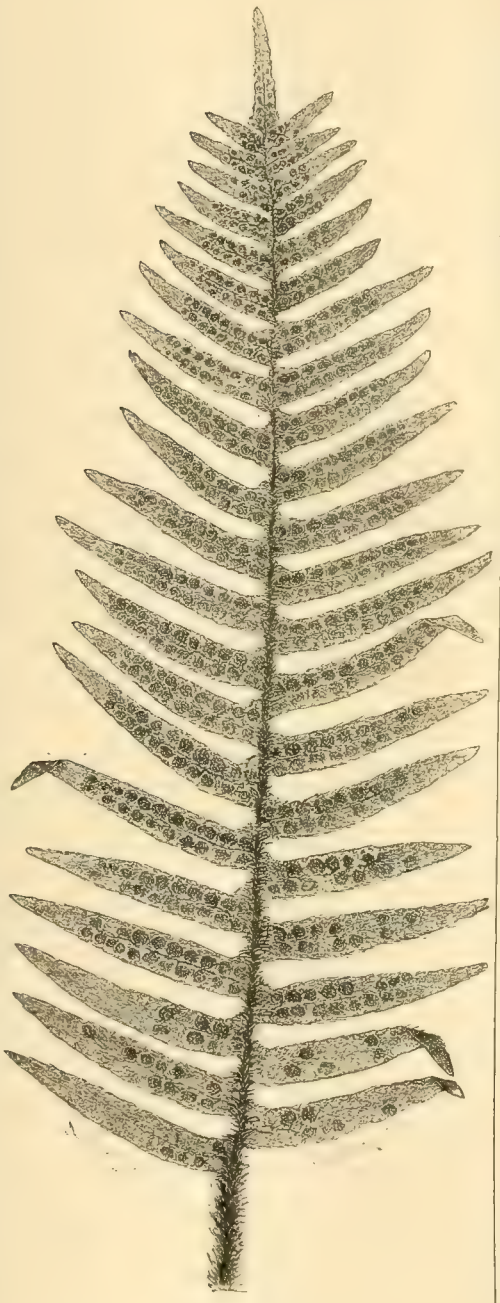
Pursley.—This is the common Purslane (Portulaca oleracea), which has been introduced from Southern Europe, and is now an intolerable nuisance in all American gardens.—Junia.

Ferns.

W. H. GOWER.

LEPICYSTIS SEPULTA.

This species, the subject of our illustration, is a very handsome Fern, well deserving cultivation in even the choicest of collections. Lepicystis is a small genus, nearly allied to Polypodium, from which it differs in having netted veins; thus it comes near to Goniophlebium,



Lepicystis sepulta.

from which it may be distinguished by the under side of the fronds being densely clothed with ciliated scales. It is an evergreen warm house plant, the fronds attaining a height of from a foot to 18 inches on well-grown examples, are lanceolate, or ovate-lanceolate in outline, pinnate, the pinnæ being closely set and sessile, the under surface being thickly covered with ferrugineous scales, through which the yellowish red sori protrude. The specimen here figured was grown in the nursery of the late Messrs. Rollisson, where many rare and beautiful Ferns could always be found. It is a native of Brazil, Mexico, and Peru.

RECENT FERNS.

This year has seen a greater interest kindled in Ferns than has been the case for many seasons. Every plant has its days of prosperity, then it becomes overshadowed by other things, and again emerges from obscurity into the light of Fashion. Ferns illustrate this, and it is to be hoped that the greater regard shown for them this season will be maintained. It may be interesting to briefly refer to the Ferns of this year, as we have had several additions which are likely to be grown in all large collections. It is the fate of the majority of new plants to be exhibited a few times and then disappear, but, with one or two exceptions, the Ferns named are too valuable to sink into oblivion. Adiantum versailleuse is of the A. Luddemannianum type, and possesses its characteristics; the fronds are about 6 inches high and surmounted by a cluster of pinnules. It is very distinct. A. Waltoni diffusum has somewhat the character of A. elegans, but we scarcely think it is better than the old A. cuneatum, that will be difficult to surpass for general usefulness. It is called a hybrid, and has smaller pinnæ than in the case of Waltoni, but whether it will ever take a place is questionable. This was certificated by the Royal Horticultural Society, but such a certificate is no token that the plant is either good, distinct, or beautiful. Gymnogramma Pearcei robusta is the most beautiful new Fern that has been introduced for some time; it is a robust growing form of the type, has fronds that are as delicate and beautiful as the finest lace, and exceedingly graceful. In a plant house or fernery it would break the harsh outlines so cold and unnatural. Lastrea montana ramo-coronans is a distinct and useful form of the hardy L. montana; the fronds are slender, tall, and narrow, also crested and much divided. The colour is rich green. Nothochlæna Mulleri is not a Fern that will find great favour, but it is worth a place in all collections of any size. It is an interesting Fern, the fronds rigid, 12 inches in length, and with nearly ovate deep green segments, which are coated with silvery scales on the upper surface. The stem is covered with brown hairs. Scolopendrium cristulatum is a crested Fern of distinct character. It was one selected for a certificate out of a large number of forms of Scolopendrium exhibited by Messrs. Birkenhead, of Sale, at the Royal Horticultural Society's meeting on July 24. The fronds are erect, deep green, and densely tufted, quite small plants showing this trait.

It is the hardy Ferns that are the most neglected, and why this should be is difficult to guess, when no heat is required, nor any specially prepared sites. There is many a rootery now an eyesore, many a shady corner in the garden, and many an old wall that might be beautified by a few of the hardy Hart's-tongues.

Ophioglossum palmatum.—"G. D., Sheffield," says: "I should be glad if any reader of The Garden could exchange with me specimen Ferns. I am sadly in want of a frond of Ophioglossum palmatum. Can you tell me where it is to be obtained?" The species in question is a very curious Fern. I have seen it in cultivation, but do not know at the present time where it exists in this country. Perhaps some readers of The Garden can answer the query of "G. D."—W. H. G.

Trichomanes reniforme (*D. Simons, Glasgow*).—The specimen you send is Trichomanes reniforme, and not Adiantum reniforme. It is a singular and beautiful Fern, found plentifully in the New Zealand Islands, and, as far as I am aware, is peculiar to that country; whilst Adiantum reniforme is confined to Madeira and Teneriffe. To grow your New Zealand plant, put it into some well-drained sandy peat at the foot of a block of sandstone, cover with a bell-glass or a hand-glass, keep it moist and shaded from the sun, and it will soon become established. As a rule, it does not require more than greenhouse heat,

but it may perhaps be benefited and get established more quickly at this season by being placed in the stove.—W. H. G.

Adiantum Pacotti.—I am in receipt of information from Mr. J. G. Baker, of the herbarium at Kew, that this plant is derived from A. excisum. I have never paid any attention to this, but some of the readers of THE GARDEN may perhaps have noticed it. The fact, however, still remains upon the evidence of Mr. Smee's gardener that all the plants of A. Pacotti now existing in that garden have been obtained from imported roots found growing on plants of Cattleya Sanderiana, so that it would appear to be a natural and not a cultivated variation.—W. H. G.

Gymnogramma spores.—It does not matter at what season of the year these are sown; if just received, they should be sown at once. The soil should be stiff loam. I have been engaged in raising Ferns by the thousand, and I always obtained more success from loam than I did from peat. When they are first transplanted in little patches from the seedling pans a little peat should be added to the loam, and also some sand. I have grown specimen Gymnogrammas in loam and sand, but my experience in this proves that they do not develop such large fronds or become such large plants as they do in peat and loam made sandy, whilst I have found that when grown in peat alone they are very apt to grow out of character, and, moreover, they require much greater attention in watering. When the spores have germinated, the young plants must be kept moving by transplanting, and by this time next year nice little examples may be obtained. I think all the Jamaica Gymnogrammas are well known, but you may get some strange varieties.—W. H. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL.

DECEMBER 11.

THERE was very little of interest at the last meeting of the year, held, as usual, in the dreary Drill Hall, Victoria, which was filled with fog and uncomfortably cold.

First-class certificates went to the following:—

SKIMMIA FOREMANI.—The meeting was made up principally of several large and small pot plants of this brilliantly showy Skimmia that is of the character of the well-known S. oblata, and has great merit as a pot plant. The specimens were smothered as thickly as the common Holly with berries of a rich scarlet tint that varied somewhat, as did the plants in the character of the growth; some were more bushy and vigorous than others. The fruits are of great durability, remaining on the plant from eighteen months to two years, and thus we have a double crop as it were at one time. The foliage is dark green, the growth compact, and the plant of great hardiness, as it has withstood uninjured 32° of frost. The male plant, S. robusta, came in the same batch of seed, and has bolder leafage. From Mr. Foreman, Eskbank Nursery, Midlothian, N.B.

CHINESE PRIMULA CANNELL'S PINK.—This is the same as called in THE GARDEN of Dec. 8 (p. 545) Harold's Pink, which is not the proper name. It is a single variety that will be hard to surpass, in spite of the present perfection of the Chinese Primula, as the flowers have not only a splendid form, but the delicate true pink colour is delightful, as it always is when there is no mixture of purple or allied shades. The growth is strong, a point of no small importance. From Messrs. H. Cannell and Sons, Swanley.

ASPARAGUS CHICORY.—This appears to be a kind of Chicory, but of its value we know nothing. From Mr. J. Willard.

Primula obconica, in the finest condition we have yet seen it, was shown by Mr. Moore, Holmwood Gardens, Kingston-on-Thames. The plants were a mass of bloom, and the individual flowers far larger and finer in colour than usually seen. It was worth a certificate. Mr. Dean, Ealing, exhibited plants of hardy coloured Primroses in full bloom, such as one would expect at an April meeting. From the same exhibitor also came plants of Primula obconica that everyone should have who possesses a greenhouse. Fogs, unfortunately, injure the flowers irreparably. Mr. J. James, Farnham Royal, Slough, had Primula Great Western, the flowers purplish rose, and well representing the high strain worked up by Mr. James. A Tree Carnation called White Andalusia came from Messrs. Collins Bros. and Gabriel, 39, Waterloo Road. It appears a poor grower, but the sweetly scented, pure white laced flowers are pretty; the stray streaks of crimson do not improve it. Cyclamen Rosetta, a handsome rose-purple variety, and flowers of other varieties were shown by Mr. John Odell, Gould's Green, Hillingdon. We are obtaining an excellent variety of colours in the Cyclamen, and a far more robust character in the flowers, as well as in the leaves and stems. Masdevallia hybrids of no particular merit were sent by Messrs. Heath and Son, Cheltenham, and a white-flowered form of the beautiful Pleione maculata came from Mr. Rowe, Nunfield Gardens, Dumfries. We could not see its superiority over the type. Juniperus occidentalis was exhibited by Mr. W. Stewart, 28, Esplanade, Greenock; and flowers of a beautiful strain of Chinese Primulas by Messrs. H. Cannell and Sons, Swanley.

VEGETABLES were more numerous than the flowers. Remarkably well-grown samples of Batavian Endive came from Mr. Campbell, The Priory Gardens, Roehampton; and several things were shown by Mr. Gilbert, Burghley. They comprised Chou de Burghley, grown outside unprotected; Gilbert's Universal Savoy, a firm-hearted and close-growing variety; and Evergreen Mint, a far more useful herb than the ordinary Mint, which was shown for comparison. A large collection of Turnips and Brussels Sprouts was sent from the Royal Horticultural Society's gardens at Chiswick. The Turnips represented many varieties, from the yellow type to the white. The most useful appeared to be Snowball, Early Snowball, Silver Ball, The Model, Milan Strap-leaf, Early Stone and Covent Garden White. There were several varieties of Brussels Sprouts; but it is the small compact sprouted kinds as Rosebery that should be grown. Those kinds that have sprouts more like miniature Cabbages are usually strong, if not unpleasant, when on the table.

A seedling Apple, no better, apparently, than many others in cultivation, was shown by Messrs. W. and J. Brown, Stamford. A manure made from shell dust was exhibited by Mr. Dean. This material is the product of sea shells, calcined in a small kiln. It contains the ingredients necessary for a good manure. Owing to the calcining process, it is much more active than a compound of crushed shells.

NATIONAL CARNATION AND PICOTEE AND NATIONAL AURICULA SOCIETIES.

A NUMEROUSLY attended meeting of the committee of these societies took place by the kind permission of the Horticultural Club in their room at the Hotel Windsor, Westminster, on Tuesday, the 11th inst., the Rev. H. H. D'Ombrain in the chair. The minutes of the previous meeting having been read, it was resolved that the offer made by the council of the Royal Horticultural Society to give the sum of £10 to each of the societies be accepted, and it was arranged that the exhibition of the National Auricula Society should take place in the Drill Hall, Westminster, on Tuesday, April 23, in connection with a meeting of the Royal Horticultural Society on that date, and that of the National Carnation and Picotee Society on Tuesday, July 23, also in conjunction with a meeting of the society. The council having expressed a desire that something in the form of a conference should take place at each of the shows having reference to the particular flowers exhibited, by way of imparting additional interest to the society's meetings, a sub-committee, consisting of the Rev. H. H. D'Ombrain, H. Selfe Leonard, R. Dean, and J. Douglas, was appointed to make the necessary arrangements and report at a future meeting of the committee. The schedule of prizes offered at the exhibition of the National Auricula Society was passed in the form in which it appeared at the last show and a few alterations were made in that of the National Carnation and Picotee Society. It was decided that yellow ground flowers be no longer shown with selfs and fancies, as there is a class for them, viz, one for twelve blooms, and this was reinforced by one for six blooms, it being understood that yellow selfs can also be shown with yellow ground flowers. Mr. Douglas having drawn attention to the fact that there is in the hands of the treasurer a balance from the two societies amounting to £40, suggested that a portion of this should be invested as a reserve fund, and eventually it was agreed that £25 should be set apart for the purpose of forming a reserve fund, it being left to the Rev. H. H. D'Ombrain, H. S. Leonard, and J. Douglas to make the best investment they can. The proceedings closed with a vote of thanks to the Horticultural Club, and also to the chairman.

Grubs on Cyclamens.—Will you please to tell me the name of the grub which I have enclosed? It is doing a deal of mischief among my Cyclamens and Primulas. It eats its way right into the corms of the Cyclamens, and, as you will see by the part of Primula enclosed, it eats its way up the stem. Would grubs be likely to come out of the leaf-soil or well decomposed cow manure?—C. S.

*** In reply to the above, the grub which is attacking your Cyclamens and Primulas is the grub of the black Vine weevil (Otiorhynchus sulcatus), a most destructive pest. There is nothing to be done when the plant is once attacked but shake it out and pick out the grubs. The beetle is also very destructive to the leaves of plants, particularly those of Vines; the beetles hide themselves during the day and only feed when it is dark. They may be caught by placing a white sheet under the plant they are feeding on, and when it is quite dark suddenly throw a strong light on the plant; this frightens the beetles and they fall, feigning death; should they not, shake the plant well and examine it carefully. The beetles lay their eggs at the root of the plants. The leaf-mould or manure is not at fault.—G. S. S.

Anthracite coal.—We have been advised to use this for plant house furnaces instead of coke. Will some of your correspondents who have tried the two kindly state what their experience has been? The questions of chief importance are, first, does anthracite burn freely, give out plenty of heat? is it steady and lasting? Second, is it as clean or cleaner than coke? how does it affect the ordinary saddle boilers? does it do equally well in large and in small furnaces? Third, apart from the labour of stoking, is it as cheap or cheaper than good coke? Information from someone in the neighbourhood of London would be of greatest value; the price of coke and, I suppose, of anthracite also varying considerably in different parts of the country.—B.

Cooking Cardoons.—Would any readers of THE GARDEN be kind enough to give their experience as to the best method of cooking this vegetable? We have grown it rather largely this year, but no device of the cook can make it fit for table. The plants have been grown in the ordinary way—that is, planted out in trenches prepared the same as for Celery, and were bound round with haybands and earthed up 3 feet high more than two months ago, the plants, when lifted and trimmed, having somewhat the appearance of very strong Celery. Any information as to the best way of sending the above to table would greatly oblige.—C. W.

Botanical appliances.—Can anyone tell me where to get a vasculum or collecting tin, with places for a strap at the back, so that it can be slung over the shoulder? [Any maker of microscopes or botanical appliances will, no doubt, be able to supply you.—ED.] Is there an Italian Flora cheaper than that of Arcangeli (13s. 6d.), and also more comprehensive?—JUNIA.

Phillyrea Vilmoriniana is made to read, by a slip, P. Vilmoreana at p. 564 of present number.

Names of plants.—*Isaac Berry.*—1, Zygopetalum crinitum; 3, Cypripedium venustum; 4, Maxillaria picta; 5, Acalypha musaica.——*G. Martin.*—1, Comparettia macroplectron; 2, Vanda lamellata Boxalli; 3, Oncidium crispum; 4, an Aerides; 5, Calanthe Veitchi; 6, a Calanthe.——*E. M.*—1, Maxillaria picta. We do not name florists' flowers.

WOODS & FORESTS.

UTILITY OF PLANTING.

The principal art of practical forestry is a knowledge of tree culture as acquired by systematic practice and observation, and the outcome and experience of everyday life in working out details in connection therewith. No doubt scientific men have often been the means of throwing additional light upon different points in connection with tree culture, but these scientific men sometimes make mistakes which are looked upon by many as being correct, and therefore acted upon without further investigation. One of the lessons taught by some of these men is that planting in barren ground will not pay, unless we are protected by levying a duty upon foreign supplies, but the democratic spirit of the age will not tolerate protection of any kind, and I maintain that the best way out of the difficulty is to plant the vast stretches of unoccupied land in this country and turn them to account. It is no use telling me that the wood cannot be sold at a price to pay for the outlay of capital. Grow the proper kind of wood in the part of the country where there is a demand and it is immaterial to the consumer where the stuff comes from, as the cheapest and most suitable will always command a ready sale. It is rather a curious fact that all practical men of long standing and experience affirm in their books and writings that woods under a proper system of management not only pay, but in some cases actually give a better return in the shape of ground rent than land in the same locality under a system of tillage. Planters should always study the wants of the district in which their woods are situated, and if they grow the proper species of trees of a size to meet the requirements of the place, they generally can secure a ready sale, and being on the spot they can place their wood in the market on the shortest notice and at small cost, and thus in a great measure defy competition. One of the healthiest signs of the present time is a growing demand for information on this head, and the outcome of such knowledge put into practice will be the means of enabling proprietors to meet their foreign rivals on a more equal footing. But we are sometimes told that it will not pay to plant the large areas of barren ground in inland districts of the country far away from markets of any kind, even in cases where the land is capable of producing first-class timber fit for railway sleepers and other purposes, on account of the heavy cost of transit. There can be no doubt that this is a great drawback to such undertakings. The only way in which this difficulty can be effectually overcome is by planting the trees in large blocks, and when they attain a proper and profitable size, instead of sending them to market in a rough unprepared state, they should be cut up and manufactured on the spot where they grew, by which means the cost of transit will be reduced to a large extent. When proprietors of woodlands in Norway and other places can send their wood to this country ready for use, I can see nothing to prevent us in this country from following the example in order to supply our own wants. Norway imports into this country large quantities of Spruce Fir timber which is used for masts, scaffolding, and ladders. These importations consist of clean-grown trees of small growth, and trees of large growth are sawn up into deals which are used for flooring, joists, and rafters, while immense quantities find their way over in a prepared state, and are made into window-frames, doors, furniture, &c. The waste is used for matches, paper-pulp, and other purposes. These few facts clearly show that the market is in this country, and as we have many millions of acres unoccupied, and which are capable of producing such timber, it shows that we, as a nation, are wanting in energy and enterprise in not turning them to account. Those who plant their waste lands and clothe the surface of the ground with trees in place of Brambles, Whins, Heather, and weeds are not only consulting their own interests, but are also the true benefactors of the country and community at large. During my career as a forester I have planted many millions of trees for tree-lovers who have no reason to regret the propriety of such undertakings, and, although some of them are now dead and gone, yet the bare hills and barren bogs which are now furnished with thriving timber trees prove a source of profit, pleasure, and enjoyment to their offspring. Those who tell us that planting will not pay have not a particle of evidence to support their theory; the trees themselves give direct evidence against them, and I believe the day will come when planters will wish they had planted acres where they have only planted yards, and forests where only shelter belts are growing.

J. B. Webster.

THE SYCAMORE.

(ACER PSEUDO-PLATANUS.)

This tree is thoroughly hardy and reproduces itself in this country quite freely, and is not in any way particular as regards soil and situation. It is a native of different parts of the continent of Europe, and was introduced into Great Britain about 300 years ago. Few deciduous trees of foreign origin can be compared with the Sycamore for economy, and it is so hardy that it can be planted as a single specimen on exposed situations. I may, however, state that this tree when planted upon dry, poor shingle at a very high elevation did not succeed, and owing to the dry nature of the ground the trees generally shed their leaves about the end of August. When planted, however, upon soil of an average texture it makes rapid progress, and when fully established it forms a very handsome park specimen with a rounded head, the outline of which is as uniform and exact as if cast in a mould. It is seldom that this tree suffers from disease of any kind, although the foliage is sometimes disfigured to a certain extent by blackish brown spots here and there upon the surface of the leaves. This is caused by a fungus (Rhytisma acerinum), yet such is never of a deadly nature. The seeds of this fungus, perfected in the old leaves after they fall to the ground, are wafted by the wind to the young leaves in spring. In order to destroy the seeds or spores the leaves had better be collected in autumn and burned. When planted as a park tree it affords excellent shade and shelter for stock. Few deciduous trees, or indeed trees of any kind, equal the Sycamore for seaside planting. There it rears its head in the teeth of the blast loaded with sea spray and even attains a useful size of timber where many of its associates perish, or at least only attain the size of inferior scrub. The Sycamore commences to grow early in the season, and in autumn its large, finely-lobed leaves present a variety of tints. From its hardiness it is well adapted for planting in hedgerows and on road-sides in exposed parts of the country where many other trees would prove an eyesore, owing to their stunted growth. Its merits as a suitable tree for planting in smoky districts about large towns have been long recognised, and in all cases where the ground has been thoroughly prepared by trenching and draining, and the trees properly attended to during their nursery career they seldom fail to establish themselves. Although in many cases the trees do not attain a large size, yet from the fact that they attain a medium size where many other trees would fail is a great point in their favour. The species is propagated from seed, which it produces in great abundance in early autumn, when they should be collected and mixed with fine dry earth or sand] and kept in a dry place till spring. The seeds should be sown evenly on the surface of the seed-bed, slightly pressed down with the back of a spade and covered with about half an inch of fine soil. One-year seedling plants should be removed from the seed-bed and planted into nursery lines about 2 feet apart, and about 8 inches asunder in the lines, and in cases where extra strong plants are wanted they had better be transplanted a second time. The Sycamore also reproduces itself from seed, the produce of old trees growing in mixed plantations and elsewhere.

When cutting down a portion of an Alder plantation some few years ago, I found the surface of the ground between the trees well stocked with young Sycamore trees of various sizes, all of which were grown from the seed shed by some old specimens growing in the vicinity of the plantation. When the Alder was all cut and removed, I had these seedlings thinned, pruned, and sorted in the month of August, and they are now a set of fine healthy trees, and of great prospective value. By this means the ground is not only furnished with a second crop of trees at small cost, but also a rotation of crop secured. The Alder in this case was sold at 20s. per ton on the spot, and I have no hesitation in saying that when the Sycamore is full grown and matured, it will realise by far a higher figure than the above. This example shows the advantage of planting the Sycamore here and there in mixed plantations. The wood of this tree is very valuable when clean grown and of large dimensions; therefore when pruning becomes necessary it should be well attended to, especially during the early stages of the tree's growth, by removing all double leaders at the top, and cutting back straggling side branches. All pruning operations on this tribe of trees should be carried out about harvest time, otherwise the trees are sure to bleed, and likely to become bark-bound. The Sycamore is a valuable coppice tree, and produces very quickly young suckers from the roots of trees that have been cut down. I have never found any great difficulty in selling the wood of this tree at a fairly remunerative price, more especially when the trees attain a good size. I have sold beams 11 feet long and 22 inches in diameter at prices ranging from 50s. to 60s. each. The purchaser in this case had to remove the wood from the plantation at his own expense. As I have never been able to supply the demand for this class of timber, such ought to be an inducement to planters to extend its culture. When the wood is cut up for use it is found to be of a firm, close-grained texture, white in colour, and capable of taking on a fine polish, and for this reason it is used for a great many purposes in turnery. As it is not apt to warp, builders and others use it for stair rails, moulds, and blocks of various shapes and sizes. Clean-grown wood of medium size I have sold at from 20s. to 30s. per ton, and stuff of a smaller size containing knots, at prices ranging from 8s. to 10s. per ton.

J. B. Webster.

Beech and its uses.—I was much interested in Mr. J. R. Jackson's article on the Beech and its uses. Allow me to mention that in the mountain regions of Lower Austria deciduous forests consist mostly of the Beech and Hornbeam, the wood of which is generally used as fuel. It is a great pleasure early in spring to look out for Snowdrops in young Beech woods, and an old Beech forest affords a cool retreat in the hot summers I have often experienced in this country.—Louis Kropatsch, *Vienna.*

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE.'—*Shakespeare.*

PACKING CUT FLOWERS.

THIS is an important matter to those who have to send frequent consignments for private use to any considerable distance. Many send their flowers packed rather firmly in any available box, giving the choicest subjects the best positions, but the result is often unsatisfactory, many of the delicate and easily damaged flowers getting bruised and discoloured, even though the majority may reach their destination unharmed. This loss is serious when flowers are scarce, and to be regretted at any time. With very little additional trouble and a little extra first cost, all flowers that are suitable for cutting may easily be sent hundreds of miles and arrive as fresh as when they were cut, and this without the aid of oiled paper, cotton wool, or any substitute for these, except clean Moss. The plan I describe below will, if properly carried out, satisfy all who may adopt it, and be especially useful for flowers sent long distances by rail.

To commence with the boxes. These should be all of the same length and breadth, but may vary in depth from 3 inches to 5 inches, inside measurement. A convenient length is 2 feet 9 inches, and breadth 16 inches. The sides and ends should be of three-quarter-inch deal, and bottom and lid may, for the sake of lightness, be half an inch thick. The lids may be made to slide in a groove, but so that the top comes flush with the top of the sides for convenience in strapping together if more than one box is to be sent, and fastened with one screw at the end, or they may be simply screwed down, which is the best plan, if care is taken that the lids are properly screwed on again by those who unpack the flowers. About a dozen laths three-quarters of an inch wide, half an inch deep, and as long as the box is wide (inside measurement) will be required for each box, as well as a hammer and some three-quarter-inch brads or French nails.

Before packing, the flowers, Fern, &c., should be laid out on the bench, so that the length of stem can be seen at a glance. About an inch of clean, wet Moss should be put all over the bottom of the box, and then the operator should commence at the left hand end, placing a row of the longest-stemmed flowers close up to the end, with all the stems pointing to the other end of the box. Some more Moss should then be put over the stems, then one of the laths placed on the Moss close up to the heads of the flowers, pressing down the end of the lath at the farthest side of the box, and driving a brad half its length into the side of the box just over the middle of the lath; then press the other end firmly down, driving another brad over this. For convenience in driving, the brad need not run parallel with the lath, but the head may be slightly raised. All is now ready for another row of flowers, this being served in the same way, and so on till the box is full, one layer deep. The shortest stems are placed in the last row, and Fern fronds, or any foliage, may be placed under the Moss at the finish, with a lath placed over it rather more loosely than in the case of flowers. The operator will soon find how many flowers to put in a row so as to economise space. When as many boxes are packed as will hold all the flowers required they may be strapped firmly together to form one package, and then the advantage of having them all the same size over will be seen. No turning or twisting about of the boxes will dislodge a flower if properly packed, and as nothing is placed on the flowers there can be no bruising, while the wet Moss keeps them fresh. If the space has been properly filled, nothing of the Moss or sticks will be seen when finished except at the last row. Care should be used in unpacking to remove one lath at a time, and then a row of flowers commencing where the packer finished.

I have sent flowers packed in this way twice a week for six months at a time over 300 miles, twenty miles of which they would go by road over a very hilly country, and they have invariably reached their destination in perfect beauty and quite fresh—indeed, I have been often told, fresher than if gathered on a summer's day and put in a basket for only a few minutes. I always had them gathered very early in the morning while the dew was yet upon them. Maiden-hair and other Fern fronds would be picked the night before and sunk in a tub of water till wanted for packing.

Livermere. JOHN C. TALLACK.

CHRISTMAS NOTES.

DECORATIONS.—The feast of Christmas is at hand, and the shrubberies will be resorted to for the berried Holly and glossy Evergreens to deck the church and hall in honour of the great festival. The decorations are as inseparable from the associations of Christmas as the Yule log that burns on the hearth, or the festive board that groans with the weight of its lordly fare on this day of days. In the olden times the market crosses, corners of the streets, and other conspicuous points in the village were adorned with boughs of Evergreens, and until recent days the custom of extravagantly decorating the house remained. Devices were formed, intricate designs thought out, and no time or expense spared to rig out the room in a dress of foliage to celebrate the Christmas season. This is changed now. We may be less enthusiastic in outward show than formerly, but the spirit of the season is with us. Excessive decoration, though now seldom seen, even in the once great baronial homes of England, still disfigures many churches, where heavy cumbersome wreaths and a profusion of texts take the place of the branches of Holly and boughs of Evergreens that were placed here and there by the sexton of old, with sometimes a bit stuck at the end of each pew just sufficient to bring forcibly to mind the joyous season. More perhaps than when decorations were in the greatest fashion, are miserable apologies for the real thing used in the shape of artificial papery leaves and berries that are scarcely tolerable in the house, but quite out of place in a church. This year there will be no lack of berries, as very seldom within my recollection have the Holly trees carried a heavier crop, and, judging by the prices obtained, the material will not be expensive. To attempt to drive out the Holly, Bay, Ivy, and Mistletoe from the church and house would be something approaching sacrilege, but it is possible to use them in moderation. A church that is in my mind's eye was decorated last Christmas simply with a few boughs of Evergreens and Holly, the window ledges being filled in with Ivy. No interior could possibly have had a more picturesque or old-fashioned aspect; there was an absence of "shop," also of ties and nails, which are not required, but, unfortunately, often used to hold safe the heavy, carefully worked wreaths and mottoes that find favour with some. The font of this admirably decorated church was adorned with the inevitable Mistletoe, that} is considered to belong more to the home than the church, but has as much right in the sacred edifice as the Bay or Ivy that were also used in the orgies of the pagans. Simple branches of Evergreens should alone be used, and then the trees would suffer less from the injurious cutting they receive at Christmas. The frenzy for elaborate decorations will subside, and already there are indications of such. Pot plants and flowers may be used as plentifully as necessities demand; they are essential to beautiful adornment, and it is to be hoped they will always have the place that they hold at the present age.

A walk through Covent Garden Market in Christmas week will give some idea of the tremendous call for pot plants, flowers, and Evergreens. Perhaps of the plants in pots, none is more in request than the beautiful Erica hyemalis, as it lasts well and is a mass of delicate bloom. Forced things of all kinds, from Narcissi to white Azaleas, find customers, and almost as large a trade is done now as at the great festival of Easter. Poinsettias are excellent to give colour to any arrangement, and also Calanthes, especially Veitchi, where there is sufficient accommodation to grow a fair number of specimens. There is often in country gardens considerable strain on the gardener at Christmas, and it is essential for him to have a batch of Ericas, Poinsettias, and things of that character to meet the demand. The large cradles of Mistletoe in the market show that this is abundant and in good condition, but it is not so well berried nor so fresh and green as in 1887. That was essentially a year for Mistletoe and not for Holly, but things are now reversed. The orchards of Worcestershire supply large quantities of the interesting parasite, and though considered by some difficult to grow, is not so. The way to propagate it is to obtain the berries, choose a suitable tree—Apple for preference—select a gnarled bough, and press in the berries in a notch, where birds are not likely to pick them out, or cut a slit on the underside of the branch for the reception of the seed. Many an amateur who has an orchard cultivates his own Mistletoe, and a tree with the plant growing amongst the branches is exceedingly picturesque.

FRUIT.—One thing must strike the observant man who notes carefully the market at Christmas, and that is the scarcity of English Apples. American fruits, brilliant in colour, and especially those of the Newtown Pippin, crisp, juicy, and sufficiently acid to be pleasant to the taste, are more abundant than the Oranges, Lemons, Nuts, and other things that cover every coster's barrow at this season. Such a condition of things is a disgrace to England. I examined a few barrels of American kinds, and found the fruits well preserved and sufficiently clean for the table. They were selling at the rate of from 8s. to 9s. a barrel, the Twenty Ounce variety commanding a good price, while Baldwins and Newtowns were also in demand. Considering that each of these barrels contains about 3 bushels, this is a ridiculously cheap price, and it might be thought that English growers could not compete. But one of the best men in the market assured us a good price could always be obtained for English Apples now. There was a great demand for Wellingtons, but there were none with the exception of miserable specked samples that no one would buy. After the conferences and heated discussions that have taken place over the fruit question this year, it may be hoped that there will

be great improvements in this direction. The views of fruit growers have been, however, well set forth in THE GARDEN, and as careful lists as possible compiled to try and remedy the existing state of things, that are so bad, that Wellingtons, and of course other well-known and favourite English Apples, cannot be had, while importations from America flood the market.—C.

—— Christmastide is once more upon us, and it has brought quite an average crop of Holly berries. With these, Christmas decorations, bright, lively, and satisfactory, are almost ensured. Without, half the richest decorations must needs lack one of their loveliest features. Nevertheless, a profusion of Holly brings trials, temptations, not seldom failures, for it is hardly too much to say that the majority of the latter arise from excess rather than a paucity of material. A light wreath, a few sprigs of the coral-berried Holly or silver Mistletoe may prove more effective and pleasing than cartloads of either in the lump. In the creation or heightening of beauty, mere mass is seldom an aid, but a hindrance. This needs to be kept prominently in mind in the decoration of churches. Most of these, from their very nature and character, are sufficiently massive already. The decorator is not called to add to the imposing grandeur of pointed columns and vaulted roof, but rather to fringe the more near and accessible parts with foliage and enliven them with colour. Hence most of the struggling, climbing, and hard work devoted to what may be termed the architectural decoration of churches is much worse than "love's labour lost"—it results in absolute failure. The churches look the worse, not the brighter nor the more cheerful for the so-called decorations, while thousands and tens of thousands of magnificent shrubs are slaughtered annually at the shrine of misguided taste and decorative abortions. The difference in shrubberies, woods, and hedgerows before and after Christmas in not a few pleasure grounds and rural neighbourhoods is perfectly appalling. Before the slaughter of the innocents, all is bright, warm, and cheerful; afterwards there is hardly a Holly or Mistletoe berry left, and the hungry birds put on a dismal look of blank despair as they note that their winter supplies of food have been swept bare within a week.

With the advent of a more chaste and refined taste assuredly this vandalism would cease. As a means to that end, proprietors of good Holly and other shrubs should set the example of moderation in their Christmas decorations. Like all other works of art, it is the taste, the culture, the skilful blending of colours and verdure that tell and please, and not the prodigal abuse of Holly, Mistletoe, Ivy, or other material in out-of-the-way places, whether in church, hall, or corridor.

The same devotion to mere mass has sent Christmas trees up into the clouds of late years. The result is that the little ones can only admire them from a great distance, and that tall, grown-up men and women have to mount steps to place or remove the treasures.

The pleasures of the children have by no means increased in the ratio of the stature of the trees. On the contrary, the nearer the latter can be brought to the eyes and hands of the little ones, the more boisterous their delight. The same tendency to excessive decoration has spoilt hundreds of altar-pieces and devices in churches and homes. Hundreds of Christmas Roses, Camellias, Roses, Hyacinths, and Arums have been used, while scores or dozens would have proved far more beautiful as well as pleasing. Not a crush, but telling disposition and cultured arrangement tell, please, and fascinate.—QUERCUS.

Impatiens Hawkeri.—Will J. T. Ebbutt tell me, as he seems so successful, how to grow Impatiens Hawkeri? I have met with two or three good plantsmen during the last few months who declared, and the fact was self-evident, that they could make nothing of it.—WALTER BUTT.

*** In reply to the above, several cuttings were put in a 4-inch pot and placed in a propagating case, and afterwards, when well rooted, transferred singly to 4-inch pots in a compost consisting of one part leaf mould to equal parts of sand and loam. The plants have since enjoyed all the sunshine on a shelf near the glass in a stove, the stems of the plants now being of a reddish-brown colour. This Impatiens being naturally a more robust grower than I. Sultani, I consider that growing it in a poor soil and keeping it pot-bound with plenty of water and sunshine, will lead to success.—JOHN T. EBBUTT, *Winslade Gardens.*

CHRYSANTHEMUMS.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S PROVINCIAL SHOW.

IN the report which you give in THE GARDEN (p. 545) of the general committee meeting lately held, I notice that Mr. Holmes attributes the failure in competition in the open classes to the want of pluck of the northern and southern growers; whereas I am fully convinced this was not the case. The formation of the schedule of prizes ever since its issue has not met with anything like a general approval amongst exhibitors in either the north or the south. This, I should imagine, Mr. Holmes has had opportunities of knowing; therefore, it appears very much like an attempt to throw the blame of the non-success of the meeting on to the shoulders of exhibitors in both the north and the south. In the first place—the fixing of the date—I must clearly exonerate him from blame in this, because, being a northern meeting, it would not have been wise to have named an earlier date, as the northern exhibitors could not possibly have been able to take part in the exhibition owing to the lateness of their blooms. Mr. Holmes should know that no exhibitor from the south can at that late date (for the south) compete with his northern brethren with any reasonable hope of success, as the best flowers are over before that date. If he says they are not, then we must come to the conclusion that the exhibition at the Aquarium was held much too soon. This can hardly be called a fact, as everybody will admit who saw the blooms staged at the show in question. If this is a fact, were the southern exhibitors to blame in not going north to compete with their, in many cases, third-rate flowers? Another reason would tend to prevent their going north with even a small prospect of success—the great disparity of the prizes in the leading class, the first being, as I note by the schedule, of the value of £25 15s., while the second prize dwindles down to the very insignificant sum of £6, which is most disproportionate. Now, I would ask Mr. Holmes, does he not think this arrangement had a deterring effect upon growers not only in the south, but also in the north? It would be idleness to think in these days that the consideration of the prize-money by exhibitors generally was of a secondary consideration. The sum of £6 does not go far when a long railway journey and stopping at the show two days have to be taken into consideration. I have reason to think that this allotting of the prizes has been much commented upon. Take, for instance, the large class at Hull held a few days later. The prizes there were allotted in a different manner. Although the first prize is of the value of £30 15s., the second prize is £10. Another thing, the class is not nearly so awkward to fill. From the reports of the show, I learn that there were seven or eight entries. This does not appear as though exhibitors were afraid to compete when the prizes and conditions of the class are reasonable.

I now come to the reason which mainly governed the northern exhibitors in not competing, viz., the peculiar conditions of the class. The various sections of Chrysanthemums having been but little grown by northern cultivators in the past and by some hardly at all, this complete change in schedule arrangement threw them out of competition entirely. Mr. Holmes should remember the very late date at which the schedule containing such sweeping changes in the leading class was issued. Many growers who would have prepared for the fray were entirely debarred, for the reason that they had not propagated plants of the new sections which were added to the large and consequently the principal class. A schedule containing such a departure in class-making should have been in the hands of exhibitors at a much earlier date if a representative exhibition was desired. The result was, as was expected by many, a failure in competition. I do not wish to throw the whole blame of the late issuing of the schedule on to the shoulders of Mr. Holmes, as it is well known he is a most energetic and courteous officer, but when he endeavours to disparage the pluck of exhibitors as he did at the meeting referred to, I think someone ought to point out the discrepancies of the undertaking, so that the fault may be more evenly divided and not entirely saddled on to the backs of exhibitors.

A NORTHERNER.

Peter the Great is the best yellow Chrysanthemum yet produced. By best we do not mean the largest flowered or the finest coloured, nor the the most perfect in shape. It would be nowhere on the exhibition table, as Chrysanthemums go on such occasions. But as a greenhouse-flowering plant it is excellent, being bushy in habit, retaining its handsome foliage till the flowers are over, and flowering on almost every branch, not stiff, but graceful. The petals are loose, not crowded, and a good bloom is 4 inches across; the colour is canary-yellow. In a vase the flowers are most beautiful. If someone would prepare a list of a score of good sorts as good as Peter the Great, those cultivators who can appreciate the difference between a handsome plant and a mop would be grateful.

Naturally grown Chrysanthemums.—"X" (p. 529) strikes a keynote that so far has found little response. Some years ago in THE GARDEN I advocated the use of the Chrysanthemum for covering and training against all vacant walls, especially south walls. As recently noted, I grow a good number in pots, and about 500 in half as many varieties against south and east walls. We never had so fine a season for these. Until last evening we had no frost since the first week in October, and I could cut from the open wall fine, bright, and brilliant-coloured blooms of Lady Slade, James Carter, Holborn Beauty, Distinction, White Ceres, Elsie, Amy Furze, Dormillon (nearest yet to blue), Sœur Dorothée Souille (capital outdoors), all the forms of Christine and secondary blooms of Comte de Germiny, Mme. Lemoine, Cullingfordi, and E. Molyneux (late).—W. J. MURPHY, *Clonmel, Dec.* 11.

A good Chrysanthemum group.—One of the best groups of Chrysanthemums which I have seen this year was that staged by Mr. Osborne at the late Southampton show. The plants were, on the whole, dwarf, the tallest not reaching above 4 feet 6 inches, pots included; while those in front of the group, and which formed such a capital margin, were from 1 foot to 2 feet high, entirely doing away with the use of Ferns or other foliage plants that are so much advocated by some persons and admitted by many societies. The plants, both Japanese and incurved, at the back of the group carried three and four stems, each one having a single bloom of excellent quality, while the stems were clothed with good foliage. The small plants at the front previously mentioned were grown with one stem each, and some two, the foliage and blooms being of the first quality for such a purpose, the pots used being

5-inch ones. The varieties consisted of the leading ones in the incurved and Japanese sections, such as Val d'Andorre, Mons. Freeman, Criterion, Peter the Great, Mlle. Lacroix, the Queen family, &c. In producing the plants for this purpose, the following method is practised by Mr. Osborne: The old stools or roots which have previously bloomed are planted out in March in an open piece of ground in fairly good soil. During the month of May stout cuttings, made from the tops of the shoots which spring from the base of the old roots, are inserted singly in small pots in sandy soil, and the pots placed under a hand-light in the shade, where the cuttings quickly form roots, after which they are fully exposed to the sun and air, and potted on into larger pots as required. Some of the tallest growing kinds should be topped once when about 4 inches high, retaining two branches to each and the same number of blooms. In pots of this size the plants will require to be liberally fed and given abundance of water should the weather be hot and dry during the summer.—E. M.

PROPER TIME TO STRIKE CUTTINGS.

At the present time intending cultivators of Chrysanthemums will be thinking of making a start for the coming season's growth. The object for which the plants are to be cultivated must be considered when preparing the cuttings. A variety of opinions exists amongst growers as to which is the best time to strike the cuttings. Most growers of flowers for exhibition are anxious to procure cuttings as early as possible after this date I think there is no hard-and-fast line to follow in the matter, as it occasionally happens that cuttings of some varieties cannot be had when desired. Some varieties are so slow in the production of cuttings, that as much as a month sometimes elapses before cuttings can be inserted. I will give the dates that I consider the best for inserting cuttings for the various purposes, although it is not absolutely necessary to carry out the work at the time stated. It is not, however, wise to defer the operation too long. The production of large flowers is now the system most largely adopted, the rage for size being on the increase. With the production of large blooms in view, any time from the beginning of December till the same time in January is suitable for putting in cuttings, starting with the more delicate growing sorts, such as Princess Beatrice and Lady Hardinge among the incurved, and Golden Dragon and Meg Merrilies in the Japanese section. Growth made from cuttings inserted at the early date has the best possible chance of becoming solid and well ripened. The strongest growing varieties, of which Prince Alfred is a type, should be struck last, as growth is rapidly made under favourable conditions. Some growers prefer to strike the cuttings in bottom-heat as late as February or March, but I have never seen good blooms produced from such plants; they lack depth and solidity, and are generally thin in the centre. This is caused by a non-maturation of the stems in many cases, for without properly ripened wood it is useless to expect blooms of the best quality. Another objection to late propagation is the space required to preserve the old stools or roots which are needed to supply the cuttings. Cuttings that have to be retained for any length of time are not in such good condition, as they are sure to become somewhat drawn and in consequence are sure to be weaker. For trained specimen plants or standards which are expected to assume a large size, the early part of December is preferable for the insertion of the cuttings, such plants requiring a long season of growth. Bush plants required for the conservatory need not be struck so early, as it is not so much the size of the blooms as the number of fairly good flowers that is required. From the middle of January to the early part of February will be soon enough to put in cuttings for this purpose. The cuttings of Pompons and single varieties, the blooms of which are required for exhibition, must be put in during December. E. M.

Mme. C. Audiguier for late blooms.—Fine trusses of blooms have been lately cut from plants of this variety. They measured from 1 foot to 1½ feet long, each carrying eight to ten fair-sized blooms of a rich colour. Cut with stems of this length they are admirable for the decoration of rooms if placed in vases, where the beauty of each bloom may be seen much better than when the flowers are cut singly with short stalks and arranged thickly together in unsuitable vases where half of each flower is hidden by its neighbour. Strong vigorous spikes of flowers may be cut with the length of stem named from plants which were originally intended for the production of large blooms. By allowing all the buds which formed at the completion of growth to develop, the sprays so described may be obtained.—M.

Chrysanthemums on walls.—These have been a great success here this season in spite of the sharp frosts occurring on October 1 and 2. The plants not having grown so tall as in some years are therefore more serviceable. For the last five weeks there has been a capital show of bloom on the plants of various sections growing at the foot of a south wall 7 feet high. As the colours and types are freely mixed the effect is pleasing, while quantities of blooms have been cut with spikes 8 inches and 10 inches long, each spike containing from six to double that number of fair sized flowers. The colours of each have also been especially rich. Cultivated so as to flower in masses, they form a pleasing change after varieties specially cultivated for large blooms are over. The sorts that have been best adapted for this method of culture this year are the following: *Pompons*—President, a dark rosy crimson kind, of free growth and freedom of flowering, especially bright in colour, one of the earliest; St. Michael and Prince of Orange, the former a free flowering orange-yellow, the latter orange-brown, also very free. *Single varieties*—Oriflamme and Oscar Wilde have not been excelled for freedom in flowering and showy appearance; the latter producing cup-shaped blossoms of a deep red, while the former has reflexed florets of a dull brick-red colour. *Anemone Pompons*—Antonius and Dick Turpin are the best in this section; the latter bright magenta with a yellow disc being especially showy and noteworthy from the fact that it possesses a pleasant violet perfume; Antonius is well known as one of the best yellow varieties with a very fine disc. *Reflexed sorts* are represented by such varieties as Golden Christine, having numerous branches, each one surmounted with from six to ten blooms. As this sort is of a drooping character, on a wall the flowers show to advantage. Progne is not excelled by any for its bright colour, and is especially liked for its scent. Distinction, golden yellow, shaded red, is very suitable for cultivation against walls. In fact, those of the reflexed section are to be specially recommended, as owing to their imbricated florets the water does not lodge amongst the petals. *Japanese varieties* which have been a success are Source d'Or, Dr. Macary, Maiden's Blush, Val d'Andorre, and Peter the Great, all belonging to the reflexed Japanese section.—E. M.

SHORT NOTES.—CHRYSANTHEMUMS.

Chrysanthemum Bronze Queen.—We are not at all surprised that this variety should show the eccentricity as stated by your correspondent at p. 530. It originated some two or three years since at our nurseries as a sport from Queen of England.—James Carter and Co.

Chrysanthemum M. A. Le Moult.—Is this Chrysanthemum, alluded to on page 531 under the heading of "New Varieties," the same as that sent here from the United States in 1885, and distributed the same year by some of our nurserymen? If not, the fact of there being two single-flowered varieties bearing the same name is likely to cause a considerable amount of confusion.—H. P.

Chrysanthemum Coquette de Castile.—This is a splendid variety for growing in the bush or decorative form. The plants were clothed, both last year and this, with foliage down to the pots, and their dwarf growth renders them the more useful. The colour is creamy white, shaded violet-rose, with a golden centre, but in plants that were housed early and grown in a higher temperature the blooms have been pure white.—George Wall Duee, *Chard, Somerset.*

Chrysanthemums Snowdrop and Primrose League.—The white-flowered Snowdrop variety is at this time especially serviceable for cutting, its neatly-formed, pure white blossoms being much appreciated as button-hole flowers or for bouquets, or, when cut in long sprays, for the filling of specimen glasses or vases. Primrose League, a sport from the above, is the exact counterpart of its parent, except in colour.

Chrysanthemum Pompon Maid of Kent.—This is a late variety, flowering after the other sorts are past. It has rounded, full-formed blossoms of the purest white, equally valuable at this time of the year either in a cut state or as plants. Those who have not tried this variety should lose no time in doing so.

Chrysanthemum Progne.—We have lately been cutting long sprays of this variety, upon which were six to ten blooms of average size, good form, and splendid colour, and, above all, possessing that delicate perfume which is so much appreciated in this variety. Coming into flower after the bulk of the ordinary November kinds were over, it formed an agreeable change, and was much appreciated for button-hole flowers.—E. M.

KITCHEN GARDEN.

ONIONS.

I think Onions can scarcely be expected to keep well during the winter just commencing, as the summer and autumn were not favourable to their thorough ripening and hardening. The old plan of pulling the Onions when fit and laying them out upon mat-covered hurdles to dry and become hard before storing them for the winter is a good one, though it had to be carried out under somewhat difficult conditions during the past season owing to the vicissitudes of weather. When Onions have to be stored away in a soft state, they are apt to start into growth much more quickly than when in a thoroughly ripened condition. All that Onions require is to be wintered in a cool, dry place, where neither damp nor frost can reach them. They should be laid out as thinly as possible, or if necessity requires that they be laid somewhat thickly, they should be occasionally turned over and examined thoroughly. Those who have but limited convenience for storing Onions find the old country method of "roping" an excellent one. Forty years ago Onions were much more "roped" than they are now, and the practice was to hang them up against the walls in the potting bench where the stokehole was, or suspended from the rafters in the roof. In this way a great many Onions can be stored away in a comparatively small space. The plan adopted was to take a wisp of straw a yard in length and at least an inch through, and then selecting the Onions with fairly stout necks put them on in fours, winding twine about them, and then going on with another four until the rope was completed; a loop was made, and it was then suspended from a nail. The largest and soundest Onions were placed on the rope for keeping, and the small ones placed aside for immediate use. Growers of Onions for sale used to make a practice of "roping" them in this way, and in this form they were very convenient for house-wives to buy, as a rope or two could be hung up in the kitchen or any dry place.

I think the Globe Onions should be more grown by gardeners of all classes for winter consumption, as they are considered by those qualified to judge to yield a heavier crop. Of their keeping qualities there can be no doubt; they are invariably good keepers, and therefore well adapted to store for winter and early spring use. There are two types of the Globe Onions, viz., the brown-skinned, which is perhaps best known as James's Long Keeping, and the white Globe, which has a pale brown or straw-coloured skin. Both these are good standard varieties, and popular with gardeners because of their usefulness. But newer types have been introduced of late years, such as Bedfordshire Champion, Magnum Bonum, Excelsior, and Wroxton. The

original type of this last was a flat oval, but Mr. Deverill, of Onion fame, has secured an improved Wroxton which appears to me to be the very finest type of Globe Onion in cultivation and is remarkable for its solidity and remarkable keeping qualities. It takes a few years for a new variety to get into general cultivation, and there is not a great deal of new Onion seed this year to put into commerce. I have heard of one grower who estimates his loss in Onion seed through the defective harvest at £600.

Some new types of Onions are simply a matter of selection, though of late years cross-fertilisation has been brought into requisition to obtain new varieties. The white Spanish or Reading Onion is seen reproduced in such fine forms as Nuneham Park, Banbury Improved, Naseby Mammoth, Main Crop, &c. One of the finest types is Rousham Park Hero, but this has been distanced by later produced forms. Fifteen years ago, when Banbury was famous for its Onion show, it was thought a great thing for twelve Onions to scale 14 pounds and 15 pounds; now they reach 18 pounds or 19 pounds, owing to high cultivation.

I do not include the Globe Tripoli Onion among the Globe varieties. The Tripolis of the present day are French and Italian Onions, soft and mild, and the usual custom in this country is to sow the Tripolis at the end of the summer, and they stand the winter in the open air. Hardy as the Tripoli Onion is, it cannot be seeded to any extent in this country, if at all, and so seed has to be obtained from Italy, France, and other parts. The two best Tripoli Onions to sow in winter are the Giant White Flat Italian and the Giant Rocca, both growing to a large size with good cultivation. I think the former the best of the two. The Blood Red Italian Tripoli is a fine Onion also, remarkable for the depth of colour it exhibits, but it does not grow to the size of those just named.

Onions are very extensively grown in Bedfordshire; the deep sandy loam appears to suit them and many other kinds of vegetables well. Large beds of Onions are grown for pickling purposes, and early in August women go over the beds and pull them, laying them upon the ground to dry fit for market. Onions for general winter use pay well, as a rule, and fetch from £30 to £45 per acre. Many hundreds of acres of Onions are grown for seed, and the price paid for it depends upon the sample and extent of the crop. R. D.

Cabbages.—If the recent frosts did no other good, at least they served to somewhat harden the luxuriant growth which had been made by all kinds of the Cabbage tribe. When we just previously had such mild balmy weather very grave were the forebodings as to what would happen to the green stuff if hard weather set in. The warm weather soon passed away and a cold one of frost and fog settled over this part of the country, and the needful hardening process at once began. In gardens where the areas of Cabbage tribe crops are of moderate dimensions, it is not difficult to check luxuriant growth by partially laying the plants; that process, however, is hardly practicable where many acres of green stuff is concerned; hence the welcoming of the frost, although not severe. But there was need for frost also to improve the market price of the Cabbage section of market crops, for there has been such wonderful abundance, that prices have been very low. Certainly the crops so far have not been very costly. Plants could be during the summer got out anywhere, and from that time, except for hoeing, gave little trouble. There has been very little of clubbing either; indeed that visitation is usually the worst in dry seasons. But all the same, a big load of green stuff has given such trifling return that when the indispensable labour was paid for, little was left to meet other expenses. A change to harder weather, however, invariably means improved prices. Cold, perhaps, brings into the mouths of consumers greater appreciation for hot cooked vegetables. Certainly dealers look to a possible scarcity should hard weather long continue; hence the first few frosts now make an appreciable improvement in the market returns. With so much green stuff in the fields, even if harmful to Violets and Wallflowers, growers would prefer harder weather, as even but an increase in price of from 10 to 20 per cent. on the returns for all the Cabbage tribe means a considerable addition to the grower's income this winter.—A. D.

KITCHEN GARDEN NOTES.

Seakale for Succession.

Young and rather strong plants carefully lifted, packed closely in large pots or boxes filled with fairly rich soil and set in a strong heat, or say under the stagings of forcing houses, will afford good dishes in from a fortnight to three weeks, and this is the best method of growing Seakale. All that is necessary is to keep the roots well supplied with water, especially when they are near to hot-water pipes, and the tops excluded from light. In order to maintain a close succession, a few fresh, well-filled pots should be introduced into heat every week, and more also might be placed in a Mushroom house to come on more slowly. Seakale obtained by either of these methods is never so good as that cut from permanent beds, this being forced with the aid of hotbeds formed over them. From this date a portion of a bed should be covered about every fortnight, and in extent according to the demand. Narrow hotbeds are not suitable, cold winds blowing all the heat out of them. They ought, therefore, to be formed sufficiently wide to enclose at least a double row of plants. It is necessary to first cover the crowns either with the ordinary Seakale pots or else with long narrow bottomless boxes with portable lids. The latter ought to be sufficiently wide at the bottom to enclose a single row of strong plants and about 18 inches deep. A mixture of leaves and stable manure is the safest and best form of forcing material, this not requiring much preparation. The bed should be at least 18 inches wider all round and the space occupied by the pots or boxes about 3 feet deep and built moderately firm. A covering of straw will be necessary for keeping the leaves together. If nothing but leaves, which answer well, is used for forcing Seakale, strong hurdles will be found of great assistance in keeping these together. In many instances no leaves are available, and the forcing has to be done with the aid of stable or farmyard manure only. This will require more preparation in order to get rid of rank heat. In all cases it is necessary to keep trial stakes plunged into the bed, and they should be frequently examined. Sometimes it will be found that a covering of some kind is needed to assist in raising the heat, this being especially the case in cold, windy weather. More often, however, excessive heat will have to be guarded against, as a sudden rise may kill the plants, or at any rate the crowns may be spoilt in a few hours. If, when the stake is first drawn out of the bed, it is found unbearably hot to the hand a risk is being run, and the best course to pursue is to at once open out the centre of the beds, thus letting out the rank steam and preventing the bed becoming unduly hot in the centre. In the course of a few days, or in the event of cold weather setting in, the material may safely be returned to its old position. As the plants are cut over, the heating material will be available for covering later beds, but will usually require a little fresh or nearly fresh manure added to enliven it up. A second crop may be taken from any old plants that it is intended to destroy. The second crop ought not to be cut from any plants that it is desirable to have strong next season. After the pots or coverings are removed from the plants the latter ought for a time to be protected from frosts, a little strawy litter being suitable for the purpose.

Rhubarb.

Much that has just been stated about Seakale is also applicable to Rhubarb. Any warm place will forward it, all that is necessary being to lift fairly strong clumps, setting these together and covering with good soil. A high temperature induces rapid, but weakly growth, and the best stalks from lifted plants are obtained when the heat rarely exceeds 60°. A dry bottom-heat is especially objectionable. When forced where well established, a single strong clump is capable of producing a surprising weight of stalks, and it is in the open where we prefer to force the most extensively, beginning at the present time. Seakale may be forced every season and be little the worse for it, but Rhubarb does not so quickly recover from the loss of its first heavy crop of leaves, and ought, therefore, to be forced every second year only. To be plain, if a portion of the bed is forced this season, it ought to have a complete rest in the following year, this being the only method of ensuring the formation of strong crowns. From four to six strong clumps are usually sufficient to cover up at one time, these being capable of maintaining a fairly good supply for about a fortnight, so that it is necessary to cover fresh clumps at fortnightly intervals. We find square, bottomless boxes very serviceable, these being 3 feet deep and sufficiently large to well enclose a single clump, but they need not be nearly so wide at the top, for which portable lids are required. Old flour and cement tubs are also suitable for the purpose, these being inverted over the clumps, the bottoms knocked out and converted into lids. Smaller clumps may be enclosed by earthenware pots or old sugar moulds, or other contrivances. If a single row or a few isolated plants are forced, the coverings ought to be surrounded by a bed of heating material about 4 feet in depth and 2 feet wider than the tubs or pots. Any variety of Rhubarb can be forced, the giant Victoria being perhaps as profitable as any, but the easiest forced and best in point of colour are Johnstone's St. Martin, Linnæus, and Early Scarlet.

Forming fresh beds of Rhubarb.

Very often Rhubarb is allowed to remain much too long on the same breadth of ground. It is a crop that for convenience and appearance sake is kept outside the garden walls where space sometimes is much limited. No crop more quickly exhausts the ground, and very rarely do old clumps or those that have been established six years and upwards yield such fine juicy stalks as do younger plants. Our plan (which answers well) is to have about six fairly long rows all of different ages. The oldest row is lifted and a portion of the clumps forced early, the remainder being reserved for dividing and replanting. Thus a row is broken up and another planted every season. The latter is not drawn from during the first year and only lightly during the next, and at the end of two clear seasons' growth, is fit for forcing where established. It is rested during the following summer again, lightly drawn from in the fourth season, in the following year slightly forwarded, the produce being lightly drawn from, and during the sixth winter from the time of planting it is in capital condition for lifting. In smaller gardens shorter rows or fewer plants may be grown on much the same lines, and they will pay for the trouble taken with them. Ground intended for new beds of Rhubarb ought to be broken up if possible not less than two spits deep, plenty of solid manure being mixed with both the surface and subsoil. This can be prepared now, and if the weather continues mild and open there is no reason why the planting should not also be completed. The old clumps should be split up with the aid of a fork, each division having one or more crowns and a few strong roots attached. Divisions or young plants may be planted in rows 4 feet apart, and, as a rule, a distance of 4 feet between the plants is not too much. A little of the finest of the soil ought to be firmly disposed about the roots and the crowns should not be buried. When the same site is being replanted with Rhubarb, as much fresh soil or good loam as possible, in addition to the manure, ought to be mixed with or substituted for the old soil. After about three seasons, established plants will have much exhausted the ground, and it is advisable therefore to bare the topmost roots, cover these with good manure or decayed garden refuse and return the surface soil to its old position. W. I. M.

PERGOLA AT AMALFI.

The Vine-clad pergola is the most distinctive feature of an Italian garden. It is the most convenient form of cultivation for Grapes grown freely and affords delightfully shaded walks in the sunniest positions. The one engraved is of large proportions, larger than is usual; it is supported on massive pillars of rubble masonry. An engraving showing its whole length was published recently. Sometimes the marble columns of some ancient temple or palace form the supports, in other parts single stones hewn direct from the quarry, though in most cases they are of some simple masonry of either round or square section. In any case, the pergola is a beautiful and valuable feature in a garden and



Amalfi, from the pergola at the Capuchin Convent. Reproduced for The Garden.

worth adopting in various forms to the wants of our home gardens. Besides Vines, an abundance of good climbing plants and shrubs are available and suitable for coverings.

The autumn and winter Crocuses, now in full flower, are having a rough time of it after the recent mild weather. Nevertheless, those planted in sheltered spots where they are protected a little from the frosts are yet quite gay. C. lævigatus is one of the best just now, every bulb sending up a succession of its pretty striped flowers. C. ochroleucus is also good, but creamy white is a bad colour for rough weather. We prefer longiflorus, the later blooming forms of speciosus, the varieties of cancellatus sativus. Two of the spring-flowering varieties, viz., C. Korolkowi and C. alatavicus albus, are already in flower.

Flower Garden.

HARDY PERENNIALS IN WINTER.

The treatment of hardy perennials after their beauty has faded, and frost, rough winds, &c., have destroyed the few remaining flowers of those which bloom late in the year, is often comparatively neglected. After the withered stems are cut off, and the borders and beds made tidy, little notice is taken of their occupants before active growth re-commences in the spring. It is, however, during this period that many small and choice plants are lost, through the depredations of slugs, worms, and other destroyers. To protect the plants from these pests, greater watchfulness is required during the winter, especially if the weather is open, than is the case in the summer-time. Where the soil is heavy it often abounds with small black slugs, and if they are left to carry on their depredations unchecked, many small plants will very soon disappear. Amongst the things more particularly relished by these small marauders are the different species of Dianthus, Campanula, Gentian, Erigeron, Lychnis, Senecio, and the flowers of Hellebores, Hepaticas, Primulas, &c.; therefore, extra attention should be given to these and others likewise subject to attack. One of the best means of checking this slug nuisance is a good dressing of dry wood ashes, which should be spread over the surface soil immediately the dead stems and leaves have been cleared off, at the same time lifting the leaves of any dwarf plants likely to harbour the enemy, so as to more effectually dislodge those seeking shelter in these quarters. Delphiniums, Alstrœmerias, Anthericums, Ranunculuses, &c., which are liable to have the young shoots destroyed when commencing to grow, should have small hills of wood ashes placed immediately over them. Thus protected, they will break through strongly in the spring and escape with little damage from their enemies. Wood ashes, too, is a capital fertiliser. A dressing of this, however, is not sufficient to maintain the fertility of the borders, for hardy perennials are very exhausting to the soil, occupying, as they often do, the same position for several years. Therefore, one of the chief points in their successful cultivation is to be found in supplying their wants in this respect most effectually. I do not assert that a rich diet is necessary, although some kinds delight in plenty of manure; these are better grown by themselves as far as possible, but an annual supply of fresh material of a fertilising nature is requisite for maintaining the majority of this class of plants in good condition. No doubt the best means of enriching the soil is by digging in whatever dressing is applied, but to accomplish this satisfactorily all the occupants of the border must be removed. It is not, however, always convenient or desirable to disturb the beds and borders for this purpose—no small undertaking when occupied with a large and varied collection. There are few operations connected with outdoor gardening which I am more disinclined to undertake than the overhauling, rearranging, and replanting of a collection of hardy perennials. I always find so many things I am loth to disturb when they seem to have naturalised themselves, that I prefer to rely upon surface dressings to supply the fresh food, even if it is at the expense of reduced luxuriance. Then, again, it is impossible to hit upon a time equally well suited to all species for carrying out a general replanting; some kinds are sure to suffer in a greater or less degree, while numerous self-sown seedlings are destroyed. Hepaticas, Squills, Primulas, &c., will shed their seeds and germinate when the spade is kept away from their immediate vicinity, and by adopting a system of grouping when planting, renovation can be accomplished piecemeal at less trouble and risk.

Wet and pasty manure should be avoided for surface dressings. Old Mushroom beds form an excellent material for the purpose, also half rotted leaves; neither of these, however, are of a very stimulating nature, but if desirable this deficiency can be remedied by mixing with them some fowls' or pigeons' manure, or some artificial fertiliser. Strong-growing plants and those occupying dry positions will be greatly benefited by a soaking of liquid manure at this season, when it can be given fairly strong without fear of injury. A. Barker.

Asphodelus acaulis.—This pretty little Algerian Asphodel is now blooming freely in the open border in front of my greenhouse, the only protection it receives even at this late season of the year being a cap-glass placed over it at nights and during bad days, but which is removed on every day that is at all fine. This plant is well figured in a recent number of the *Botanical Magazine* for the current year from a specimen which bloomed in the open

border at Kew Gardens during May of the present year. Its flowers may be accurately described as those of a pink form of the common Star of Bethlehem (Ornithogalum umbellatum), being almost identical in form and only differing in colour, though of course they belong to totally distinct and different botanical families. I received the tubers in a dry state (but just showing signs of commencing to grow) in August last from Messrs. Dammann, of Naples, and planted them in the open border, not expecting them to bloom till next May, as this was the season of their flowering at Kew, but they at once commenced to grow rapidly, and each plant has produced a bunch of from twelve to twenty flowers from its centre, the first of which opened about a week ago. Each flower only lasts one day, but being numerous they expand in constant succession, and on a bright day have quite a pretty appearance. It is to be regretted, however, that the bunch of flowers does not rise on a short stem out of the Rush-like leaves, as in the portrait of the plant in the *Botanical Magazine* they appear to do, as though the foot-stalks of each individual flower are between 1 inch and 2 inches in length, the flowers can hardly show themselves to the best advantage. This plant is said to seldom bloom in this country for want of sufficient sun-heat, and as we have had hardly any sun since it came here, it may be that the flowers now being produced by my plants were formed in their native land, and that they will never bloom again, but this we must leave to another year to see.—W. E. Gumbleton, *Belgrove, Queenstown, Ireland.*

Carnation Paul Engleheart.—It is due to the holders of the stock of this Carnation and to those who have purchased it that I should notice the assertion, which has twice of late been made in The Garden, that the plant is common in Irish cottage gardens, and that therefore it has been wrongly sent out as a new thing. Whether this Irish Clove is really identical with mine or not I have no means of proving or disproving, for I have never been in Ireland and have never had a single Carnation from thence. But I would remind those who have made this possible discovery that in The Garden of July 31, 1886, p. 90, I stated distinctly that my plant came from a Worcestershire cottage garden, and thus is new only in the sense in which many others are fairly called new, viz., newly brought to light or rescued from obscurity. To explain more fully its origin: When staying a few years back with a relative in Worcestershire, I noticed in his garden two or three plants of a Clove Carnation certainly new to me, rigid and short in stem, powerfully fragrant, and of a very rich dark crimson colour. It was said to have been brought by one of the gardeners from his home in the neighbourhood. Two or three layers were given to me, and from these, finding the variety unusually hardy and prolific and of extreme value to cut from, I subsequently raised a large stock. Year after year it was much admired and recognised as unknown by many visitors to my garden who are conversant with Carnations. If it is really an ancient plant which has been lost sight of in England, but is common in Irish cottage gardens, I can only say, so much the better for the cottage gardens, and that this fact—if it be a fact—does not appear to me to detract from its value. Appreciative notices of this Carnation will be found in The Garden, 1886, p 90; 1887, p 124; 1888, pp. 165, 170.—G. H. Engleheart, *Appleshaw, Andover.*

—— A correspondent of The Garden objects to this capital border Carnation being brought out as a novelty, because one like it is frequent in cottage gardens near Cork. As far as English gardens are concerned, it is a novelty, and a very precious one. The crimson Cloves common in our gardens, though varying a good deal in colour, length of stalk, and freedom of flowering, do not combine all the good qualities of this. No doubt the apparent identity is accidental, for there is nothing in the history of this plant to show that its ancestors came from the sister isle. As it was not distributed to us from the gardens near Cork, let us be thankful for it from Hampshire. In any case Paul Engleheart is now getting to be well known among those who look out for the very best of the border Carnations. No doubt "by any other name it would smell as sweet"—it certainly could not smell sweeter!—G. J.

—— The discovery that this useful Carnation is not new, but simply an old variety which had been nearly lost to cultivation in this country, will in no wise detract from its merits. It is only another instance of an old friend being nearly lost in the race for new acquaintances. From what I have seen of this Carnation I am fully convinced that it merits all that has been said in its favour. I also believe that there are few Carnation growers in this country who were acquainted with it previous to its being sent out under the new name. However, in this I may be mistaken, but I may say that although I take great interest in Carnations and have seen several of the best collections, and have also visited many shows where these have been a special feature, I had not seen this variety previous to last spring, when plants, which were obtained under the above name, flowered with us. If I had met with this growing in a cottage garden, or any other private establishment, I should have been led away with the idea that it was a seedling which was worth looking after.—A. Hemsley.

THE GENTIANS OF THE ACAULIS GROUP.

From the *Wiener Illustrirte Garten-Zeitung* we translate the following notes on the Gentians of the acaulis group, by Mons. H. Correvon, Director of the Jardin Alpin d'Acclimatation at Geneva.

Gentiana acaulis (L.) is one of the handsomest alpine plants to be met with in cultivation. Under the name of "Gentianella" it has been grown for some hundreds of years in England, where I have seen veritable carpets of it. In an English garden it really grows like Grass. At Weybridge Mr. Wilson forms strong and handsome edgings with this plant, and the Gentian groupings (true to Nature) lately figured in The Garden have been seen by many. In Holland, Belgium, and North Germany this Gentian is tolerably easy of cultivation, but in the dry climate of Mid-Europe it is a more difficult matter to grow it.

How it behaves in Vienna and in Austria generally, I do not know, but in Switzerland, France, and South Germany experiments have been made with it which cannot be said to have turned out quite satisfactory. However, I think that the want of success in these cases is due to the fact that the plants with which the experiments were made were brought direct from their natural habitats in the country where they grew, and under such circumstances plants are always much more difficult to acclimatise. I have here, in the Jardin Alpin d'Acclimatation, carefully studied this subject, cultivating, side by side, plants that were brought from the mountains and others that were raised from seed here, and have found that, while those plants which had been brought from the Alps with ample balls to the roots merely dragged on a miserable existence and always flowered scantily, those which were raised from seed grew right away without check, and, although they took three years to become sufficiently matured to produce flowers, I am fully convinced that this is the right method of dealing with this plant—the only method, in fact, that deserves to be recommended.

The plants which were brought from the Alps bloomed indeed, but feebly, and produced no seeds, or but few, which I considered a proof that they felt the want of the conditions which they enjoyed in their native habitat. They showed themselves to be altogether and at all times more tender than the others, and more sensitive both to the sun's heat and to dampness, and within a few years they all died off. On the other hand, the plants which were raised from seed became speedily and thoroughly acclimatised here (in our very unfavourable climate) and produced seed in abundance. Besides these I have also grown and studied the Gentianella of the English. It is better and more easily cultivated than all the others, literally "growing like a weed." It increases quickly and is of vigorous constitution. It looks as if it had become quite a different species from the type, and it certainly has been altered (in a botanical sense) by cultivation. The English form of the plant spreads much more quickly, sends out strong and numerous runners, and is easily increased by division of the tufts, which is not the case with the wild plant of the Alps. It is a metamorphosed plant with which the botanical world has nothing further to do; it belongs entirely to the realm of horticulture. I have planted it in a garden which we have on the Wallis Alps, and in the course of time will be able to communicate some interesting observations respecting it.

The old Gentiana acaulis of Linnæus can no longer be said to exist, botanically speaking, as several forms and modifications have to be included under this name. In a very interesting article on this subject in the *Bulletin de l'Association pour la Protection des Plantes*, No. 2, p. 24, M. Périer has separated and very clearly figured these different forms. There are four forms which exhibit botanical differences to such an extent that they must be distinctly separated from one another. [A fifth form is recorded by Dr. G. R. von Beck in the "Flora of Bosnia."—Ed. *W. I. G.-Z.*] These are:—

Gentiana Clusi (Perr. and Song.) has leathery, rigid, lanceolate, pointed leaves; sepals lanceolate, lying closely on the corolla, and separated from one another by acute-angled interspaces. The flower is dark blue, and has no green streaks on the inside of the corolla. The plant grows in calcareous rocky meadows on the Alps and the Jura range at an elevation of from 1500 to 2000 mètres.

Gentiana angustifolia (Vill.).—The handsomest form of all. Leaves limp, not leathery, lanceolate, narrow, glossy on the upper surface; flower five or six times as long as broad, very elegant and ornamental, of a beautiful azure-blue colour, with five bright green spots on the inside of the corolla. The sepals do not lie close on the corolla, but stand out from it, and are broad at the base. This is indisputably the handsomest of all the Gentians, and also the easiest to cultivate. It is found on the calcareous Alps of the Isère, on the Maurienne, and on peaks of the French Jura range (Reculet, Crêt de la Neige). It is synonymous with the Gentiana sabauda (Boiss.) of the French.

Gentiana Kochiana (Perr. and Song.), G. excisa (Presl.).—This is distinguished by its leaves, which are very broad, quite flat, elliptical, broadly lanceolate, and of a bright green colour. The teeth of the calyx are lanceolate, short, and separated from each other by wide sinuous interspaces. Flowers dark blue, with five dark blackish green spots on the inside of the corolla. The plant is found in those districts of the Alps which are of the primary formation, at an altitude of from 1400 to 2000 mètres.

Gentiana alpina (Vill.) is a rarer form, and occurs only on Alps of the primary formation. Leaves small, bright green, almost passing into grey, forming pretty rosettes, similar to those of Saxifraga Aizoon (L.); flowers small, sky-blue, sessile. This plant sends out runners, like the Gentianella and Gentiana verna (L.). It is found only in the highest pastures of the Alps, at an elevation of from 2500 to 3000 mètres.

The form G. angustifolia is, as I have already mentioned, the easiest to cultivate, and this probably arises from the circumstance that it is not an exclusively alpine plant, but is also met with on low, dry hills in Savoy. Near Chambéry it occurs in the mountain meadows at an elevation of 400 mètres.

According to my experience, the best time for sowing seed of these Gentians is in autumn, just before winter sets in, and in light, but not too dry, soil. The best compost for them is a mixture of heath soil, leaf mould, and sand. If possible, snow should be spread over the seed bed during the winter. The seedlings will make their appearance in April in the following spring if fresh seed has been used, but if not, it will take a longer time to germinate, often from six to eight months, according to the age of the seed.

TUFTED PANSIES.

Whilst I use this term, because it has become a common appellation for those which we have usually termed Violas, yet I by no means adopt the opinion that the varieties called show or large-flowered are less beautiful because the flowers are large or the colours so varied. That many large-flowered Pansies do not produce tufts of bloom in the same way that the smaller-flowered Violas do is certain; but still, up to a certain time of the year strong plants of the large-flowered section, whether of English or Belgian, French or German strains, do make a wondrously beautiful display. A fine, rich-coloured selection from the Belgian Pansy is perhaps the most showy, because the colours are usually so rich, varied and beautiful. A good deal may be said for self colours, such as are found in George Rudd and New Guinea, yellow; Mrs. Cannell, white; Holyrood, blue; and the rich maroon-purple selfs, of which there are many named varieties. The chief need in securing fine displays of all kinds of Pansies, whether tufted or large-flowered, in the spring is found in strong clumps, as, for instance, now after spring-planted Pansies have been cut over they show dense clumps of shoots already studded with flower-buds and ready to burst into flower at the first opportunity. If these plants have to be lifted, divided into small pieces, and replanted to make blooming plants for the spring, they will fail to make fine tufts, and will bloom later than will the bottoms of the previous year which have remained unbroken. Of course, it is not always possible to refrain from breaking up clumps, as the provision of stock for the future is needful; but if we want to see in the spring clumps of Pansies from 12 inches to 14 inches over and one mass of bloom, then must the old plants of the preceding summer remain unbroken, although they may be lifted with good balls of soil attached and be safely transplanted. Almost every kind of bedding or border Pansy we have will produce thick tufts of shoots in this way in the autumn if in good soil, and, as was the case during such a season as the past, be kept freely growing. Buyers of Pansies for bedding and forming natural groups feel disappointment when they find that the pieces sent them from the nursery fail to produce for the first year any appreciable effect; but that cannot be helped, as the nurseryman cannot sell stock plants full of growth at the price of small stuff. Where Pansies are grown largely for market sale larger plants may be obtained cheaply, but then they are common varieties. This year field-grown Pansies are very fine indeed; thousands of plants which had been dibbled up in August had to be lifted and re-divided and planted in October and November, so strong had they become. The grower of cheap Pansies, because offering very cheaply, cannot afford to sell very large plants for the money. And yet, on the whole, his stuff is wonderfully good. In this neighbourhood Pansies of this nature are grown probably by hundreds of thousands annually, and just now large breadths may be seen blooming charmingly. To produce really fine clumps or tufts, however, there are no plants like those fully one year old. Where dependence is placed upon Pansies for bedding purposes, some two or three diverse sets of plants are desirable. Old tufts always flower earliest in the spring, whilst other tufts pulled to pieces and dibbled up into a frame or in light soil in October make a capital succession for planting out in May to bloom during the summer. Plants raised from seed sown during May or June, and especially the fine fancy varieties, bloom early in the autumn; so also will young plants from the earliest spring-blooming clumps if these be divided and replanted up in good soil in the month of June for the summer. In this case a north border and frequent waterings will soon help to make these into strong-rooted plants. Of course, all this beauty in Pansies is not to be had without trouble, but then the great feature of all good gardening is that it creates labour, for without labour there is no gardening Tastes differ appreciably with respect to small-flowered and large-flowered varieties. The former, as a rule, give the most bloom, but the latter make up in size and boldness of the flowers, and usually richer hues of colour. The parti-coloured or variegated kinds are pretty, but, on the whole, not effective. Countess of Kintore is a lovely variety, and, so far as I have seen in Pansies, is not excelled in beauty, but it is perhaps the loosest grower of all the family, and never produces a good clump of growth. A really good dense-growing, tufted kind having all the beauty in its flowers of Countess of Kintore would be a great gain. Where Pansy flowers are required for bunching or for working into posies, none are more acceptable than are those of the Countess. The development of form and substance in the flowers of the bedding Viola is a natural product of constant seeding and raising from seed. Out of thousands of seedlings, some little improvement in form of flower as well as of colour is certain to be presented, and just as certainly will that improvement catch the eye of the raiser. For that reason we rarely see in more recently raised varieties raggedness of outline in the flowers, let the colours be ever so beautiful. None the less it will be a great misfortune if such march of improvement should lead to the utter neglect of the smaller flowered section. These forms are very lovely, and must, under all circumstances, give us the best examples of tufted Pansies.

A suggestion has been made that pans of these Pansies, or indeed of Pansies in clumps of any kinds, should be exhibited in May next at the Temple show of the Royal Horticultural Society. Such a class would indeed make a very beautiful one; indeed, I should like to see classes for both; twelve pans distinct and six pans distinct, so that all kinds of growers might be encouraged to compete. We get so tired of stereotyped show plants, that anything new or novel merits all possible encouragement at shows, and especially when they comprise such lovely and popular flowers as Pansies, and some of the very hardiest of our garden flowers. Should such classes be formed, I hope the width of the pans will be defined, and I think 12-inch pans large enough for the purpose consistent with the limited space at the disposal of the society. Beyond calling for Pansies in two distinct kinds, no conditions should be imposed as to variety, and in such a case if but three dozen of pans were shown there might be fully thirty varieties in the groups. I hope we may hear more of Pansies in pans at shows. A. D.

Crassula lactea.—A batch of this little-known succulent just coming into flower demonstrates its value as a winter-blooming plant. Notwithstanding that it has several times been exhibited in good condition, and also has received favourable notice in the horticultural papers, its cultivation as yet is somewhat limited. This is rather surprising, seeing what a valuable plant it is where flowers in winter are in demand. No forcing is needed to have it in bloom during the dullest period of the year, and its light spikes of white starry flowers are very pleasing either in the greenhouse or when used in a cut state. Although belonging to the class of plants known as succulents, which are generally (often erroneously) considered to require little attention, it will, however, pay for good culture, the whole character of the plant being different in a young, vigorous specimen as compared with an old example which has occupied the same pot for several years. If good strong shoots can be obtained in February, no difficulty will be experienced in producing flowering plants by the following December. From five to seven cuttings should be inserted in a 6-inch pot and stood on a shelf or stage in a warm house where they will soon form roots, and where they may be grown till May or June, when a pit will be a more suitable place for them. Occasional doses of liquid manure will prove beneficial when the pots become filled with roots. Towards the winter the flower-spikes will appear, one in the point of each shoot, after which the plants should be removed to the greenhouse, where they will last a long time in perfection. Small cuttings must not be expected to make plants strong enough to bloom the first year, in which case they will, if kept growing in the same pots, make nice specimens for another season. The best, however, are obtained by striking fresh pieces each year, these being, as nearly as possible, of an even size, so as to ensure their flowering simultaneously. Turfy loam having a little leaf-mould mixed with it, and a liberal addition of coarse sand, forms a compost which seems to suit all its requirements.—A. Barker.

HELIANTHUS RIGIDUS, LÆTIFLORUS, AND TRICUSPIS.

When the last number of The Garden reaches America, I am afraid that the American botanists will hold up their hands in amazement at Mr. Appleton's note on these plants. He has, I know, paid great attention to the genus Helianthus, but here he is certainly taking a leap in the dark. Dr. Asa Gray was such a thoroughly competent botanist, and had devoted himself through so many long years to the study of the North American Compositæ, that it is extremely unlikely that he should make a blunder about any of them. Dr. Elliott, the author of the "Flora of South Carolina and Georgia," had not one tithe of Dr. Gray's experience in drawing up descriptions and working out synonymy, but he was a competent field botanist, and I should much like to know upon what grounds Mr. Appleton bases his conclusion that he described one given plant under the name of Helianthus tricuspis, and that he also mixed it up with what he described as H. scaberrimus and H. sparsifolius. From what I know of Dr. Elliott, I entirely refuse to believe that he was such a gross blunderer. I am not aware that there are any authenticated specimens of Elliott's plants in existence. There is nothing but the book to fall back upon, and from the descriptions it is pretty clearly evident that Elliott's scaberrimus was rigidus, and his sparsifolius a form of atrorubens, as Dr. Gray has already stated. Elliott's description of tricuspis is as follows:—

Root perennial; stem 3 feet to 4 feet high, and with the whole plant very scabrous; branches and leaves very regularly opposite; leaves much whitened on the under surface by the blistered epidermis, of a dull uniform brown colour, though very scabrous underneath, triplinerved, with the margins revolute, nearly entire; flowers few, terminating the branches; involucrum many-leaved; leaves subulate, wide at the base, the interior rather longer; florets of the ray fourteen to sixteen, about 1½ inches long, yellow; stamens longer than the florets of the disc; seed compressed; pappus nearly as long as the seed, subulate, lacerate; chaff of the receptacle tricuspidate, the middle segment the largest and somewhat acuminate.

The plant which we rely upon at Kew as typical lætiflorus differs from all the forms of rigidus (please do not make me responsible for Harpalium rigidum semi-plenum) by its yellow disc, longer ray-flowers, distinctly petioled, thinner ovate lower stem leaves, and tricuspidate scales of the receptacle. But the in-

volucral bracts of this lætiflorus are regularly lanceolate, certainly not subulate from a dilated base, and Elliott says nothing about the characteristic yellow disc. After comparing this plant with Elliott's description just cited, I feel quite satisfied that it is not safe to go urther than to say, as Dr. Gray did, that H. tricuspis (Elliott) is a doubtful synonym, or possibly a variety of H. lætiflorus (Pers.).—J. G. Baker, *Royal Gardens, Kew.*

——We have rarely had a better opportunity of applying the old adage "let well alone" than in the present instance. So far as we know, gardeners, and all those interested in the cultivation of hardy herbaceous plants, have hitherto followed Dr. Gray to a man, and it is surely time something was being done when young men from our own ranks who have not had half so much experience of the American veteran should beg to disagree with his limitation of a species. Mr. Appleton seems to me to be arguing in a circle, and in applying the name H. scaberrimus to the plant in question comes back to our old Harpalium rigidum, under which Dr. Gray placed it as a synonym. His application of H. silphioides and H. sparsifolius is quite wrong, both of these having long been identified as synonyms, or, at the very most, only slight varieties of the old Linnean species H. atrorubens, an entirely different plant from the one in question. So far as we at present know, there are no authenticated specimens of Elliott's in this country, and as Dr. Gray had access to all the American herbariums, as well as the most important herbariums in other parts of the world, and, moreover, had spent his whole life working at American plants, and Compositæ in particular, it seems incredulous that such an extremely careful botanist should blunder in the way described by your correspondent. That Dr. Gray had great difficulty in running down many of the cultivated Compositæ he found in old English gardens we are perfectly aware, and we are also aware that with Asters, and Helianthus in particular, he was perfectly satisfied in his conclusions, in forming which he spent no little time and energy.—M.

—— In a contemporary journal I have recently given the history of the Sunflower which Mr. Appleton calls tricuspis, but which Asa Gray places as a form of H. lætiflorus (Persoon). When a botanist of Asa Gray's eminence has extricated us from the confused jungle of names and synonyms which formerly enveloped the genus Helianthus, and has adjusted and arranged them all, I think the least that we gardeners can do is to adopt his arrangement and be thankful to him. As regards the plant with which Mr. Appleton associates my name, the question is whether it is, as the Kew authorities think, a variety of H. rigidus, or, as Asa Gray declared it to be, H. lætiflorus. The characters on which I chiefly rely in siding with Asa Gray are the yellowish disc and the petioled leaf, neither of which I can find assigned to any variety of H. rigidus.—C. Wolley Dod.

FLOWER GARDEN NOTES.

Shrubberies.—Recently a gentleman, not satisfied with the growth of his shrubbery clumps that had been planted three years, invited me to go and see them, hoping that I might be able to advise him as to why the growth had been so puny, seeing that no expense had been spared in the preparation of the ground before the plants were put in. A mere glance was sufficient to show the reason, as weeds and rank-growing Grasses all but overtopped the shrubs and revealed at once the cause of the unsatisfactory growth. Rather an extreme case, I admit, but for all that, it is typical of many instances, and not always confined to amateurs, many professionals being guilty of the same thing, namely, of allowing weeds to monopolise the ground that should always be held sacred to the roots, or, at any rate, during the first few years after the formation of the plantations. The remedy I advised was, of course, to have all weeds and Grass forked up; then a little fresh soil added and the soil made firm about the roots of the shrubs by treading; and it will be most essential to keep the ground free of weeds for at least three years, as by that time the roots of the shrubs will have firm hold of the soil. But even then it would be better for the shrubs that the weeds should be kept down, and personally I would have it done, on the ground of neatness. A couple of surface hoeings in hot, dry weather in summer will usually be found sufficient to keep down weeds, and in winter a slight dressing of fresh soil will promote surface root-formation and the consequent free growth of the shrubs. Where there are many deciduous trees, leaves naturally find a sort of resting-place in shrubbery clumps, and if not in too great a bulk, say about 4 inches, it is well to leave them and strew a little fine soil over them with the other soil, and thus they quickly decay and become part and parcel of the soil of the borders. Now is the time to get all this kind of work done, as spring flowers and bulbs are pushing through the ground and are liable to get injured if above the surface before the fresh soil is spread over the ground. Of course it is presumed that all transplanting and replanting have been done before the final surface dressing of new soil has been applied.

Specimen shrubs for the lawn.—Though it is difficult to find positions for specimens without interfering with lawn views or intercepting the view of some other desirable object, yet we strive annually to make room for a few of the more recent introductions, more especially in respect of the small-growing Japanese shrubs that of late years have become so numerous. None of this section grow to a great size; hence they are better suited for a place that is already over-planted than for a place that is still in its infancy in regard to specimen lawn trees. They are well suited for close association with flower beds and borders, and I know of no plants that more effectively break the formality of a set pattern of flower beds than these when planted at the most formal angles of such gardens. Other excellent positions for them are in the centres of wide bays of turf that are backed with shrubs of the commoner order, and therefore need a few plants of a higher type to intercept the view of the commoner shrubs. They are unequalled for planting as single specimens amongst flower beds generally, and render the placing of vases and statuary in a garden formed after the Italian order quite unnecessary. Not the least of their merits is that they can be kept within any bounds as to size, as they bear pruning well, and being naturally of a compact and somewhat formal growth they do not look so artificial as other bushy growing shrubs do—Box and Yew, for instance—when closely pruned. For the positions indicated above, all the varieties of Retinosporas are extremely well suited, and the best growers are plumosa, p. aurea, squarrosa, ericoides, obtusa, obtusa aurea, and obtusa alba punctata. Cupressus Lawsoniana var. erecta viridis and erecta argentea, and the Chinese Juniperus aurea, japonica, and japonica argentea are nearly as good as the Retinosporas. The handsomest Conifers that we have recently added to our collection are Abies polita, A. Parryana, and A. Pattoniana, Picea concolor violacea, and Veitchi. Being large growing trees they are planted in the most open positions available. Lest it should be thought that coniferous trees are the only kinds viewed with favour, I may add that evergreen Oaks, Hollies, scarlet Chestnuts, Maples, Turkey Oaks, &c., all come in for a share of attention as places are found for them.

Protecting plants.—At last winter has set in, and for several nights in succession the protection of plants that are not over hardy has been a matter of necessity. Our first thought was as to our border of Carnations; the plants were layered late, and not being over well rooted, it was decided to leave the plants, layers and all, in undisturbed possession of the border until the spring, and, therefore, a thick covering of Cocoa fibre has been put over the entire bed, the plants being buried a couple of inches or so up the stem, and this I should think will ensure the survival of the plants however severe the winter may be. Tea Roses have had the same covering, as also have plants of Phormium tenax, tenax variegatum, and Colensoi, Aralia Sieboldi, and Dracæna lineata. The foliage of the last has been tied closely together with matting, and this will protect the centres of the plants from injury. Hyacinths, Tulips, and Lily beds have been covered in the same way, and for the first time we have protected the edgings, formed with Echeveria secunda glauca, by filling the interstices between the leaves with Cocoa fibre, which I fancy will ensure their safety. Spring flowering bulbs are not sufficiently advanced in growth to be damaged by frost, but we shall have them covered on the first opportunity with the same material. Were it possible to protect in the same way all spring flowers, even the hardiest, there is little doubt but that the display of flowers would thereby be greatly improved. We hope to test the matter thoroughly this season by covering the permanent beds of Lily of the Valley with the material, and applying it to Brompton Stocks, Wallflowers, &c.

General work.—Breaking up fresh ground for the planting of shrubs. In wet clay soils good drainage is a necessity, and this should be completed before the final levelling of the soil preparatory to planting. The rainfall having been so heavy, the present is a good time to remedy defective drainage of lawns, faulty places being now easily discernible. The same in respect of walks and roads, wet weather being the best for this work, as solidity—the one essential of good walks—is then a certainty. Clear away dead or condemned shrubs and trees, cut out dead boughs, shorten back long branches that mar the uniformity of specimen trees, while shrubs of every kind may be pruned. The orthodox advice is "wait till spring," but from my own practical experience I consider it safe to do such work now. W. W.

JAPANESE IRIS (IRIS LÆVIGATA) FROM SEED.

Although this Iris may now be imported direct from Japan in many beautiful varieties, the raising of new sorts from seed may be made profitable as well as interesting. When left to their natural development they produce but little seed, and the varieties obtained from this are ordinarily no better and usually not so good as the original forms, but when carefully hand-fertilised nearly every flower so treated will produce its pod of seed, and a large percentage of the flowers will be better and most of them as good as those of the parents. By actual counting it has been found that of seedlings from hand-fertilised flowers, forty per cent. were varieties worth preserving, while of plants from seed produced naturally but six per cent. were good. It is desirable to have some varieties to flower earlier in the season, and this may be accomplished by a careful selection of seed from those that first come into bloom. Already we have plants which begin to flower in the latter part of June, and we still had fresh flowers on the 10th of August. Few garden flowers can boast of a much longer period of bloom than this.

That the raising of seedlings is not only interesting to the amateur, but may be made profitable to the nurseryman, is quite evident from the quantity of seed produced, which will average, from well fertilised flowers, about fifty in each pod, and when properly treated the young plants will be large enough to flower the second year, and a large stock may be secured in this way with much less labour than it can by division. The process of hand-fertilisation is quite simple after one has carefully studied the flower and located the essential organs.

Nature, in providing the cross-fertilisation, has so arranged the flower that the pollen is ready for use and gone fully a day before the stigmas are in proper condition to receive it; in fact, the pollen is ready for use before the petals begin to unfold, and it is a wise plan for the operator, after deciding

what pollen he wishes to use, to take the flowers just as soon as they begin to open and cut out the anthers with a sharp-pointed pair of scissors or small penknife, lay them away in folded papers or envelopes, marked with the name of the variety from which they were taken, and keep them for future use; the pollen can be kept in perfect condition in this way for a week at least, and abundance of pollen may thus be had when the stigmas are ready to receive it. This is an important precaution, for a very small native bee (a species of Halictus) appears as soon as the flower shows the smallest opening and will have the anthers well cleaned of pollen by the time the flower is fully expanded. It would look as if the flower was made to be fertilised by the humble bee or some similar insect, but in this country, at least, the flowers are seldom visited by the larger bees, hence the scarcity of seed when the plant is left to itself. When the flower first opens the stigma will be found closely folded back against the style; but by the second day the upper edge will have been detached, and, falling downward, the upper surface will be exposed and is now ready to receive the pollen. A small camel's-hair brush will be found the most convenient instrument with which to apply the pollen, which is done by simply taking off a quantity with the tip of the brush and lightly dusting the upper surface of the stigma.

The good effects of this fertilisation will be noticeable very early, for not only is it apparent in the flower when produced, but the pods are usually much finer and larger than when accidentally fertilised. The seeds germinate quite freely if planted as soon as ripe in good soil and carefully watered. For soil in which to plant the seeds I prefer well decayed leaf-mould in shallow boxes, from which the young plants are transplanted to the open ground the following spring.—A. H. Fewkes, in *Garden and Forest*.

Chinese Primulas are the flowers of the season, and with the Persian Cyclamen make bright groups in many greenhouses. In both cases there has been a vast improvement within the past four or five years; there is now a far wider range of colour, better habit, and more strength in both flowers and plants. The last addition is Messrs. H. Cannell and Sons', of Swanley, Cannell's Pink, which is a variety that shows the florist is working in the right direction, viz., to obtain as pure a colour as possible, a good strong habit, and a well developed truss. The progress has been just as marked in the Persian Cyclamen.

Ferns.

POLYPODIUM PICOTI.

This species, which we have not seen in any collection, was imported direct from Brazil in 1882 by M. Picot, after whom we have named it. It is a highly ornamental plant, and all the more valuable in that it will live for almost an indefinite period in a drawing-room or parlour, provided it receives plenty of water, and that the leaves are sponged from time to time, which is necessary both for the health and appearance of the plant.

To have a pretty accurate idea of the appearance of this plant, imagine a huge Phormium, the leaves of which, instead of being straight, stiff, and regular as sword-blades, are arched or more or less weeping, gracefully undulated here and there along the margin, sometimes slightly sinuated, and of a very fine glistening green colour on the upper surface. From this a very fair notion of the exceptional beauty of the species may be obtained. To describe it more precisely: The plant is exceedingly vigorous in growth, leaves numerous, 39 inches or more in length and 5 inches or 6 inches wide, standing obliquely erect, spreading, very gracefully arched, attenuated towards the base for a considerable distance, thick, leathery, glistening, as if varnished on the upper surface, lightly undulated on the margin, of a dull glaucescent green colour underneath, very regularly furrowed on the upper surface with a prominent mid-rib, which is of a yellowish-white on the upper surface and green beneath. Fructification in good-sized orbicular sori, which are disposed regularly and at equal distances in the spaces between two veins.



Polypodium Picoti (one-fifteenth natural size).

As the plant increases in age it forms an enormous tuft 6 feet or more in diameter. The plant from which the illustration was taken was nearly this size, although growing in a comparatively small pot. It is hardy enough to be kept in a temperate house. It may be propagated either from spores or by division. The spores, which are often capricious in germinating, should be sown on blocks of wood, old walls, or fibrous lumps of heath turves, in a shady, constantly moist part of the house. Division should take place when the plants are coming into growth, care being taken not to cut the roots and to remove the pieces with some of the soil attached to them if possible. These are then potted and placed under glass in the propagating house until they have established themselves. The only soil which suits this remarkable species is fresh heath-soil coarsely broken up.

In order to assure ourselves of the identity of Polypodium Picoti we have compared it with the various species of the Scolopendrioid group which are to be met with in cultivation, such as P. musæfolium, Browni, Cunninghami, callæfolium, irioides, crassifolium, &c., and we are convinced that it is distinct from all these. There are, however, two species to which it has some resemblance, namely, P. irioides and P. crassifolium, but it differs from them in its general aspect, and especially in its much more vigorous growth.

We are indebted to M. Fauvel, head gardener to M. Picot, Château de Taverny, for our knowledge of this fine species, the accompanying illustration of which was drawn from the specimen with which he favoured us.—*Revue Horticole*.

Antigramma rhizophylla.—"J. H. D." sends specimens of the above plant from North America, where it is known as the Walking Leaf, from its habit of rooting at the ends of the fronds, and there forming young plants, so that by this means it soon spreads itself. It is an extremely interesting plant, and has been grown in English gardens for upwards of 200 years. When I was in the gardens of the Earl of Ellesmere some thirty-five years ago, it was a common plant in the open-air ferneries in the woods, and it survived the winters well, but I had not since seen the plant common until I came to Tooting. The late Messrs. Rollisson used to import it largely, but I seldom saw the plants after they left the nurseries. It is a plant that loves plenty of moisture and shade, situations which, perhaps, were not accorded it, and the plants died out. It produces simple, smooth fronds which are cordate at the base, tapering upwards, and rooting at the point. The length of the frond is from 6 inches to 1 foot, although I have seldom seen it attain to the last-named dimensions. The veins are netted, which distinguishes it from Asplenium, in which the veins are quite free, and the colour is bright green. It is sometimes grown as a greenhouse Fern, but it may be trusted in the open-air rockery with perfect safety. It is a native of Canada. There are two other species of this genus in cultivation from Brazil, viz., A. brasiliensis and plantaginea, but both require stove heat.—W. H. G.

The Silver Tree Fern (Cyathea dealbata).—A few years ago, when it was the fashion to build large conservatories of more or less questionable shape, Tree Ferns from Australia and New Zealand were in great demand, and many hundreds of the stems were imported, these plants and Cycads appearing to suffer less from having their leaves and their roots trimmed off close to the stem than any other plants with which I am acquainted. Amongst the many beautiful Ferns which in those days adorned our plant houses, few excelled the Silver Tree Fern of New Zealand, but in few places can it be found at the present time, Mr. Bull and Mr. Veitch at Chelsea, and Mr. Williams at the Holloway Nurseries, being the chief trade emporiums where one may feast their eyes upon these giants of the race of Ferns. Fashion rules the world, but I think it was a step in the wrong direction when Cyathea dealbata was ruled out without an adequate

substitute being provided. The plant in question, judging by its growth in this country, makes its stem slowly, but I have frequently imported it from 12 feet to 15 feet in height, and travellers have told me that in New Zealand they have seen it with stems 30 feet high. These, however, would be very old examples, and in that size would not be so easily accommodated as a stem of 6 feet or 10 feet. The stem is slender and black, and bears a splendid crown of fronds, which are rich deep green on the upper side, whilst beneath they are thickly covered with a dense, pure white, glaucous powder. It should be grown by every lover of Ferns. It is plentiful in the Middle Islands of New Zealand, and is also found in Lord Howe's Island.—W. H. G.

USEFUL DECORATIVE FERNS.

Within the last few years Ferns have become very popular, and are now extensively used for all kinds of decorative work. The immense quantities to be seen in the Covent Garden Flower Market fully testify to this. The number of sorts, however, is somewhat limited. I have heard it said that only four sorts are worth growing for market, viz., Adiantum cuneatum, Pteris cretica, P. tremula, and P. serrulata. These, together with the varieties of P. cretica and P. serrulata, are undoubtedly the most popular. Other sorts which are somewhat extensively grown are Adiantum scutum, Cyrtomium falcatum, Onychium japonicum, Polypodium aureum, Pteris argyrea, Lomaria gibba, Asplenium bulbiferum, &c. Although the above include the most popular sorts, there are many others which might be recommended; indeed, a long list of useful sorts might be made. As several of the above are becoming so common, it will be necessary to look for something fresh, for plants, when met with at every street corner, lose their charm, even though they may be ever so beautiful.

Market growers seem to be fully alive to this, and fresh species or new varieties are from time to time added to the list of market sorts. Pteris cretica and P. serrulata have been very prolific in variations. Of the latter, we have varieties varying from dwarf, compact, little plants growing only a few inches high to those which reach a height of as many feet, both in the crested forms and in those with simple fronds. The crested varieties, too, vary considerably in the form of the crest, &c. Of the tall-growing forms, that known as the Chiswick variety is undoubtedly the best, but it is very difficult to obtain this true from spores; therefore, it is not likely to become too common. Of the compact forms, that which was certificated as May's variety a few years ago is one of the best. This may be obtained from spores, and is now very extensively grown. It requires care, however, to keep the variety true, as all seedlings are liable to vary a little in character, and, as in florists' flowers, the rogues generally seed the most freely. Of intermediate forms, Naylor's variety may be recommended. Of P. cretica, the major form (P. Ouvirardi) is one of the most desirable. There is also a good green-crested form, but this has not been honoured with a distinctive name. In the variegated P. c. albo-lineata we have a useful Fern, of which P. Mayi is a beautifully crested form of dwarfer habit than the type, and forms a compact and pretty plant.

In Adiantums we have lately had several useful additions. In this class A. elegans, which seems likely to prove valuable, somewhat resembles the old favourite A. cuneatum, but is of taller growth with more spreading fronds. For cutting from it is very useful, and is already extensively grown. Several distinct varieties have been obtained from A. scutum, among which A. Lathomi, in which the fronds are more spreading and recurved, is distinct and beautiful. A. Reginæ, somewhat intermediate between A. Lathomi and A. Victoriæ, having the broad pinnules of the latter, with the taller spreading habit of the former, forms a bold and effective plant. Of the more compact-growing Adiantums, A. Pacotti and A. mundulum are useful sorts.

Asplenium laxum pumilum, which is extensively grown on the Continent, is one of the best of the genus, but has not yet been seen much in our markets. A. fœniculaceum is another useful sort. Several of the Nephrolepis are very useful, especially N. davallioides furcans, N. acuta, N. philippinensis, and N. tuberosa. In Lastreas we have one or two useful sorts. L. aristata variegata, though rather slow in growth, is worth growing; if two or three plants are grown in a pot they will come into use much sooner. The same may be said of Doryopteris palmata, which is a very distinct Fern, the deep green palmate fronds being of good substance. Some of the Davallias may also be included among useful Ferns, especially D. elegans, D. Mariesi, and D. Mooreana. Another very pretty Fern which is not much known is Stenochlæna scandens; and Lygodium scandens may be included if only to be grown for cutting from, this slender growing Fern being very useful for various kinds of floral arrangements, more particularly for twining around the stems of epergnes, basket handles, &c. Many more Ferns might be added to this list, but those enumerated will be sufficient in most cases where Ferns are required for decoration, and most of those mentioned may be readily increased either from spores or division. It must be remembered that only plants grown on freely from a young state make really effective plants, and after a certain age they become too large for ordinary purposes, or in some cases they lose the symmetrical beauty which is so desirable. Young plants should therefore be grown on for succession, and in all cases where they can be obtained from spores this is the best method. Where it is necessary to increase by division, it is better to do so before the plants have stood too long. Young plants divided while they have nice fresh roots will start off without receiving much check, while old plants which have become potbound and the roots matted together will take a long time to become re-established after being broken up, and even then they do not form such nice plants. A.

STOVE AND GREENHOUSE.

HERBACEOUS PLANTS FOR FORCING.

Of all the herbaceous plants used for pot culture the white-flowered Spiræa (Astilbe japonica) is the most popular, and is now so extensively grown, that it would be difficult to find anyone unacquainted with it. From February to midsummer it finds a place wherever flowering plants are required, and it may even be had in bloom at Christmas, though plants forced so early are rather too tender to be used except for special purposes. As with all other ordinary subjects, considerable difference may be seen in plants that have received the most favourable treatment and those that have been less fortunate, more especially in those that are forced early. Where it is intended to force early the first point is to secure plants which were ripened off early in the autumn, and to see that they have good strong crowns. Before introducing them into strong heat they should be placed where it is just warm enough to induce them to make root without unduly exciting them into growth. After they have made some fresh roots they will stand a higher temperature. The crowns should be kept covered with fibre refuse, or other light material, until the flower-stems are well started. As soon as the plants are well into growth liquid manure may be used regularly, but not too strong.

Dicentra (Dielytra) spectabilis. — This beautiful hardy herbaceous plant is very useful for pot culture, the long pendulous racemes of rosy pink flowers and the soft green foliage being so distinct. When good strong clumps are potted up and grown well, they are, when in bloom, very effective in the conservatory. Unfortunately, both the foliage and flowers are very tender, and consequently do not bear the rough treatment which market plants are usually subjected to, otherwise I believe this would be among the most popular. However, in private establishments where large conservatories have to be furnished it should always find a place. For forcing, good strong clumps should be potted in 7-inch or 8-inch pots, placed in a cold pit, and well covered with Cocoanut fibre refuse or ashes. A very little warmth will be sufficient to start them into growth. Those that are started early in the season should have a covering of fibre refuse, which should not be removed until the plants have made about 4 inches of growth. If not started in this way they are liable to flower prematurely, the flowers beginning to open quite close to the pots. As soon as the plants are well started into growth, they should be brought up near the glass. A light, airy position in an intermediate temperature with a liberal supply of water will be all that is necessary to secure good results, while a high temperature or a shady position will be ruinous to this beautiful plant.

Spiræa palmata, another beautiful plant for forcing, will succeed well under similar treatment to the last, but requires a little more assistance in the way of liquid manure to finish the plants off well. Compact clumps of about six good crowns will make a good display. If the clumps are large and spreading they may be broken up, selecting only the strongest crowns for the pots. To finish the plants off well they require careful attention; although after the foliage is well developed it would be difficult to over-water them, yet in the earlier stages of growth too much water is very injurious.

Solomon's Seal (Polygonatum multiflorum).—This may also be regarded as a most useful subject for pot culture, and one which gives but little trouble. In potting the crowns they may be packed quite closely together, so as to get as many into a pot as possible. Unless the crowns are kept well covered until all have started, they will not start afterwards. It is only with those forced early that there is any difficulty in this way. Although a native of Great Britain, the Solomon's Seal is well worthy of a place in the conservatory, and forms an agreeable contrast to the bright coloured spring flowers. A.

Maiden's Wreath (Francoa ramosa).—I fully agree with all that has been written in favour of this pretty little herbaceous plant. When grown under glass it is even prettier than when in the open, as the flowers are whiter. Well-flowered plants are most effective in mixed groups of flowering plants. If greater attention were paid to plants like the above, much more satisfaction might be obtained than can be had by growing new plants. To me it is always a delight to come across a new plant, that is, provided it has any merit; but it has often occurred to me that in searching for new plants many of those more beautiful are overlooked. Take the number of plants which receive first-class certificates during a year, and how many prove worthy of general cultivation? or when grown under ordinary treatment prove worthy of the distinction they have gained?—A.

—— Like "C. C." (p. 520), I was very pleased to notice a short account of the above-named flower. This, coupled with the admirable cuts illustrative of its merits in a cut state and as a pot plant, will doubtless have the effect of largely increasing its cultivation. It is emphatically one of the plants

within the reach of all who possess a small greenhouse, for it is very nearly hardy and may be wintered under the same temperature as the Calceolaria. Possibly, as the writer of the article suggests, seedling plants may be impatient of too much water at the root, but I have not found this apply to spring-struck offsets or old plants. The Francoa likes at all times a cool, dry temperature, anything approaching a close structure with a humid atmosphere being dangerous alike to plant and bloom-spike—the latter, in fact, under such conditions invariably decaying. The best position that can be found for it through the winter months is a cold vinery or Peach house, and the plants may remain here until the spike is well advanced. I have used it for several seasons associated in groups with the dark Coleus Mrs. G. Simpson; large plants of the latter with the Francoa interspersed and the feathery spikes showing well above the dark foliage make a pretty feature in the conservatory, while the individual spikes last a long time in perfection. It is also a capital plant for grouping round columns, pillars, &c. A certain amount of the old stock should be cut to pieces and divided every year as the old plants get leggy and bare with age, but a few such old plants are always useful on account of the great profusion with which they flower. This Francoa, the Sweet Tobacco, and Galtonia candicans are three of the best tall white-flowering plants we have for the summer decoration of the greenhouse.—E. Burrell.

Mimuluses.—I am just now sowing seeds of these charming flowers. A similar sowing last December was productive of a fine lot of seedling plants to put out in April of the present year, and I had, as a result, the finest show of these grand spotted forms I have yet seen. Nothing seems to be easier than to make a sowing just now in shallow pans and on fine sandy soil. The seed needs no covering, only gently pressing down into the soil, and one equally gentle watering will suffice until the seed has germinated, if, as in my case, the pans are kept in a cool house. The cooler the better, and the nearer the glass the better, as fire-heat and distance from light promote legginess. After the seedlings are fairly strong, and that will not be until the light begins to increase, they should be dibbled out into other shallow pans thinly for a month or so, and from thence be either transferred into pots singly, or else into a shallow frame. By the middle of April, for the plants so treated are very hardy, they may be transplanted outdoors, and will begin to bloom very early. As the Mimulus is rather impatient of heat, it is important to secure this blooming during May and June. It is difficult to secure such an early bloom from spring-sown seed, even if raised in heat, as the plants then throw up one flower-stem only at the first, all the others being weaker. With winter-sown plants several shoots throw up stems and bloom simultaneously, thus producing a good clump of flowers at once and so much finer, because the growth is far stronger and the plants have become well established. Just now many of the old plants which have stood so well have numerous side shoots, which if taken off and dibbled into a frame or put into shallow boxes, will result in the spring in robust plants. A cool temperature with ample light suits the Mimulus admirably.—A D.

Clerodendron fallax.—At no season of the year are the bright-coloured blossoms of this plant more welcome than at the present time, though its period of blooming is by no means limited to the autumn and winter months, as flowers are often produced at other seasons. Though this Clerodendron is a large, bold-growing subject, it can be successfully flowered in the shape of dwarf specimens in small pots, and treated in this way it is available for many purposes where large plants would be inadmissible. Unless in an exceptionally large structure, it is seen perhaps to the greatest advantage when treated in this manner, as a group of plants, none of which are much more than a foot high, but all terminated by a large, loose terminal cluster of intensely bright crimson-coloured blossoms, is very telling. To obtain plants such as this the cuttings may be struck either in the latter part of the spring or the beginning of the summer, and shifted on into pots 5 inches or 6 inches in diameter. The cuttings root quickly, and in their case the principal caution necessary is not to keep them close any longer than one can help, as they very soon become drawn, when, of course, the plants will be taller before they flower. As the object is to keep them as dwarf as possible, they should at all times have a good light position assigned to them. Apart from the growing shoots, this Clerodendron is readily propagated by cuttings of the roots (a method by the way available for the increase of several others, notably the hardy C. trichotomum), and seeds often ripen, from which young plants can be easily raised. Seedlings generally flower in a young state, but the method of propagation that I prefer is by cuttings of the shoots, and if care is taken in the selection, they may be relied upon to bloom when required. This Clerodendron needs liberal treatment and to be kept free from red spider, which often attacks the under sides of the leaves.—T.

WORK IN PLANT HOUSES.

Stove.—Lilac.—Forced white Lilac has been much in demand of late years. The forcing of this, in the way that the Parisian market gardeners treat it, is not fully understood by everyone engaged in the production of flowers in winter in this country. It may be taken as a rule that if plants are hurried into bloom in a very high temperature it causes the flowers to come thin in texture. This is particularly the case when the plants are hardy, as the lower the temperature they are naturally able to bear, the more they are weakened by being subjected to strong heat. To this Lilac is an exception, as the plants will stand a higher temperature than most things whilst being brought into flower without its having any effect on the flowers in the way named. Even when the plants are forced in the dark it has little influence on them as far as affecting their durability when exposed to a dry atmosphere. A temperature of from 80° to 90° is not too much to force Lilac in. When white varieties are used there is no need to darken the plants with the object of having the flowers white, but the darker coloured sorts will not come so pure in colour if exposed to too much light. The objection to large bushes for forcing is that they take up much room, smaller or medium-sized examples that have been especially prepared for the purpose being best, as when these have been well managed they will give more flowers proportionate to their size. The plants may be either potted in the ordinary way, or they can be put into boxes or baskets. In lifting the plants the roots should not be broken more than necessary, as the more fibres they have the less will the flowering be affected. During the time they are in heat the syringe should be freely used. In a high temperature, approaching that mentioned, the flowers come on quickly. When the plants are wanted in bloom soon after the commencement of the year they should be started without delay.

Genistas.—These plants are easily forced, an intermediate temperature being sufficient for them. The amount of bloom that may be looked for depends more on the condition of the growth that has been made during the past summer than upon the size of the plants. Such as were pushed on in spring and made their growth early in the season, so as to admit of their being stood out in the open air early in summer whilst the sun was powerful, will bloom from every shoot that has attained a fair strength.

Richardias.—The time that it takes to bring Richardias into flower after subjecting them to heat depends on the condition the plants are in. Those that bloomed early last winter and afterwards made their growth early in the summer, and are now strong, will push up their flowers quickly when put into heat. Plants that have been grown in pots usually come in earlier than those that have been planted out in the open ground and are potted in autumn. In all cases the plants that are in the best condition for forcing should be started first, leaving those that have had the least preparation to come in later on. It is best not to use more heat than necessary, as when the flowers are produced in a hot, moist atmosphere, they become soft in texture and are comparatively soon over. During the time of forcing the plants should be kept well up to the light; the effect of this is that there is less disposition to leaf growth. Keep the roots well soaked with water. From the fact of the plant being almost aquatic in its nature, it is necessary to give it more moisture than most things require. Richardias are more subject to aphides than most Aroids, and it is well before starting them in heat to see that the plants are quite free from these parasites, as if only a few of the insects are present they will quickly accumulate on the opening flowers and spoil their appearance.

Roses.—In many places a constant supply of forced Roses is required from the time the flowers cease to come in out of doors until they are again obtainable from the open ground. In all cases where a demand of this kind exists, there should be one or two houses exclusively devoted to the work, as to produce the flowers regularly and in the right condition the plants require to be treated somewhat differently to other things. To grow Roses in winter the houses should admit all the light possible, and, what is of equal importance, they should stand far enough way from trees, buildings, or any object that can intercept light. Some of the most successful market growers have their houses for winter Roses—which are span-roofed—standing ends east and west, instead of, as usual for other things, in the opposite direction. Thus placed with one side fully exposed to the sun in the middle of the day, the solar rays are not intercepted by the woodwork, but reach the plants to the fullest extent. The importance of making the most of the little sun we get in winter need not be urged to those who have had much to do with the forcing of Roses and other hardy plants through the dormant season. Another matter of importance is that the internal arrangement of Rose houses is such as will allow of the plants being sufficiently near the glass, so that they may be fully exposed to the light. For this reason it is a mistake to have Roses or other climbers on the roof. The favourite white variety, Niphetos, to grow it well requires several degrees more heat than other sorts; consequently the plants of this kind should be put at the warmest end of the house. Avoid too much atmospheric moisture, such as is unavoidable where trough pipes or evaporating pans in any shape are used. There are few things so tender as the young leaves of winter-forced Roses, and when there is more moisture in the air of the house than needful to promote healthy growth it causes the leaves to be still more tender, in which condition they are more susceptible to mildew. The next evil to mildew is red spider, for though aphides more often make their appearance they are much more easily got rid of. The plants should be well syringed once a day, care being taken that the water reaches the under side of the leaves as well as the top, for it is on the under side that red spider at first principally establishes itself. If means are taken to have the plants quite clean when they are housed and the syringing is regularly and properly done, red spider as well as aphides will give little trouble. The syringing should be carried out early enough in the day to allow the foliage to get quite dry before nightfall. Whilst being careful that the roots do not get too wet, it is necessary to see that the soil is not too dry below the surface, a condition that sometimes occurs through syringing, which makes the tops of the balls wet and leaves them too dry below. Respecting air, it is better not to open either the side lights, shutters, or the roof-lights at all for the next ten or twelve weeks. If the firing is carefully regulated, there is no need for giving air, and later on, when the sun gets more power, it is better to allow the temperature to rise considerably than to let in cold air, the presence of which means a plentiful crop of mildew. However strong and in good condition the plants may be when they are put in to force, it is necessary to take means to keep up their strength, without which the successional flowers that are to

come after the first crop which the plants yield will be wanting in both size and numbers. Without strong growth it is no use looking for full-sized perfect blooms. To have the shoots that are to produce a succession of flowers of the requisite strength the plants must be well supported with manure in some form continuously during the time the first flowers are coming on and afterwards so long as the plants are blooming. Those who are at all acquainted with the cultivation of Roses out of doors where the roots have an unrestricted run know that it is not an easy matter to overdo them with manure. But there often seems to be a difficulty in fully understanding that pot Roses with the limited amount of soil their roots have to depend on require to be constantly and liberally fed. Moderate applications of liquid manure are often better than more at a time and less frequently. In the matter of heat, a night temperature of about 55° is enough for the general stock of the Tea varieties, which, needless to say, are the only Roses that can be fully depended on for early winter forcing.

Brugmansias (Daturas).—The impression that these plants can only be grown where there is considerable space at command leads to their being much less seldom seen than they deserve to be. In the winter they can be stored away anywhere out of the reach of frost, and if only room for small examples can be found, these can be secured by propagating young stock either from cuttings or seeds. But it is when the plants can be had in the form of good-sized standards or pyramid-shaped bushes that they are most effective. They should now be allowed to get partially dry and then have their branches cut close in. Keep the soil in this condition through the winter and put the plants where they will not get frozen; they will do with little light until the young shoots again begin to grow.

T. B.

Cyclamens failing.—In reply to "T. M. M.," the cause of the leaves dying off is, I should certainly say, due to faulty root action, induced probably by unsuitable soil, or by giving too much water. Cyclamens potted up in autumn require great discrimination in the application of water for some time, as the roots are very delicate. I also consider it a mistake to use manure in the compost for plants that have to pass through the winter in an imperfectly rooted condition. I should, however, advise "T. M. M." to adopt a modification of his cultural method, which may do very well in a hot summer, but cannot be relied on to ensure good results. Cyclamen bulbs in the open ground, even on a narrow border, were not likely to make good growth, owing to the cold wet condition of the ground, and in a north aspect they were, of course, worse off. Even under glass, old bulbs have, I find, not done so well as they should do. Instead of planting in the open ground I should plant in frames in about a fortnight after the blooms fade. Let the soil be fairly rich, but light, and thoroughly cleansed of the old compost. Slight shade from hot sun should be given, but in order to make the bulbs start freely, it should be taken off about 3 p.m. and the frame shut down close. This forces a lot of heat into the soil and stimulates root action, thus causing every eye on the bulbs to break as well as inducing a much earlier growth. In a general way, however, it will be September before growth is being vigorously made, and it is a pity to disturb the plants just as they are rapidly increasing in size. By the middle of October they will have come to their full dimensions and can then be potted up. Some portion of the old soil should be carefully worked away and pots only just large enough to hold them should be used. The compost must be fine and very sandy; a little peat in it will be of service. Keep close for a few days and water carefully, and the plants will soon root.—J. C. B.

SHORT NOTE.—STOVE AND GREENHOUSE.

Luculia gratissima is a grand plant when large and in good health, but it may not be generally known that it makes a charming pot plant for greenhouse work. It is just now flowering profusely in small pots, the large bunches of lilac-tinted flowers making a pretty little picture.—K.

PROPAGATING.

Luculia gratissima.—This beautiful flowering greenhouse shrub is one that many fail to strike in a satisfactory manner, though by strict attention to one or two points I have never experienced any difficulty in propagating it by means of cuttings. The best cuttings are borne by a plant that has, after flowering, been shortened back and then kept in a temperature above that of an ordinary greenhouse, where, if syringed occasionally, it will be by the middle of February or soon after studded with young shoots. As soon as these shoots have passed their most succulent stage is the best time to take them as cuttings, and if they are taken off with a piece of older wood so much the better. The weak and moderate shoots strike root much more readily than the very stout ones. A good way is to put each cutting singly into a small pot, which should have two or three broken crocks in the bottom and be then filled up with soil, consisting principally of peat and sand, just a little loam being added to it. All the preparation the cuttings require is to remove a couple of the bottom leaves for the purposes of insertion. When put in and a good watering given the pots should be plunged in a close propagating case in the stove, as the cuttings there strike root more readily than in a lower temperature. At first a very slight bottom-heat will suffice for the cuttings; so where a brisk heat exists the pots should only be slightly plunged until the cuttings are callused. A very important consideration in propagating the Luculia is, on no account to allow the cuttings to flag, for even if they droop a little it militates against their chances of success. Such being the case, it is, of course, necessary to shade when required, and to keep the lights open no longer than is needed to dry up any superabundant moisture.

Primula obconica.—This ever-blooming species can, of course, be readily increased by division, and besides that, it is no difficult matter to get ripe seeds from which young plants can be obtained in quantity. The seed should, if possible, be sown in a greenhouse as soon as it is ripe, for if kept too long it will often remain a considerable time in the ground before germinating. These last remarks will apply to other Primulas, for I have had seeds of the little golden-flowered P. floribunda germinate in two or three weeks, while a portion of the same seed which was not sown till six months after, remained for nearly three months and then came up very irregularly; still, with all these disadvantages, if the seed ripens towards the end of the summer, it will be the best policy to keep it till spring, as young, delicate seedlings are liable to perish during the winter, more especially those of P. floribunda, of which I have seen large-established plants killed outright by the fogs which are so dense around London.

Begonia John Heal.—This winter-flowering Begonia can be readily increased by cuttings put in during the summer months, and so free-flowering is it, that I have some plants struck last summer and still in 2½-inch pots that are blooming freely. The hybrids of B. socotrana, of which this is the best, are certainly among the greatest acquisitions of late years.

Aralia reticulata.—Where there are any plants of this that have been used for the table or for other purposes and have become naked at the bottom, instead of throwing them away they may be utilised as stocks on which to graft the pretty Aralia Veitchi and its variety gracillima, as these last two will not strike from cuttings. The operation of grafting had, however, better be delayed till early spring, when the stock may be cut down nearly to the ground and the graft can then be inserted in the wedge manner. In heading down the plant or plants of A. reticulata the tops may be saved and put in as cuttings, for they strike root readily. Almost as soon as they are struck and hardened off they can be used as stocks; indeed, a quicker union is effected when the mutilated portion of the stock is still young and succulent.

Epiphyllums, so valuable from their winter-flowering qualities, are plants of easy propagation, the usual means resorted to for their increase being to graft portions of the branches on to stocks of Pereskia aculeata, with which a union is quickly effected. The spring and early summer months are the best for carrying out this operation, but, besides this, cuttings strike root readily if simply broken off and placed under conditions favourable to growth. The principal reason for grafting the different Epiphyllums is that they are of a drooping habit and are consequently seen to greater advantage when on a clear stem than they are when on their own roots.

T.

GARDEN FLORA.

PLATE 680.

EARLY-FLOWERING GLADIOLI.*

There are at present three distinct races (if we may use the expression) of hybrid Gladioli cultivated in our gardens, of which the most numerous, valuable, and highly appreciated are the forms of gandavensis, the greater number of which we owe to the unceasing care and skill of M. Souchet and his successors. It is a curious fact that no French raiser has ever disputed with him this honour, and the only one who has endeavoured to share it (M. Berger) has produced no flowers of any lasting value. Messrs. Kelway and Son, of Langport (and now Mr. Burrell, of Cambridge) have for a long time been engaged on the same task, and their seedlings are well known.

What Souchet has done for the gandavensis section, Lemoine, of Nancy (the prince of hybridisers), has done for the more recent race of hardy Gladioli, the hybrids of the purpureo-auratus race. These are perfectly hardy, and remain without loss in the open ground throughout our severest winters. As yet they have not won much on the public; they open but few blooms at a time, and there is not that wide range of colour in them that there is in the gandavensis race. This may come, but it is to be feared that as the size and variety of colour of the flower increase, the hardiness of the bulb will be diminished. Mr. W. E. Gumbleton, who is perhaps our largest amateur grower of these varieties, has lately discoursed on the later introductions from Nancy, so that there is no need to dwell further on them.

There is yet another race, or rather mixture of races, which has not received as much attention as it deserves—I mean the early-flowering section. Everyone, of course, grows and values The Bride, but there are a number of others which are quite as well worthy of cultivation, and which I think may be better classed under the distinctive name of "early-flowering Gladioli." I have said a mixture of races, for there is a deal of confusion in catalogues about them. In some they are distinctly divided into varieties of nanus, ramosus, and species, into which latter Colvillei and Colvillei albus (The Bride) are placed. Again, in some catalogues I see announced no less than 100 varieties of the nanus section, and a large number of ramosus. "Tweedledum and Tweedledee" irresistibly occur to one's mind. Again, I find that the same sorts are known under different names in the catalogues of Dutch houses, so that the whole matter is somewhat "mixed."

The cultivation of these early-flowering Gladioli of whatever section is very simple. They may be grown either in pots or in the

* Drawn for The Garden by H. G. Moon, from specimens sent by Messrs. Hubert and Mauger, Guernsey, July 18, 1888. Lithographed and printed by Guillaume Severeyns.



EARLY FLOWERING GLADIOLI.

1. BLUSHING BRIDE. 2. ROSY GEM. 3. GENERAL SCOTT. 4. ROSEA MACULATA.

open ground. If the former, which is the most satisfactory way, as they come in early in the spring and tend to the decoration of the house, be it large or small, the pots to be used are 6-inch ones, the soil a mixture of loam, leaf-mould and peat with a little sand. Five or six bulbs may be planted in a pot, water withheld until they have begun to make roots, and the place to grow them in is either a cold frame or a cool greenhouse. When they have done blooming they should be thoroughly well dried and then laid on one side until they are wanted for repotting in the autumn. They may also be grown out-of-doors, when it is better to plant them early in the spring in soil of a somewhat similar character to that recommended for pots, but they are not so particular as some bulbs, and will indeed grow in any good garden soil.

Amongst the many claimants for notice in the early-flowering section there are some dozen or so that are well worth growing, and of these four are given in the plate.

Blushing Bride (fig. 1) is a very pretty flower with a white ground and dark crimson spots on the lower petals, the blotch in the central one being large and broad.

Rosy Gem (fig. 2) is a flower of a bright rose colour with darker blotch of the same; very free and strong-flowering.

General Scott (fig. 3) has a white ground with a yellowish blotch margined with bright crimson, and is a distinct and pretty flower.

Rosea maculata (fig. 4) is a larger flower of a brilliant scarlet-rose colour with light blotches on the lower petals, margined with crimson; very showy.

Besides these, there are Queen Victoria, Ardens, or Fire King, ramosissimus, Ville de Versailles, Ne Plus Ultra, and Prince of Wales which may be safely added, and those who have not grown them will find a great deal of pleasure in their culture. They are, unfortunately, rather evanescent, as all who have grown The Bride have felt, but withal they are worthy of a more extended cultivation than they at present seem to enjoy, but which, perhaps, the beautiful plate that is now given in The Garden may tend to increase.—Delta.

—— The following notes have been supplied by Messrs. Hubert and Mauger, Guernsey, who make a specialty of this section:—

The soil and climate of Guernsey seem to suit this beautiful section of Gladioli well; the bright and rich colouring of the flowers, borne on semi-drooping spikes, are the attraction of our gardens during the months of June, July, and August.

Their culture is very simple, but we would strongly urge the necessity of planting the bulbs from September to November, whether for indoor or outdoor culture. If kept out of the ground until the spring, the bulbs shrivel and are weakened to such an extent that they cannot flower in the ensuing summer. Outdoors the bulbs should be planted about 4 inches deep in prepared ground which has been deeply dug, and if possible manured the previous season. On no account should the bulbs come immediately in contact with the manure. If the ground in which it is intended to plant is poor, it will be wise to trench and place manure in the bottom spit. We find them thrive best in a sandy soil with damp bottom, but they will also succeed in all soils, especially if a supply of sand is added. If the season is dry it will be well to mulch them in May and water freely once a week; this will keep them growing freely. For pot culture they should be put, say five in a 6-inch pot, in a compost of two parts loam, one part leaf-mould, with a fair sprinkling of sand, and placed in a cold frame till February, by which time they will be growing freely, and would then be best placed in a greenhouse close to the glass to keep them sturdy. They will thus flower in May or June, and if wanted earlier they may be placed in moderate heat as soon as flower-spikes appear.

A great deal might also be said about their adaptation for cutting purposes, their blooms being in great demand in the market, and for vase decoration nothing could be more pretty or graceful than a good mixture placed loosely in a vase, especially if some of their Grass or leaves are added.

Fruit Garden.

W. COLEMAN.

BOTTLING GRAPES.

Gardeners whose practical experience carries them back more than twenty years, and who have dived into that interesting and highly instructive book, "The Parks and Gardens of Paris," have not yet forgotten their indebtedness to Mr. Robinson, the editor of the book and of this periodical, The Garden, for having introduced the French system of relieving the Vines and preserving the clusters for many months in dry store rooms. Those who have a lively recollection of the trouble of keeping half a dozen houses of ripe Grapes in tolerably good condition from the fall of the leaf to the rising of the sap will bear me out in the statement, that early forcing was child's play in comparison, and then, independently of the strain upon the Vines and the loss of the houses for a thousand and one useful purposes, the losses from damp and mould in such fragile structures were fifty to one as compared with our modern method. Although hundreds of good Grape growers looked along their winter houses many times before they could venture all their eggs in this newly introduced basket, a few cautious hands tried the system on a small scale at first, and soon found they might harvest every bunch of thoroughly ripe Grapes in one day, and rest, prune, and cleanse their Vines at convenience; that thick or hollow store room walls were steady maintainers of an even temperature, where that of the best managed glass houses fluctuated twenty times within twenty-four hours. Once started, the ball made good progress, some trying the most homely, and often the most successful methods, such, for instance, as spare rooms in their dwelling houses, or dry, but well-ventilated cellars, whilst others rushed into expensive buildings, and now find their success is hardly in proportion to the outlay. The system, nevertheless, is now thoroughly established, as superb old Grapes in plenty now shake hands, so to speak, with the new, and growers are not the only men, I ought to say, not the men who benefit, as Lady Downe's and Gros Colman now reach the consumer quite 75 per cent. cheaper than they did less than twenty years ago.

With this satisfactory record of our progress, some may say, Why not leave well alone? Well, in so far as old professionals are concerned, we might do so, but we must not forget that the rising generation look out for weekly reminders, whilst many of them, suddenly called upon to cut and bottle Grapes, may not be able to lay their hands upon reliable information. A query now before me is a case in point; therefore, not unmindful that one reply through the pages of The Garden may be of use to others, I avail myself of this opportune date (the middle of December) for giving a general outline of the method of keeping Grapes from Christmas onwards. When I commenced bottling, like M. Rose Charmeux, of Thomery, the originator of the system, I devoted a spare bedroom in my own house to my Grapes, and although ventilation by the door and window was imperfect, they kept well up to the end of May. This success justified my setting about the construction of a Grape room upon inexpensive lines, which answers my purpose admirably, and is available for other purposes from June to January. It is built with hollow walls over a men's mess-house, which is thickly ceiled; the roof is tiled, also heavily ceiled and well ventilated. A small slow combustion boiler, placed in the mess-house, heats a flow-and-return pipe running along one side of the room, and can be stoked without dust or the attendant entering; but it is very seldom used, unless it be to dry the walls and atmosphere before the Grapes are introduced. The window faces west, and is fitted with sliding shutters, more for keeping out severe frost in winter and sun in the spring than for excluding daylight, as we find indirect light does not affect the colour of the Grapes. Darkness, nevertheless, I believe, is best, as shutters or blinds even tend to a low, steady temperature—the mainspring of success in the preservation not only of Grapes, but also of Apples and Pears, which should neither ferment nor condense moisture, as so often happens when external changes affect the internal air of the room. In the room I have described I can keep Grapes in good condition from four to five months after they are cut at Christmas; but had I to build again I would have dry, naturally drained ground for the floor; the room should be one storey high, densely thatched with broad, overhanging eaves, and fitted with a few small windows, which should open and shut like close-fitting ventilators. Each of these windows should have a close-fitting shutter for use in cold, hot, or wet weather, whilst the ventilation should be managed by hit-and-miss slides near the floor, which should be closely boarded, and in small dormers projecting outward near the apex of the roof. From these remarks the inexperienced will gather that any dry, airy, well-ventilated store room will keep Grapes, the great point being the maintenance of an equable temperature without the aid of fire-heat, which is not an essential so long as damp can be kept out and the temperature ranges from 35° to 45°. If bottles are used they should be placed in racks tier above tier secured to the walls or partitions according to the number of bunches, whilst very small quantities may be stored away in glazed closets running along one end of the room when the latter is required for choice Pears or general purposes. When in position each bottle should lean forward at an angle of 45°, space being allowed for the bunches to hang without touching the rack or each other. Then those who would keep an insidious enemy, mould from damp, under hand may place a small slow combustion boiler outside for warming the internal pipes when absolutely necessary. So far good. Now for

Cutting the Grapes, which, by the by, must have been thoroughly ripe by the middle or end of September, otherwise the effort to keep them fresh and plump will be disappointing and worse than useless. Having fixed and filled a sufficient number of ordinary wine bottles with soft water and warmed the pipes for a few days to dry the walls and floor, on a fine calm day with a pair of pruning scissors cut the Grapes with all the wood close back to the pruning bud; convey them steadily to the room, insert each piece of wood with bunch attached into a separate bottle, but carefully avoid forcing out

the water in the operation. Never shorten the wood beyond the bunch, as each fresh cut converts it into a syphon, through which the water in the form of vapour passes from the bottles into the room, carrying with it more or less of the saccharine matter stored up in the berries. In the arrangement of the different varieties, late keepers like Lady Downe's should be placed most out of the way upon the upper tiers; then Colmans, Muscats, Alicantes, and those excellent varieties West's St. Peter's and Mrs. Pearson should follow. It will be necessary to dry the room thoroughly before it is closed, and then the Grapes will require occasional examination for decaying berries; but if thoroughly examined at the time of cutting they will keep much better in the room than in the best managed vinery. When all the Grapes are bottled they must never feel the want of water, neither must they be shaken or disturbed if it can be avoided, as waste can be made good by the use of a small long tube-spouted can suitable for passing oil into machinery. Some Grape growers put a small piece of charcoal into each bottle at the outset and change the water occasionally, but all this extra care is superfluous, as many years' experience proves that the Grapes keep quite as well in the original water and without the charcoal. Changing the water, of course, can do no harm, always provided the Grapes are carefully handled; therefore, when a portion of the bunches has been used the bottles they occupied may be emptied and refilled preparatory to the transfer of the latest keepers. In the arrangement of the different varieties I may say Muscats and Gros Colman should occupy the driest and best ventilated part of the room, especially when the bunches of the latter are large and the shoulder stalks are green and fleshy. Again, in using them the largest clusters most subject to damp and mould should be taken first, as smaller pieces through which the air can pass freely are best adapted for keeping.

ROAD-SIDE PLANTING.

Not being familiar with the highways of France, I cannot say how far they may offer encouragement for tree-planting on their sites as compared with English highways. If, as I understand, they are broader than the majority of our roads are, are also straighter and have fewer hedgerow trees beside them, the planting of fruit trees may be conducted with some advantage. In this country, because of the greed of landowners, every possible waste strip on the sides of the highways has been filched from the public, and almost everywhere our roads are narrowed to perhaps 30 feet, perhaps 20 feet, with one or two paths and little else. If on wild heaths or downs there may be greater room, yet in such spots the planting of road-side trees, whether of fruit or otherwise, would be useless. As it is, for the maintaining of good roads which will withstand the wear and tear incidental to our heavy insular traffic, all highway surveyors will admit that too many trees ruin our roads. That these trees afford delightful shade in the summer and give to the roads a delightfully picturesque and border-like aspect all will cheerfully admit. But roads have to be maintained at considerable cost for purposes of utility; beauty or ornament, therefore, has to become a very secondary consideration. But in spite of the comparative smallness of this country as compared with France, for instance, we have yet literally millions of acres of land which might be profitably employed in growing hardy fruits with the advantages—lacking in regard to road-side trees—that they could have cultivation and protection, for without both these benefits fruit trees might just as well be thrown into the fire. The proposals to plant fruit trees by the road-side are even less practical than were those earlier absurd suggestions to plant fruit and flowers on the banks or sloping sides of our railways. Happily, railway directors have more regard for human life than some enthusiasts have, and the proposition has been treated as it deserved. But even supposing it were practicable to plant fruit trees on our road-sides, and they grew and fruited, how would it be possible to protect the fruit from passing depredators? Those who have experience know full well that the fruit would have no chance to develop, as the trees when in bloom would be broken to pieces and be borne off in big branches to gratify the wanton love of mischief which dominates the minds of the youth of the age. As to providing protection, such a thing might be possible where one or two vehicles or a weary wayfarer or two only pass along the roads per day; but with the considerable traffic of all kinds, and especially that of the cyclist order growing so fast over the kingdom, protection for the trees from depredators would be impossible. The game would not be worth the candle. Of course, I do not conclude that because some things are done in France it is proposed to adopt them here, our habits, methods, and character are so dissimilar. We have of late been making strong efforts to stimulate hardy fruit culture, but in a far more practical fashion than road-side cultivation, and in France worthless kinds seem only to be recommended for such planting. We here have far too many worthless kinds already, and would gladly see these replaced by better sorts. A D.

NOVEMBER AND DECEMBER PEARS.*

In treating of these delicious fruits I feel that I can add but little to what is already known. In my paper on October Pears in 1887, of those then named as ripe many are not yet in use, showing how greatly the fruit is influenced by the summer weather; while, again, the climate a little further north puts the fruit back two or three weeks. A warm August will also forward Pears, so that it is not unusual for January and February varieties to ripen in November. A warm cellar or fruit room will also bring the later Pears earlier; one year appears, therefore, but little guide to the ripening season of another.

In glancing over other leading nurserymen's lists I find Marie Louise, Durondeau, Emile d'Heyst, Thompson's, Beurré Hardy, Beurré Superfin, and Beurré Bosc treated as November Pears which with us have already been noticed this season as October sorts. None of these were ready early in November. Among the remaining thirty the following are fair and remarkable for cropping heavily, and cannot be dispensed with in a collection, as they frequently bear when those in my special selection are not fruiting. These are Van Mons Léon Leclerc, of refreshing acidity and very juicy; Beurré Diel, of rich flavour, but apt to be gritty; Glou Morceau, rather watery and cold, though sometimes A 1 from a warm wall; General Todtleben, very large, but not often first class; Duchesse d'Angoulême, rather coarse, but generally fertile; Marie Louise d'Uccle, a good bearer and a hardy sort for cold soils, sometimes good; Nouveau Poiteau, very large, melting and delicious, though somewhat pasty. It is, however, a free bearer, and if taken before too ripe is often first rate. It is green in colour when matured, and apt to decay at the core. Passe Colmar, a fine wall Pear, most prolific, but has a sugary, clogging, Colmar flavour that I do not admire. It is, however, in season for a long time and a sure bearer. Beurré Bachelier, very large and fine on a wall and on Quince stocks, must not be kept long or it becomes insipid. I have eaten this of first quality. Triomphe de Jodoigne is again a remarkable cropper and of large size, but has that cold watery taste which is not approved; nevertheless, it is of value as a certain bearer. Alexandre Lambre is a sweet fruit and a great bearer. Among the little known, newer, and not yet fully proved varieties are Beurré Baltet, which I have eaten as good as Marie Louise; Beurré Dumont, very rich flavour; Vineuse, large and prolific, sometimes very good; Mme. Leroy and President d'Osmonville (two which came into prominence at the 1885 conference). All these will probably require a warm situation or a wall. Fondante Thirriott, a valuable Pear of the Passe Colmar style and most prolific, is likely to prove a valuable addition.

I now come to the best of winter Pears. Baronne de Mello, a handsome small russety fruit of great excellence; Doyenné du Comice, the king of all Pears, and yet unapproached, good either from an open tree or as a wall fruit; Beurré d'Aremberg, most fertile and of delicious full flavour, very prolific, but only to be attempted in warm soils; Conseiller de la Cour, a large long fruit, very prolific, of sweet, rich sub-aromatic flavour—this does well in cold soils, and is a good grower; Knight's Monarch, one of the most valuable, as it lasts three or four months. I consider the sugary and aromatic Bergamot flavour blended in this variety most refreshing and delicious. It succeeds as an open tree or on walls (on the Pear by preference). It must be double-worked upon the Quince. It has a habit of casting its fruit before it is fully ripe, but its virtues condone this fault.

Winter Nelis is one of our best winter Pears. In the south it is a December variety, and if from open trees is often ripe in November, while from a wall it keeps longer, even till February. It has a full Pear flavour, sweet, juicy, melting, rich, and delicious. It is tender on cold soils, and is worthy of the best south-west wall that can be found for it. Zéphirin Grégoire, though rather small, is a delicious melting fruit about Christmas and a good bearer. Beurré de Jonghe is a deliciously flavoured kind, and will keep until February. It is, however, a slow grower, and seems to require the Pear stock to make a tree. Suffolk Thorn is most distinct in its aromatic and delicate flavour. This is rather small, but of the first class. Seckle, small and delicious. This being of a Gooseberry size, can be put into the mouth whole, and thus we get all the juice and aroma. Much flavour is lost in peeling off the skin.

I have now gone through my special selection of ten varieties, and in passing, I would condemn the Brockworth Park, or Bonne d'Ezée. We do not want crisp, flavourless Pears for dessert. Urbaniste is delicious, and has a peculiarly rich musky flavour. It bears, however, so sparsely that we have long discarded it. The standard of excellence I take to be such Pears as one could peel and offer to an invalid, easily digested, refreshing to parched lips, and making a welcome change from sweet kitchen nick-nacks.

Root-pruning is absolutely necessary to get first-class fruit of clean appearance, good colour, and size, and feeding must be carried out liberally. The Rev. W. Wilks' enormous Pitmastons at the conference were of most delicious flavour and devoid of coarseness and watery juice, proving that Pear roots have the digestion of an ostrich, and a chemical laboratory equal to the occasion. Much stress has been laid on the reduction of sorts. In my opinion this may be carried too far, as Pears of good quality, if not first-class, are better than none at all. I would advise such sterling varieties as those in my special list to be planted in many aspects and situations in duplicate to prolong their season. The second conference at Chiswick proved again the excellence of the Quince stock for Pears, but in soils that are very sandy or dry, trees on Pear stocks can be relied on to produce good fruit if attention is paid to culture, and the roots kept within solar influence by root-pruning and lifting, with efficient mulching in June.

Mr. Wildsmith, in his recent paper at the conference, named twenty-five varieties as the minimum which would keep up a supply for a family, and finds himself in a difficulty to supply from twelve only. Pears are sometimes kept in too cold a place, when they ripen imperfectly, and the chemical changes which take place on maturation are arrested. Mr. Wright at the conference related how he ripened some Josephine de Malines by placing them on the pipes of a greenhouse in a box, and this hint might be followed by those who want to fill a gap in their supplies. Stewed Pears are being increasingly appreciated, and in these

* A paper read by Mr. George Bunyard at the Horticultural Club.

days, when doctors forbid pastry, are very useful for dyspeptics. The best for early use are Gratioli of Jersey, Gilogil, and General Todtleben, and also Triomphe de Jodoigne; while for later use, Catillac, Bellissime d'Hiver, and Uvedale's St. Germain, *alias* Belle Angevine, will be useful.—*The Nurseries, Maidstone.*

FRUITS UNDER GLASS.

Cucumbers.

Another mild month having been favourable to moderate firing, winter plants have made a free healthy growth of vine and foliage, and the fruit they are producing is excellent. Under these favouring conditions vigorous plants will show and swell an abundance of fine, straight Cucumbers, and some, perhaps, may be tempted to allow these to have pretty much their own way, but, considering that January and February will test the grower's skill, a word of warning here may not be out of place. Let light cropping then be the watchword. Keep the plants clean, fresh, vigorous, and progressing; pinch off all superfluous shows the moment they can be seen. Tie in the best of the young growths, but do not pinch them too close so long as space remains uncovered. Stop back to a joint in advance of the few fruits intended to swell. Remove here and there an old leaf as well as useless spray to prevent confusion, and wash the glass frequently to give the plants the full benefit of the still decreasing daylight. Discontinue direct syringing, but damp the floors, paths, and walls with tepid water from a tank in which a small bag of soot is immersed about once a fortnight. Keep the walls sweet and free from confervæ by the use of a wash composed of quicklime and sulphur, and on no account allow an accumulation of decaying vegetable matter. If the plants are growing in pots or troughs, and fermenting material is used for giving or assisting the bottom-heat, a good stock for frequent renovation must be kept constantly on hand, and sweet fresh compost for top-dressing little and often as the roots creep through must be ready for use when wanted. If planted out in narrow pits, with hot-water pipes running beneath the drainage, the latter must be kept thoroughly moist by liberal supplies of tepid water or diluted liquid, and the better to get this down without saturating the soil it is a good plan to work in a few common drain pipes placed on their ends when the hills or ridges are ready for the first earthing. Root-watering, of course, must be on a very liberal scale, as the first attack of spider not unfrequently may be traced to a sparing supply of this important element, whilst beds well furnished with roots will take any reasonable quantity of liquid with impunity and give it back to the atmosphere in the form of warm vapour charged with ammonia. No rule for watering Cucumbers, or any other tropical plant in winter, can be laid down, but one thing is certain: there must be no dribbling or mere surface watering; each supply must be thorough and about 5° warmer than the bed in which the pots are plunged. A mean of 76° affords a good bottom heat, but 80°, perhaps, is better, as the air temperature where this is maintained is not so subject to damaging fluctuations, whilst quick growth is the best preventive of bitterness in winter fruit, which, by the way, should always be cut young. If the stalks of fresh young fruit are placed in saucers of water they can be kept for some days after they are cut, but the epicure prefers having them direct from the plant.

Weak plants put out after very late Melons must be kept steadily growing by the maintenance of moist, steady top and bottom heat, by keeping the foliage close to clean glass without actually touching it, and by frequent additions to the compost. Light rich turf, a few handfuls of refuse peat from the potting bench, a little old lime rubble, and a dash of bone dust, well mixed and kept dry and warm, will form a compost that no delicate Cucumber plant can resist. If 1 inch of this is placed evenly over the hills or tops of the pots, beaten firmly with the palm of the hand as often as the roots are seen creeping through, the weakest plants will gain strength, and pay for this attention in February and March. All male and female flowers, of course, must be removed, and the points of runaway vines may require pinching, but beyond this simple manipulation and tying in, they will require very little attention. If very weak, mild liquid and soot water will help them, and the latter may be used for syringing purposes, but so invigorating is a compost containing bone dust, that we find them growing quite strong enough when plentifully supplied with warm soft water.

Spring plants.—It is yet rather early to put in seeds, at least where winter plants are going on well, but those who anticipate mishaps, or have a good compartment at command, may now insert a few seeds singly in small pots or sods of turf where heat and light are abundant. Meantime the proposed pit must undergo the usual cleansing, scalding, and limewashing preparation. These places do not offer their accumulations of marauders, from a greenfly to a cockroach or cricket, every day, but when they do, the opportunity must not be lost sight of.

Plums and Cherries.

If the early varieties in pots are still out of doors where the mild weather will have caused the buds to commence swelling, they should now be housed without delay. A continuance of such an unseasonable temperature is by no means desirable, but so long as it lasts the forcing of these two fruits will give but very little trouble, simply throwing open the top and bottom ventilators by day, partly closing them at night, and producing a suspicion of warmth on the pipes through the hours of daylight. The atmosphere being so heavily charged with moisture, the trees at first will hardly require syringing, but the floors and walls may be damped until we have a change to drier and brighter weather, when a good ridge of fermenting leaves will save a great deal of trouble in syringing and firing. A temperature ranging from 40° to 45° at night and 45° to 55° through the day when the weather is cold is quite high enough for a start, and 5° higher on bright mild days will do no harm, that is with plenty of air; but, considering how profusely and bravely these trees develop their flowers against open walls exposed to frosty biting winds in March and April, it is much better to err on the side of a low than a high temperature. Where Strawberries are started in all available structures, the Plum or Cherry house may be turned to good account, as the plants at least are safe from extremes of heat and frost, whilst the above figures favour the steady progress of the trusses and roots well in advance of the foliage. Each member of this happy family being so subject to aphis, and one of them to spider and mildew, the Strawberry plants should be dipped in sulphur water prior to their introduction, and the house fumigated two or three times before the trees open their first flowers.

Late houses devoted to Golden Drop Plums and Bigarreau Cherries, separately or together, may now be got ready for the housing of the trees, as the latter are cleansed with soapy water and require protection in bird-infested districts. It will not, however, be wise to keep them close or a single degree warmer than they would have been in the open air, as these varieties have ample time to ripen their fruit when the flower-buds commence swelling in February and burst into full bloom by the end of March. Where trees trained upon trellises are a fixture under glass the lights should be movable, for the twofold purpose of keeping the buds dormant and giving the inside roots the full benefit of autumn and early winter rains.

Strawberries.

When the first batches of extra early sorts in very small pots get well advanced towards the flowering stage, they should be moved to the lightest, brightest, and most elevated part of the house, and, if necessary, placed a little thinner to favour a free circulation of air amongst them when they are setting their fruit. Ventilation from the time they are introduced until the petals fall, next to water, is most important; hence the great advantage of warmth and moisture-giving fermenting material for aiding and softening dry fire-heat. A few fresh leaves from the Oak, Beech, or Sweet Chestnut are a host in themselves, but they should be well fermented before they are introduced, when a small percentage of short stable manure for giving out ammonia may be added with advantage. The more frequent the turning of this material up to the flowering stage the better, and the less the need for heavy syringing, but once the flowers begin to expand a quicker circulation on the hot-water pipes, whilst raising the temperature, will keep the air light and in motion and prevent condensation of moisture on the petals and foliage. If all has gone on well the fruit may set without aid, but the artificial fertilisation of the first flowers of the season is a pleasant operation, and considering that the pollen at this season is neither plentiful nor evenly distributed, the camel's-hair brush should be passed over them every day. Another important matter is the constant, but gentle pressure downward of the foliage with the hand, as this disturbance sets the pollen at liberty and exposes all the flowers to the full influence of air and light. Successional batches of plants may now be taken into vineries and Peach houses as the latter are closed for forcing, and the Strawberry house proper, as a matter of course, must be filled up at the coldest end as the most forward are removed for swelling and ripening. A good Strawberry house being so well adapted for fertilising and setting, it is not a bad plan to draw the most forward plants from Peach houses and vineries into it just before they come into flower, when their recently occupied space can be filled up with batches free from spider, and requiring good daily syringing.

Peaches.

When the flowers in the earliest houses begin to show the colour of the petals the trees must be carefully fumigated on a calm day and well syringed the following morning to ensure freedom from aphides until after the fruit is set. As this stage approaches a little more fire-heat will not only be beneficial, but absolutely necessary, especially by day, as Peaches always set best in winter, when steady warmth on the pipes favours a free circulation of air, sufficiently buoyant to expand and disperse the pollen. This important aid to fertilisation is by no means new and unusual, as Strawberries, of which I have just been writing, and Grapes always set best under similar conditions. At this time the temperature may range from 60° to 65° by day and 5° higher under the influence of fleeting sun gleams, but little change from 50° to 56° should be made through the night, unless the weather continues unseasonably mild, when the external atmosphere is sure to be loaded with dull heavy vapour. It is not, however, the vapour so much as the darkness which militates against setting, as we always like to keep the delicate organs of the flowers fresh as long as possible, not only by direct syringing, but by damping the walls and floors frequently when the water is circulating in the pipes. Fogs, heavily charged with smoke and soot, so terrifying to forcing gardeners near London, on the other hand, often prove fatal to every flower, and no matter how dry or close the houses may be kept the subtle poison gets in and soon renders the most skilful men quite helpless. As few people approve of watering during the flowering stage, the borders, inside, of course, should be liberally supplied with tepid water immediately after the house is fumigated, then, provided there has been no bud-dropping, ordinary attention with the brush will ensure a good set of fruit. The early part of the day from 11 a.m. to 1 p.m., when the temperature has reached the maximum and the pollen is light, is the best time to fertilise, always be it understood, with a very light hand, and the more the pollen is crossed from tree to tree the better the result. Thousands of flowers, especially upon old healthy trees, set well without the aid of brush or syringe; but the operation being as brief and simple as it is pleasant, no prudent man will approach a precipice when his best interests keep him away from it.

Succession houses.—Where a continuous supply of fruit is expected, a house well furnished with good mid-season varieties should be closed for starting

before those in the earliest come into flower, and so on until the latest barely precede early trees on open walls. Their treatment as to ventilation and atmospheric moisture should be precisely the same, at least for the present, but when we get into January and bright sun follows frosty nights, the day temperature may sometimes be raised, more tepid water may be used about the floors and walls, and a well dewing over with the syringe will favour the development of the flower-buds. Water to the roots must be liberally supplied, not that a deluge now will save the buds upon trees that have felt the want of water since the last leaves fell, but so much having been written upon this head, I am ready to assume that autumn drought in Peach borders is now an exception to a once prevalent rule. Abundant drainage, borders not too wide, composed of good strong calcareous loam and lime rubble, thoroughly solid, plenty of air through the day and rest by night, an abundance of water and a good stock of patience are cardinal points in the successful culture of all stone fruits; whilst fire-heat is a good servant but a bad master where quantity and quality are the tests of merit when the crop is ripe.

Late houses.—If these are not full of tender plants, the most tantalising occupants that can be put into them, the ventilators in ordinary weather should be kept wide open by night and day. Retarding until the buds begin to swell on open walls should not be difficult, as no amount of frost will hurt trees in dry Peach houses, but once the buds show signs of swelling and a few slightly tender plants keep one in a state of uncertainty as to whether a valve shall be opened last thing at night or not, the chances are entirely favourable to getting the trees too forward. The final dressing over with the knife, washing and tying in may be performed at any convenient time, but this work, especially the tying, good managers invariably hold back for inclement weather. If root-lifting has been neglected or top-dressing remains in arrear, no time should be lost, not that trees lifted as late as March will not set and swell their fruit to maturity, but it does not attain the maximum, whilst one slight mishap in watering and mulching tells unfavourably throughout the season. W. C.

DESSERT PEARS.*

The Fewest Necessary to Supply Ripe Fruit from August to March.

The subject of this paper was suggested to my mind by the controversy anent the reduction of the varieties of fruits—Pears in particular—that took place in one of the horticultural journals a few months since. The general tone of that discussion went to show that there was a unanimous feeling in favour of reducing the number of varieties, but to what extent opinions differed greatly, twelve being suggested by more than one writer as the maximum number of varieties, a proposition that in some respects I had a good deal of sympathy with; but the number twelve ended so far as I was concerned, simply because I knew from years of experience that no twelve kinds that could be named by the greatest expert in Pear lore would suffice to give an unbroken succession of ripe fruit throughout the Pear season—say from beginning of August to middle of March. That twelve kinds might be selected that would extend over the Pear season is quite another matter. I have long had the honour to serve an employer whose favourite fruit is the Pear, and consequently have had to give special attention to it, and if one point more than another has had to be studied it is that of quality; a solitary flavourless fruit of an otherwise good variety has not unseldom been the cause of the condemnation of the variety generally. I name this to show that my experience has been gained at some cost of labour and anxiety, and at the risk of being considered egotistical, I think this entitles me to speak with some degree of confidence anent this matter of limitation of sorts. Every fruit grower knows how precarious and how variable the Pear is in different soils, aspects, and positions, and no twelve kinds, however good they may be in one garden or district, will be equally so in another, even but a mile or two away, nor even in the same garden can they be relied on to be of the same excellence any two consecutive years, and it is this precariousness that, I think, renders it necessary to grow a goodly number of varieties. For the purpose of this paper I have closely examined the Pear notes in my diary for several years, in which is noted date of gathering, of ripening, and duration, *i.e.*, time they continue fit for table, and from these notes I have compiled a list of twelve, that, supposing I was compelled to grow only that number of kinds, would be likely to give me the most regular (not constant) succession of fruit. They are placed in the order in which they ripened here: Williams' Bon Chrétien, Fondante d'Automne, Beurré Superfin, Marie Louise, Thompson's, Doyenné du Comice, Glou Morceau, Winter Nelis, Josephine de Malines, Huyshe's Victoria, Easter Beurré, and Bergamotte Esperen.

These twelve kinds constitute the cream of all the varieties (nearly 100) that are grown here, and out of the twelve there are but two that are at all liable to prove of doubtful quality, and this from a cause over which we have no control, namely, a sunless season. The two kinds in question are Easter Beurré and Bergamotte Esperen, both of them late varieties, and requiring a longer season of sunshine than the others. I may, however, add that I have occasionally in a sunless season had recourse to means that has tended to make both of the kinds palatable, namely, by wrapping the fruit separately in tissue paper, and placing them in shallow baskets in a dry warm room for ten days or a fortnight before the fruit were required for use. And now with respect to the question of the number of varieties "necessary to ensure a continuous supply of ripe fruit." I have, after considerable deliberation, founded on the practical experience of many years, come to the conclusion that it is next to impossible to accomplish the feat with a less number than twenty-five varieties. To some this number may appear excessive, and to such I ought to explain that my experience is given from the standpoint of a private gentleman's gardener—say of a large garden—and from which liberal supplies of Pears are demanded the season through, and therefore it is necessary to have, as it were, two strings to one bow; as, for instance, if Williams' Bon Chrétien Pear run short, I ought to have Beurré de l'Assomption to supply the lack; or if Marie Louise be scarce, I must eke out with Beurré Bosc, and so on, to the end of the chapter.

I regret that I have not practically tested with how few it is possible to keep up a constant supply, but I am sure I should fail if I undertook the task with a less number than twenty-five, and the following are their names, and placed in order of ripening: Souvenir du Congrès, Williams' Bon Chrétien, Beurré d'Amanlis, Fondante d'Automne, Louise Bonne of Jersey, Madame Treyve, Beurré Hardy, Beurré Superfin, Seckle, Marie Louise, Doyenné du Comice, Thompson's, Duchesse d'Angoulême, Glou Morceau, Winter Nelis, Comte de Lamy, Beurré Bachelier, Josephine de Malines, Winter Crassane, Huyshe's Victoria, Olivier de Serres, Easter Beurré, Ne Plus Meuris, Knight's Monarch, and Bergamotte Esperen. All these are generally well-known varieties in most parts of Britain, proof sufficient, I think, of their excellence; and I can vouch for their reliability for this district, in respect of constant and free bearing and their high quality.

The least meritorious in the list are: Madame Treyve (quickly over), Duchesse d'Angoulême (gritty), Beurré Bachelier (mealy), and Ne Plus Meuris (also gritty), yet I know no other four kinds that can—all points considered—replace them. Lest anyone should conclude from what I have said as to the number of kinds to ensure a regular succession of useful fruit, that is all required to make certain of the supplies, I will undeceive them at once by saying no. There is no fruit that gives better returns for labour expended, and none that more quickly resents the "let-alone" policy that one is occasionally compelled to behold. As regards the former, nearly all our trees are grafted on the Quince, from which stock it is no exaggeration to say that we get at least double the fruit that we do from trees on the Pear stock, and high feeding is therefore a matter of necessity; but then the labour of applying these manurial mulchings we place as a set-off against that of the time expended in root-pruning, that nearly all trees on the Pear stock require about every alternate year, and the fruit is neither so numerous nor so well coloured, and not superior in quality. No, if good crops are expected annually, water and mulch, mulch and water, must be the order of the day all through the fruit-swelling season. Those who must by reason of restricted space grow only a few varieties, and whose demands for fruit are, as a matter of course, proportionately restricted, may do something towards lengthening out the supply of ripe fruit by gathering the same variety of Pear at varying intervals of from a week to ten days. The fruit of most varieties—more especially the earlier kinds—will then ripen at similar intervals, and thus the season of ripe fruit be considerably extended. To those who have unlimited room, and can therefore grow the required number of varieties to ensure supplies, this piecemeal gathering is not of so much consequence; nevertheless, I strongly advise its being done with any varieties that ripen rapidly, such as Citron des Carmes, Jargonelle, Williams' Bon Chrétien, and Fondante d'Automne.

* A paper read by W. Wildsmith, Heckfield Gardens, Hants, at the Apple and Pear Conference, Chiswick, Oct. 17, 1888.

Grape Grizzly Frontignan.—In reply to Mr. Sheppard's request at p. 543 that growers of this fine old Grape would give their experience as to its shanking or not, permit me to say that we have two Vines here, one in an early vinery ripening its fruit in May, and one in a house ripe in September. We usually have a good crop from each Vine almost free from shanking. I say almost free, as occasionally there are a few shanked berries in the later house. I find that the berries keep badly in both houses if not used in a week or two, as after they are ripe they shrivel. From observation and experience I have come to the conclusion that, other things being equal, soils have much to do with the absence or not of shanking of the Grape in question. Vines growing in light sandy or gravelly soils or poor chalky ones are seldom free from it. When growing in well-drained loamy soils overlying the various sandstone formations, or, as in our case, magnesian limestone, there is seldom any shanking worth speaking of.—H. J. Clayton, *Grimston Gardens, Tadcaster.*

SOME DOINGS OF THE COMMON EARTH WORM.

Good and evil are pretty much mixed in this world, and the conduct of the humble worm has an evil side to it—at least from a gardener's point of view. At this season the earthy particles cast up on the surface of the lawn are to many a great eyesore, and editors of gardening newspapers, as regularly as the season comes round, have an influx of questions as to the best mode of dealing with them. There are temporary expedients, such as lime water, which, if poured on the lawn in sufficient quantity, will bring the worms to the surface, where they should be gathered up and either killed or disposed of in some other way; but to soak a large lawn with lime water will be a serious item in the labour account. Then there are poisons, such as corrosive sublimate and others, which are sometimes used for the destruction of worms when largely diluted with water and poured over the lawn. I confess to a dislike to the use of poisons. I was once nearly having a terrible mishap through using poison, and I have never touched them since. But neither lime water nor poisons are necessary to stop worms from casting earth on the surface of the lawn. All we have to do is to make the fibry crust of the sward so dense and thick that the worms will have a difficulty in getting through, and the thing is done. It is too late to do much this season, but next spring set the mowing machine to cut half or three-fourths of an inch higher. This can be done in two minutes, by altering the regulating screws of the front rollers so as to drop them down, and so elevating the cutting apparatus; and if this system is carried out regularly, the worms

will find so much difficulty in getting through to unload that they will seek fresh fields to top-dress. But the worm, if not beneficial, is comparatively harmless on the lawn. There are those who believe that the tendency of the worm's work is to benefit the human race, and I think it would be quite possible to make out a good case for him on the lawn or by the wayside; but he is not contented with such restrictions. If a flower-pot containing a plant be left on the surface of the earth for half an hour, the chances are some active little worm will discover the hole in the bottom and crawl in, and straightway begin to upset all the internal arrangements. Here, I think, the worm is a mischievous little creature, and whenever he is found in such positions I should give him no quarter. It may be said it is the gardener's fault if the worms get into the pot and upset the roots of the plants. To a certain extent this is doubtless true; but it is a nuisance to be always obliged to be on the watch for the approach of such an insidious little crawler. Not only will he take every chance offered him of crawling in at the hole in the bottom, but he gets mixed up with the soil when young, and so is introduced into the pot from the top when the plants are repotted. Somehow, in spite of care in preparing beds of coal-ashes to stand the pots on and other expedients, worms do at this season find their way into the pots, and they must be dislodged or they will be blocking up the drainage, soon making the plants sickly. Lime-water is useful to drive worms out of pots, but all plants do not appreciate lime to any extent. The Camellia, the Heath, the Azalea, and some other fine-rooted, hard-wooded plants will not thrive in soil containing much lime, but all the usual strong-rooting, soft-wooded plants may have a dose of lime-water if the pots contain worms. Worms are poor, timid things; a sharp tap on the side of the pot will frequently alarm them, and cause them to crawl out on the surface, or if this does not suffice, turn the plant out of the pot carefully and thrust a thin piece of wire through the ball in several places; this generally makes them crawl out, when they may be laid hold of and despatched. The drainage must then be rearranged and the plant carefully replaced in the pot, or a clean pot of the same size may be substituted for the dirty one. E. H.

AZALEA INDICA IN THE HOUSE.

There are better ways of growing Azaleas than in the stiffly tied-in forms esteemed by florists, and as we generally see them in shows. Whether grown in a low bush form, close down to the pot, or as a little tree, with a clean stem, a broken outline of flowering sprays is in every case more beautiful than the more symmetrical shape. The plant is also better with the flower masses broken up by visible foliage than with the solid mass of even flowers of the exhibition plants. The engraving shows a plant grown for decorative effect in the way described. The Azalea in this case is a pure white one, from 3 feet to 4 feet in diameter, the pot standing mossed up in a large antique Venetian wine-cooler of polished copper.

Lasiandra macrantha—There are two forms of this handsome stove shrub, and the better of the two, called var. floribunda, is very much superior to the other, which is the old well-known type. The former has flowers 5 inches or 6 inches across, and it blooms when small; whilst the old kind does not flower till it gets several feet high—a large shrub, in fact. But when it does bloom it makes a grand display if at all well grown. Although a stove plant, yet we sometimes see fine specimens well flowered in a warm greenhouse; indeed, it may be said that this Lasiandra may be grown in any house where the winter temperature does not fall below 50°, or in a house where really tropical plants are kept. That this is so has been evident this year at Kew, for a plant in the tropical Water Lily house has been perfectly happy, and flowered profusely all summer—is in flower now, in fact. In the conservatory (No. 4) two equally fine examples may be seen now covered with large blue-purple flowers.

TREES AND SHRUBS.

THE MULBERRY.

(MORUS NIGRA.)

By no means the least attractive feature of well-grown Mulberry trees is the great abundance of fruit with which they are laden during the autumn and early winter months. If only for this reason, not to take into account the prettily cut foliage, and decidedly quaint appearance of old and well-developed specimens, the common Mulberry well merits a conspicuous position in our parks and grounds. Perfectly hardy, unless, indeed, in a few peculiar situations, and of fairly free and rapid growth, it is one of those small-growing trees that can be advantageously employed in the laying out of grounds where moderate space renders big-growing subjects undesirable.

For the first few years of its life the Mulberry grows with great freedom—that is, of course, if growing in a rich soil—but after that it increases slowly, and assumes that rugged and picturesque form that everyone justly admires. The branches thicken considerably, and become, along with the stem, knaggy and burred.

The fruit is at first of a greyish hue, but this, with warm and sunny weather, soon passes to a bright red, and ultimately when quite ripe to a deep purplish black. At all of these stages the tree wears a bright and showy appearance, but particularly when the fruit is of the rich deep red it assumes before passing into the final ripening stage.

Not at all uncommon is it, and this was particularly noticeable during the past peculiar season, for the berries to be in all three stages at one and the same time. They make excellent jam, but it is rather too seedy and glutinous for my taste, while when perfectly ripe they are much sought after for dessert.

In the commonly cultivated Morus nigra the leaves are large and heart-shaped, very rough on the surface, and usually five-lobed and toothed. They are not so readily affected by untimely frosts as are those of many of our forest trees, in proof of which it may be stated that during the present season, when those of most other deciduous subjects have fallen a prey to the severe October frosts, the Mulberry was at the beginning of November fresh and green. Cows and horses eat the leaves with avidity, and it is no easy matter where the trees are growing in pasture fields, and the branches within a few feet of the ground, to prevent their injuring these to a considerable extent. It is a native of Persia, and was introduced to this country fully 300 years ago.

The white Mulberry (M. alba) is not generally cultivated in this country, although in some of the southern English and Irish counties specimens of goodly proportions may be found. This tree is of more erect growth than the preceding species, with smoother bark, which is also lighter in colour, and the leaves are deeply serrated. The fruit is yellowish-white, and the tree grows more rapidly, and attains to a greater size than M. nigra.

In the red-fruited Mulberry (M. rubra) we have another fairly hardy and larger growing tree, which not unfrequently attains to double the height of either of the preceding. The headquarters of the tree are the rich woods throughout the forest bordering on Lake Erie, and about Niagara. The leaves are distinct from either of the foregoing, being remarkably rough and downy beneath.

All the above species of Mulberry are well worthy of attention, and being perfectly hardy, particularly when planted in not too damp soils, and of free growth, should find suitable places amongst our commonly cultivated trees. They are, furthermore, trees of great beauty, particularly in the fruiting stages, while their large, robust foliage is at all times attractive and distinct.

A. D. WEBSTER.



Christmas flowers: White Azaleas in a large copper bowl.

Cotoneaster Simonsi.—This shrub should be largely planted in rough, semi-wild spots. Large groups fringing woods would be very pretty, especially if near a drive or good walk, from which their beauty could be seen in winter. This Cotoneaster grows very upright and has a somewhat rigid effect, but this can be obviated when planting by leaning the plants at an angle. We were recently impressed with the beauty of this shrub by seeing a group

upon a stony knoll forming the bank of a stream. The Cotoneasters were planted thinly and leaning down the bank, the shoots laden with coral-red berries mingling with the Brambles and rough Grass. Many beautiful hardy berry-bearing and flowering shrubs might be similarly used, especially those which, whilst possessing a charm some time during the year, are yet too coarse to be retained in the garden proper.

DEUTZIAS.

Deutzia gracilis.—This hardy deciduous shrub is one of the most valuable of all white-flowering plants for forcing. Since the introduction of Astilbe japonica it has not found quite so much favour as was the case previous to that period. The Astilbe being so much easier to manage has to some extent superseded the older favourite, but the Deutzia should always find a place among plants for early spring flowering. The snowy white blossoms, which are produced in great profusion, have an elegance which cannot be surpassed. Although plants potted in the autumn will be very useful for flowering later in the spring, and if the wood has been well ripened they may flower well earlier in the season, yet for early forcing it is best to rely on plants that have been grown one season in pots. Under this treatment they do not make quite such vigorous growth and ripen off earlier in the autumn, which is, of course, a great advantage. The plants may be potted in any good rich loamy soil, and those that are not intended for forcing the same season may be plunged in the open ground. Cover the pots with about an inch or so of soil, and allow sufficient room for a season's growth. Plenty of room will ensure short-jointed growths and the wood will ripen better than if the plants are at all crowded. For early forcing the plants should have a warm humid atmosphere. They may be stood amongst other plants to start them, but as soon as they begin to show flower they should have a light open position. It is best to avoid a high temperature, especially to finish the plants in, otherwise the bloom will not stand well. A succession may be kept up by introducing plants at regular intervals, and either as pot plants or for cutting from they will be found very valuable. For the latter purpose it is best to use them before the flowers are quite all expanded, flowers which have been long open being liable to drop soon after they are cut, while if cut as soon as ready they will last a considerable time.

Deutzia scabra.—Some years ago we used to force this plant and found it very serviceable for cut bloom. Large plants grown in 10-inch or 12-inch pots produce a great quantity of flowers. This was grown under the same treatment as D. gracilis, except that the plants remained in the same pots for several years. After being forced they were again plunged in the ground and allowed one season's rest to recover.

Deutzia crenata flore-pleno is also very pretty, but, like many other double flowers, it has not found so much favour as was first anticipated; however, where large plants are required for conservatory decoration it may be recommended, as it blooms freely and gives little trouble.

Like most other plants, the Deutzias are benefited by a little liquid manure, especially just as they are coming into bloom. Besides increasing the size it gives more substance to the bloom. A.

The Amorphas.—The best known of these is the Bastard Indigo of the United States (Amorpha fruticosa), and though there are several varieties of it to be found in different lists, they greatly resemble each other; indeed, as far as ornamental qualities are concerned, the ordinary form is quite equal to any of them. It is a free, open-growing shrub of 6 feet to 8 feet high, with pinnate leaves and long spikes of beautiful bluish-purple blossoms. Its flowering season is during the month of August, when the spikes are borne on the points of the shoots, generally in clusters consisting of one long and three or four shorter ones, all of which are densely packed with bloom. The anthers protrude slightly from the mouth of the flowers, and are of a bright yellow colour. It is one of those plants the beauty of which can only be seen on close inspection, for to an ordinary observer the flowers appear dull and uninteresting. This Amorpha will thrive in hot sandy spots better than the majority of shrubs. The second species (A. canescens) is a smaller growing plant than the preceding, and rather later in expanding its blossoms. It forms an erect-growing shrub with very hoary, whitish foliage and spikes of blossom a good deal like those of its better-known relative. This Amorpha is the Lead Plant of the United States, so called from a prevalent idea that its presence indicates the existence of lead ore in the soil.—T.

VARIETIES OF THE LAUREL.

The common Laurel is so well known and so frequently planted, that nothing further need be said concerning it, but there are several varieties not so generally cultivated, one or two of which are much superior (on the score of hardiness at least) to the type. That which has attracted the greatest share of attention within the last few years is rotundifolia, the leaves of which, however, are by no means round, but broader in proportion to their length than those of the ordinary form. A very desirable quality possessed by this variety is that of hardiness, for in winters when the common Laurel suffered severely, this and the Caucasian were uninjured. Besides the shape of the foliage, the round-leaved differs from the ordinary form in being of a shorter and more dense habit of growth, and for this reason it is suitable for planting where space is limited. The Caucasian differs from the common Laurel in the foliage being of a stouter texture and very much deeper in colour. In habit, too, it is different, forming a fine bold shrub, fully as vigorous, but of more sturdy growth than the other, which it should in time certainly supersede. A third variety, almost as hardy as the two preceding, is the Colchic Laurel (colchica), whose habit is such that, though less desirable as a belt or shelter plant, it forms a very handsome and distinct specimen, for the branches of this are, as a rule, shorter, and consequently do not lengthen till they take a downward direction, as the common Laurel does. In the Colchic variety the leaves are thinner in texture and of a paler hue, while it flowers more freely than any of the others. So freely indeed are the blossoms produced, that, apart from any other consideration, it is well worth attention. Another variety worthy of especial mention is the Versailles Laurel (latifolia), which is, unfortunately, rather tender, though the last few winters have not injured it in any way, neither have they indeed tested its hardiness. In this the leaves are very much larger than those of any of the others, and of a deep rich glossy green. The remaining varieties are curious and distinct, without possessing any high ornamental qualities. They are the dwarf Laurel (parvifolia), a short, sturdy, slow-growing kind, generally somewhat starved and unhappy-looking; angustifolia, the leaves of which are very narrow; camelliæfolia, of slow growth, with very dark green leaves of unusual substance and much curled, and on the strongest shoots greatly resembling Camellia leaves; hence its name. The variegated-leaved Laurel is apt to lose that character, for the normal green foliage growing much the faster soon obtains the mastery. I have often noticed a peculiarity in the propagation of these different Laurels, for while the common kind, caucasica, and rotundifolia all strike in the open ground with about the same freedom, the Colchic and the Versailles Laurel do not root so readily. H. P.

A scarlet-fruited Ivy.—This must be a novelty of no mean merit if it is found as free-growing and handsome in leaf as other Ivies. Messrs. J. Veitch and Sons have it in their Coombe Wood Nursery, but it has not fruited yet. It is named aurantiaca, and was obtained from a nurseryman in France. If it fruits as freely as the Holly it must be exceedingly beautiful, growth and other matters being equal.

RETINOSPORAS IN WINTER.

The Retinosporas include among their number some of the most ornamental of small and medium growing Coniferæ, one or two of them being remarkable for the different aspect they bear in winter to what they do in summer. The most pronounced in this respect is the low, dense-growing R. ericoides, which is during the summer of a deep green colour, and in the winter changes to a kind of brownish purple, when it forms a very distinct specimen. This is well adapted for small gardens, as it is seldom met with more than 3 feet or 4 feet high. R. squarrosa is seen at its best when from 6 feet to 10 feet in height, and is usually of dense growth, the foliage being of a light silvery grey colour. This does not change its appearance much during the winter. A remarkably distinct Retinospora is filifera, which is usually seen in the shape of a somewhat globular bushy specimen. The prominent feature of this Retinospora is the long pendulous thread-like branches, generally terminated by tufts of little shoots. The weeping character of this is a very pleasing feature, and quite distinct from all the other members of the genus. This does not change in any marked manner during the winter, not so much indeed as R. leptoclada, regarding which there has been a considerable amount of controversy, for while it has by some writers been claimed as a native of Japan, it seems to be now pretty conclusively settled that it is a form of the white Cedar (Cupressus thyoides or Chamæcyparis sphæroidea). Anyhow it is, for horticultural purposes, quite distinct, as it forms a slow-growing specimen of strictly pyramidal habit and of an attractive bluish grey tint during the summer, which is bronzed over somewhat in the winter. R. obtusa varies greatly from seed. It is often possible to pick out many distinct forms from a bed of seedlings. From this circumstance the recognised varieties are of course numerous, the most distinct being aurea gracilis aurea, compacta and pygmæa. This last is a remarkably slow-growing Conifer, forming as it does a compact mass, the branches of which are arranged in an almost horizontal manner. I have had a plant of this under my observation for the last two years, which has been grown in a pot and kept in a dwelling house throughout the whole of that time. It is, of course, well exposed to the light, and though in the smoke and dirt of London, is in the best of health, and reminds one greatly of some compact-growing Selaginella. A frequent washing, by being held under the water tap, seems to be the principal reason of its thriving so well. Several of the Retinosporas have foliage more or less golden, which changes a good deal in the winter, and of other kinds not before mentioned there are R. pisifera and its varieties, R. plumosa, R. lycopodioides, and R. filicoides. Of these, R. plumosa is the most useful, as it forms a very distinct specimen of rather dense pyramidal habit of growth. There is a variegated variety of this which is, I think, by far the best of all variegated Conifers that I am acquainted with, for most of them have at best an unhealthy appearance. This variety has the branches regularly speckled with white, which gives to a specimen just the appearance of being lightly sprinkled with snow. Most of the Retinosporas are readily struck from cuttings, the easiest of all to root being R. ericoides, next to which is R. squarrosa, while the most difficult are R. obtusa, filicoides, and lycopodioides. T.

Cedrus Deodara robusta.—The common Deodar (beautiful though a well-furnished specimen of it is) has one great drawback, as the young growth is often severely cut by late spring frosts—so much so, indeed, as to quite cripple the specimen, but the variety under notice is proof against spring frosts, however severe. The immunity it enjoys is owing to the circumstance that it is much later than any of the others in starting into growth, and, consequently, the frosts are past before the young leaves appear. It is quite distinct from the common Deodar, the whole plant both in leaf and branch being stouter, while the foliage is also longer than in the ordinary form. Besides this, the

branches are fewer in number and have altogether a more pendulous character, so that though stouter in build the whole plant has a light and elegant appearance. Two or three other well-marked varieties of the Deodar are glauca, the best variety of which is very beautiful; viridis, whose green foliage affords a direct contrast to that of the variety immediately preceding; and crassifolia, with short, stout leaves; it is a curiosity and nothing more.—H. P.

ORCHIDS.

W. H. GOWER.

CALANTHES AT BURFORD LODGE.

It is, without doubt, an acknowledged fact that no more beautiful winter-blooming Orchid has ever been raised in English gardens than Mr. Dominy's hybrid, Calanthe Veitchi; but the seedling forms from this plant raised by Sir Trevor Lawrence are marked improvements upon the original form, and just now they are in great beauty, the different varieties nearly filling a whole house. Here I see the peculiarity recently pointed out to me by Mr. Luff at Wimbledon holds good, that the highest coloured forms are those with almost straight bulbs (that is to say, the bulbs which are farthest removed from the form of Limatodes rosea, one of the parents of C. Veitchi); indeed, the majority of the plants at Burford Lodge are of this straight-bulbed section. One of the peculiarities of these seedlings is the great density of spike, combined with a great increase in the richness in colour and size of the flowers. Amongst these, Veitchi splendens is a remarkable form, the colour being intensely rich, the spike very dense, and the individual flowers large. Burfordensis is a very handsome variety, the flowers rich crimson-scarlet, becoming deeper in the eye. But perhaps the highest coloured of all the seedlings is sanguinaria, with deep crimson-scarlet blooms. Porphyrea rosea is a grand flower of a rich magenta hue; amabilis is deep flesh colour with a white eye, and lactea has large pure white flowers. In nivea we have a large, bold flower with a pure white throat, the remaining portion of the flower being of a creamy-lemon tinge. Bella is an exquisite form, with large rosy pink flowers with dark eye, and rosea is white, flushed with rosy pink. These are some of the most distinct and striking forms; there are numerous others unnamed, the whole forming a strikingly beautiful group. Calanthes may be reckoned amongst the finest decorative Orchids we have, either as plants or in a cut state, for although their leaves are shed before the flowers open, the spikes or the plants arranged with Ferns produce an exquisite effect; such, indeed, as I do not think could be obtained by any other plant. The Calanthes are of easy culture, but they require warmth to develop their bulbs. When the bulbs have finished growth, too many growers dry them at once, but according to my experience this treatment is wrong. After growth is finished the water supply should be reduced, but as the flower-spikes begin to show soon after the completion of growth they require a fair amount of moisture to maintain them, and if this is not given the spikes are crippled, or perhaps entirely fail. I have found the best results follow the treatment as recommended above, and after the flowering season is past a little drying will then be beneficial. Before the plants begin to grow all the old roots should be cut away and the bulbs planted in new soil, which should be composed of loam, peat, and leaf-mould in about equal proportions, adding a little sharp sand and well decomposed sheep or cow manure. Water at first must be given sparingly, for I think this is the only time when difficulty arises, as if too much water is given during the earlier rooting period weak growth is sure to follow. When they have obtained firm hold of the soil, Calanthes enjoy copious waterings, while a little weak liquid manure occasionally will greatly benefit them. To allow of these copious waterings, of course the drainage must be ample. Calanthes enjoy strong heat, a moist atmosphere and an abundance of light.

Odontoglossum Hunnewellianum.—This is a Sanderian introduction, and is, I believe, the last addition to this genus, and, judging by the flower sent home by the collector, it will prove a very pretty species. The flowers are 2 inches across, sepals and petals broad, the former chocolate-brown, more or less streaked with yellow towards the base, the petals also chocolate-brown, in the upper half yellow or white streaked and spotted with chocolate; lip white frilled round the edge and spotted with chocolate. It will doubtless prove a welcome addition to the cool house.—W. H.

Zygopetalum cochleare, sometimes called Warscewiczella cochlearis, is an old and much-neglected plant, but I recently noted a very fine form of it flowering in Sir Trevor Lawrence's garden. The flowers are very large, the sepals and petals being creamy white, lip large, scoop-shaped, the sides incurved, the front portion rich velvety purple, the basal portion having a white ground traversed with broad, equi-distant, blackish purple lines, which become of reddish brown at the sides; the disc bears a thick furrowed plate. The plant, I believe, is a native of Trinidad, and is well grown in the above-named establishment, where it appears to be heavily shaded and kept in the intermediate house.—G.

Vanda insignis.—This, the true plant of Blume, introduced some twenty years ago by the Messrs. Veitch from the island of Timor, has never become a common plant, neither has the importation yielded many varieties. It has usually been considered a shy-flowering plant, and it certainly is a slow grower. This species thrives well with Mr. Buchan at Southampton, and is just now in full beauty. The sepals and petals are yellowish white on the outside, but within they are yellowish brown, spotted with chocolate-brown; lip large, prolonged behind into a short straight spur; side lobes white, the middle lobe of a purplish rose colour. This fine plant with a most remarkable yellow-flowered variety (Schrœderiana) were figured in The Garden, Vol. XXV., p. 168.

Lælia anceps Amesiana.—This is a superb variety which I recently saw with Mr. Sander, of St. Albans. The flowers are large, in form resembling those of L. a. Dawsoni, and they have the same close form, the sepals and petals not being reflexed, as is the usual style in the majority of the anceps varieties. The sepals and petals are large, of a pearly white, slightly flushed with flesh colour, the pointed tips being rich deep rose colour; the side lobes of the lip are heavily striped inside with deep crimson; front lobe smaller than usual, the colour being an intense deep violet-magenta, so deep that to a casual observer it appears to be black; the large crest is yellow. A truly wonderful and valuable variety.—H.

Cœlia bella.—I recently saw this plant flowering beautifully. When I see it it always calls up a feeling of regret, for years ago I had a large specimen, but could never succeed in inducing it to bloom. From what I can ascertain, I must have kept it too hot. The plant in question is very distinct, both in its habit of growth as well as flower, and is a decided acquisition as a late autumn bloomer. The spike is erect, shorter than the leaves, and bears from three to six flowers, which are very sweet-scented. The flower is funnel-shaped, with a spreading limb; sepals and petals creamy white, tipped with magenta, the lip being yellow. It thrives as a pot plant, and should be grown at the cool end of the Cattleya house. It requires a period of decided rest. It would appear to have been introduced by the late Messrs. Loddiges, of Hackney, and is, in all probability, a native of Guatemala.—W. H. G.

Odontoglossum Humeanum.—This is supposed to be a natural hybrid, the reputed parents being O. Rossi and O. cordatum. It has the appearance of a large and many-flowered Rossi; the sepals are chocolate-brown, with a few transverse lines of yellow, the petals white, faintly suffused with straw colour; lip white, streaked on the disc with reddish brown. This form is now flowering in Mr. Shuttleworth's establishment at Clapham. It is grown under very cool treatment, and is bearing three flowers on the spike.

Cypripedium Sallieri.—This beautiful plant is said to be a garden hybrid, obtained between C. insigne and C. villosum, and certainly its flowers would lead one to suppose that the two plants named were its parents. If this is the case the same cross must have been effected naturally, for there is now flowering in Mr. Shuttleworth's nursery at Clapham a plant of this form, the plant in a young state having been taken from the imported stem of a Dendrobium Wardianum from Burmah. The flower on the plant in question is exactly a counterpart of that of the plant called a garden hybrid.—W. H. G.

Cœlogyne barbata.—The more one sees of this species the less one is disposed to accept the advice given respecting it soon after its introduction, viz., "to avoid it," and I hope yet to see it take the place assigned it by Lindley, who declared it "the finest of the genus." Its foliage is large, erect, leathery in texture, and dark green; the spike is also erect, bearing several flowers of large size, the sepals and petals being pure white; the side lobes of the lip are also white, the centre lobe being of a dark sepia colour, this colour extending back to the column. It is deeply fringed on the front margin, and it bears to the base three raised and fringed lines of the same colour. It is now very handsome in Mr. Buchan's cool house at Southampton.—G.

Epidendrum phœniceum.—This is a very pretty plant, and out of the common run of Orchids which I recently noted in flower in the Burford Lodge collection. It is a native of the island of Cuba, and deserves more extended cultivation. The plant has somewhat rotund or ovate bulbs, which bear a pair of narrow leaves; the scape rises from between the leaves from the top of the bulb to the height of between 2 feet and 3 feet, and bears a profusion of flowers, which are about 1½ inches across, the sepals and petals being of an intense deep purple, the lip three-lobed, these with the middle lobe being clear bright rose colour. The form which has come mostly under my care under this name has been the variety vanillosmum, with much lighter coloured flowers and scented like the seed-pods of the Vanilla, whilst the flowers of the typical form are scentless. It requires strong heat and moisture.—W.

Bollea Lalindei.—I have seen this species in one or two collections lately, where they have been highly prized as autumn bloomers, and this leads me to hope that the various species of Bollea, Pescatorea, Huntleya, and allied genera will receive more attention from the Orchid growers of the present day. Bolleas are free-flowering, distinct in shape, and produce colours not found in many genera, the one fault being that they do not make sufficiently large specimens, nor retain their foliage long enough, but I cannot but feel that we expect too much of them, especially when I am told that naturally they lose their leaves annually and flower profusely. The flowers of this species are some 3 inches or more across, but they appear to vary much in colour; thus in one variety I found the sepals rose-coloured tipped with pale yellow, the petals being of the same colour bordered with white, the lip yellow, and the broad arching column rose colour; in another the greater portion of the flower was of a beautiful violet, with a deep golden yellow lip. These plants were grown well by Mr Salter before Mr. Southgate's collection was dispersed, and he always grew them cool, not so much so as the

Odontoglossums, but yet in somewhat a lower temperature than that of a Cattleya house.—W. H. G.

White-flowered Lælia præstans.—This is a very variable plant indeed, but a form which recently came under my notice with white sepals and petals was singularly beautiful. The sepals and petals are very broad with just the faintest suspicion of a tinge of flesh colour running through them. The side lobes are also pure white, the whole of the front lobe and the reflexed edges of the side lobes being deep crimson-purple without the pale blotch in front. It is a charming form.—W. H. G.

ORCHID NOTES.

It seems easier to write about any class of plants when one is busily engaged at work amongst them. There are very few gardens in which the gardener can keep well abreast with his work during the summer and autumn months, and work that really ought to be attended to in September and October has to be done in November and December. At page 369 I made some allusion to the sudden change of weather from soft western breezes to steady nor'-easters and sharp frosts night after night, and in connection therewith I referred to the importance of not heating the hot-water apparatus more than is necessary. As bearing on this subject it may be worth while to allude to a communication received from the Rev. F. D. Horner on this very subject. He has been quite as successful in the cultivation of Orchids as he has been in that of Auriculas, and he says that all Orchids require a restful temperature at night, and in the event of sharp frosts he would rather cover the glass with sheets of sacking than over-heat the hot-water pipes. And even if the fire should go quite out, the temperature may be well maintained by the thick sacking. I admit it is not usual to cover Orchid houses at night with sheets of sacking, but when it is done by a successful cultivator, his experience ought to have some weight. Mr. Horner has grown some difficult-to-manage species of Cattleya and other things remarkably well. He writes of the beauty of his grove of Cattleya citrina, with their large, fat pseudo-bulbs, and as these plants were the debilitated remnants of what another cultivator failed to grow well, there is something to be proud of.

In October, when the plants in the cool house were re-arranged after removing those that had to be wintered in the Cattleya house, we took the precaution to dip the plants overhead in a mixture of soft soapy water, to which was added a portion of tobacco water. Soft soapy water will of itself readily destroy green fly, but it is not effectual when we have to deal with thrips and red spider. After the plants have been dipped lay them on their sides for an hour, after which they may be sponged over with clear rain water. We are now looking over the plants again, surface-dressing some and repotting others. As to the time of re-potting, we do it when we can, at midsummer or at mid-winter, or any intermediate dates, and if the work is carefully performed, the plants do not suffer.

In the fresh Sphagnum Moss used for surface-dressing slugs are sometimes introduced, so that increased vigilance is necessary at this time. We keep them well down by laying slices of Carrots and Turnips on the stage between the plants. These pieces of bait are daily examined, as the pests after feeding conceal themselves underneath the traps laid to catch them. Many plants of Odontoglossum crispum are now in flower; also a few Masdevallias, such as M. ignea and M. Veitchiana.

We started potting and surface-dressing last month in the Cattleya house. It is a good time to repot such things as the gigantic Cymbidium Lowianum. This species grows into an immense specimen in a short time when it has the right potting compound to grow into, viz, some good fibrous loam, a small portion—say a fourth part—of light fibrous peat, some dry powdered cow manure, and, to keep the material open, a portion of powdered charcoal and clean potsherds. We have now a specimen that has grown in four seasons from a small plant in a 6-inch pot into an immense specimen in a pot 17 inches in diameter. Some of the Odontoglossums, such as O. Harryanum, O. cirrhosum, O. vexillarium, &c., have been potted. They were not done in the summer, and as they were pushing roots freely, they will do better in the new material. All the Pleiones that have passed out of bloom have also been repotted. These do well in small pans suspended from the roof, or, if planted in pots, the pots are also placed near the glass. A dozen large bulbs may be planted in a 6-inch pot or pan. As a rule, each bulb will produce two. We grow in a shady part of the house the Aerides Fieldingi and several species of Vanda. Even now, after all that has been written about the Vandas, some cultivators grow them in a much higher temperature than the plants seem to thrive best in. I have seen handsome healthy plants of Vanda suavis and V. tricolor grown in a temperature of 50°, and which sometimes fell to 45° in winter. The plants continued in a healthy condition, and did not lose their lower leaves so much as those grown in a high temperature. These Vandas are noble-looking plants, and an ornament in any collection. Well cultivated plants should not lose their lower leaves, but this is just likely to happen soon after the flowers fade, especially if the spikes have been allowed to remain on the plants in good condition for six or eight weeks. I keep the plants in a rather high temperature and a comparatively dry atmosphere all the time the flowers are open. The climate is not to blame, as excellent Vandas well furnished with leaves can be seen in the London district, notably in the nurseries of Messrs. James Veitch and Sons and Mr. B. S. Williams, of Holloway. Large well-branched plants of Vanda suavis are noble ornaments in any collection of Orchids. At present they must not have much water at the roots, and they should be placed near the glass on the north side of the house. I grew them well at one time in a half span-roofed house facing south. The plants were placed on the north side against the back wall, and the top of the plants near the roof. The temperature at night in winter was seldom over 50°, and it often fell to 45°. It is better not to disturb any of the Cattleyas in winter if it can be avoided. It is quite the resting period for all those of the labiata section. Let the plants get quite dry at the roots before they are watered, and if possible always use rain water, which ought to be of the same temperature as the atmosphere of the house or higher; the plants should have a good soaking, and no more be given until they are quite dry.

In the East India house we find some occupation in repotting and surface-dressing many of the now numerous family of Cypripediums. Cypripediums, especially when the plants are of small size, seldom stop growing and pushing out their roots. Some of the hybrid forms are noble plants, and of great interest and beauty. They can also be obtained at a reasonable price. C. grande, for instance, makes a very large specimen in a few years. I tried this in the Cattleya house at first, but found the leaves became sickly in winter. Now that it has been placed on the north side of the warmest house it grows quite freely, and had to be repotted twice in one year. When the plants are of large size repotting once a year is sufficient. The distinct C. Schrœderæ is also free in growth, and is now not uncommon. C. Spicerianum is one of the best introductions to this class in recent times, and is freely in flower at the present time in most collections. C. Leeanum, although a hybrid from C. Spicerianum and C. insigne, is now plentiful, and is a very beautiful thing. The handsome hybrid C. leucorrhodon is a vigorous growing plant, and the most lovely of all the group to which it belongs. They may all be kept in a gentle growing condition. The potting material for all the Cypripediums is the usual compost of good fibrous brown peat, Sphagnum, clean potsherds, and pieces of charcoal. This answers equally well for surface-dressing, and all of them do best when the Sphagnum is growing freely. The roots push freely amongst it. Our little group of Odontoglossum Roezli is a favourite; the plants are always kept in this house, and we repot them when they pass out of bloom in July and August; and as they are never allowed to become anything like dry at the roots, they may also be benefited by being surface-dressed like the Cypripediums. They always do well if the temperature is right and the surface covered with fresh growing Sphagnum. See that in all departments the glass is kept clean as well as the plants themselves and all their surroundings. Let the temperature in all the houses fall to the lowest safe point, that is if the weather changes, for with scarcely any heat in the pipes the cool house has been 55° at night, and the others as high in proportion. In cold frosty weather the cool house may be 45°, the Cattleya house 53° to 55°, the East India house 60° to 65°. This will all depend on the weather, but the above ought to be the lowest points.

J. Douglas.

Lælia anceps Sanderiana.—A magnificent form of this variety was recently blooming at St. Albans. The sepals and petals were pure white, lip also pure white, the interior of the side lobes being broadly veined with crimson, and the crest yellow; front lobe rich magenta bordered with white. All these white varieties of anceps are very beautiful, and although they have hitherto been somewhat shy in producing flowers, I hope that when they have been a little longer in cultivation this drawback will have vanished.—W. H. G.

Cattleya exoniensis or, perhaps more correctly, Lælia, is one of Mr. Dominy's earliest hybrids, and certainly will always be a fitting monument of his skill. The plant in question always takes first rank for beauty, the pure white of its sepals and petals and the lovely purple veining of its lip and its yellow disc rendering it very conspicuous. I noted some time back a plant of this rare variety flowering in Mr. Laing's nursery at Forest Hill, and more recently in Sir Trevor Lawrence's garden at Burford Lodge. It is always a rare and high-priced variety.—W. H. G.

The Shoelace Plant (Scuticaria Steeli).—This is the English name given to this plant in Sir Trevor Lawrence's garden, where we recently noticed it flowering, and where it appears to enjoy the temperature of the warmest house. The long, terete, intensely deep green leaves suggest the very appropriate name, and the flowers, produced close to the base, are large and fragrant. The ground colour is primrose-yellow, more or less streaked with dull crimson, the lip in addition being marked on the crest with orange. The plant is a native of British Guiana, and it requires strong heat and moisture. It has been in our gardens upwards of half a century.

Burlingtonia decora picta.—This is a plant of great beauty, more plentiful twenty years ago than at the present time. It is somewhat straggling in its habit of growth, but makes a fine basket plant for flowering at this season. A teak-wood basket should be selected for it in preference to a wire one, and very little peat or Sphagnum should be used, as the plants thrive best when their roots are free; therefore, an abundant supply of moisture is necessary in the atmosphere. The flowers are pure white, spotted with rich bright rose. We have observed this plant blooming in several collections during the past month.

SHORT NOTES.—ORCHIDS.

Maxillaria lepidota.—This is a charming species for flowering at this season in the cool house, and the colour, canary-yellow, with bronzy, tail-like petals, is very striking. I do not remember to have seen this species in any other collection but that at Burford Lodge.—W. H. G.

Octomeria convallarioides.—This is not a showy or attractive plant, but a tiny little beauty full of interest to those who love these curiosities. It produces tiny little spikes bearing small, pure white, bell-like flowers, resembling those of the Lily of the Valley in miniature. It was recently flowering in Mr. Tautz's collection at Studley House.

Odontoglossum Rossi Amesianum.—A form of this species very nearly resembling the variety named is now flowering in Mr. Jacomb's collection at Cheam Park, and is very conspicuous for the rich chestnut-brown of the petals, and is very distinct from

the type of this fine old cool house plant. Amesianum is a form which has been recently certificated by the Royal Horticultural Society.—H.

Cattleya Trianæ.—The first flower of the season of this species I saw open on the 12th inst. in Mr. Jacomb's garden at Cheam Park. Mr. May, the gardener, remarked that although the other forms of Trianæ were quite half way up in their sheaths, this plant every season was sure to be the first to open. Cattleyas now may really be had in flower all the year round by properly selecting the kinds, and what rich and gorgeous flowers they are! We want a blue Cattleya; who is to be the lucky finder?—W. H. G.

MARKET GARDEN NOTES.

The protracted spell of mild, growing weather has had its effect on market as well as private gardens, and to look at the crops now one would think it was September rather than close on Christmas. Not only do the crops luxuriate in the warm wet weather, but the weeds are making rapid progress, and the work of destroying is not an easy matter, for nothing short of hand-weeding and removal is of any use. This is being carried out for the safety of such crops as autumn-sown Onions, Lettuce, and Cabbage plants in beds. Work is still plentiful, for there is no check to any operations from the weather except the rains, and on this light soil there is little harm done by trampling in wet weather; in fact, it is looked on as beneficial rather than otherwise, for when so much manure is used the land needs consolidating by pressure rather than lightening by any artificial means.

One of the operations at present demanding attention is the lifting of roots for the Christmas markets, as the shops all take in an extra supply, especially of Horse Radish, Parsnips, Beetroot, Carrots, &c. Although the weather has been so mild and genial, the growers are obliged to be prepared for sudden changes, so as to execute their orders at the proper dates, and root crops that will keep fresh in any cool place where they are secure from wind and frost are lifted and tied in bundles, or stacked in heaps until required. The crop of roots is generally extremely good this year, and they are also large, clean, and of the finest quality; the abundant rainfall and absence of any checks to growth have produced crops of superior excellence in every respect.

Green crops of all kinds are abundant and cheap. The main crop now being sent to market is the Autumn Giant Cauliflower that is still in excellent condition, as the late planted crops have grown out to full size, and will keep up the supply until the Winter Protecting Broccoli is fit. Many of the heads of this Broccoli are already of good size, but will be kept back until the less hardy Giant variety is cleared off. Young Cabbages are in splendid condition now from crops planted after early Potatoes, the heads being beautifully white and as tender as those of the first crop of spring Cabbage usually are. Savoys are very fine, and, as a rule, are in great request at this time of year. The Drumhead and Dwarf Green Curled are the varieties mostly grown by market gardeners, the first named for shops where quantity is required, and the latter for those where quality is the consideration.

Celery is remarkably fine and well blanched, and is being lifted in quantity now. The late crops are getting their final earthing, the mild weather having greatly favoured growth; but the whole of the crop will now be fully earthed up for the sake of protection, as now that it is so full of growth a moderate frost will cause it to decay. Artichokes are in moderate request, but when other vegetables are so plentiful and cheap these are not in demand. It is only when a severe spell of frost renders other vegetables scarce and dear that the Artichoke comes into much request, but it produces such an enormous quantity of roots to a given area, that it is a profitable crop to grow when sale can be got for it. The light stony land in this locality suits this vegetable remarkably well.

Forced vegetables, such as Seakale, Rhubarb, Mushrooms, &c., are beginning to make their appearance, but the unusual mildness of the season and consequent abundance of good Cauliflowers have caused growers to keep back such things until better prices prevail, and, as a rule, there is not much demand for high-priced goods until after the Christmas week. The first few weeks of the new year are the best time to get full supplies of the above ready for market, and growers are now busy getting a full batch started, also Mustard and Cress for salads.

Apples of home growth are scarce, and good samples realise good prices, especially large or highly coloured ones. The planting of Apples is still being pushed on under very favourable conditions, and in this locality bush trees are decidedly getting into far greater favour than standards. Lane's Prince Albert is one of the kinds that has of late become very popular. Pears have been keeping badly, probably owing to their imperfect ripening, and good examples of home growth are getting scarce. Stewing Pears are selling better and are being planted more than they formerly were as bush or pyramid trees. Catillac and Bellissime d'Hiver are excellent sorts.

Flowers have been plentifully supplied to our markets lately, Chrysanthemums being unusually good for the season and Czar Violets have been very fine, while bunches of Primroses are by no means rare. Amongst plants, Solanum capsicastrum appears the most popular, but Heaths and foliage plants, such as Aralia Sieboldi and greenhouse Ferns, are selling readily. Loads of Holly and Mistletoe are already coming in, as the shopkeepers in towns go in largely for evergreen decorations. This is brought in from the New Forest in large van-loads. J. Groom.

Gosport.

THE FORMATION AND REPAIRING OF GARDEN WALKS.

Seeing the state of many garden walks after the little rain we have had shows how important it is to have them thoroughly well made at starting, for without that, one may patch and mend, and do what one will, short of re-making, and yet not get them in a satisfactory condition in weather like this. The first and most important thing, perhaps, to be thought of in the formation of walks is to get rid of the surface water, which many endeavour to do and provide for, as they suppose, in the rubbish they put in at the bottom. To conduct water this is the greatest mistake possible, as instead of the foundation being loose and hollow it should be just the reverse, and unless made so at first the top will never be firm and solid, however much the roller may be used. The same remarks apply, although not in an equal degree, to walks that are formed by just digging out a little earth and then putting gravel in without other material below, in which case they are sure to be soft and rotten and form a congenial bed and home for weeds, as the worms will work and throw up the soil, or it will ooze through and become mixed with the gravel above. The depth at which a walk should be dug out at starting depends on the locality and soil of the garden, but, roughly speaking, 6 inches is quite enough; and with this done, the next thing is to provide the drains, and the simplest and most economical way is to run a main along the centre of the path, and lead the branches to it. These, of course, will connect with gratings and cesspools placed at intervals, the cesspools being made to catch the sand or other *débris* washed off the walks, and so prevent the drains becoming blocked, as the gratings can be so arranged as to be lifted out easily, and the cesspools or traps cleared as may be necessary before they are full. The most suitable pipes for forming drains are those of glazed ware, which are very hard and durable. The 3-inch sizes are quite large enough. These run in 2-feet lengths, with sockets, may be quickly laid, and with a little fall will keep clear always, as being smooth inside as well as out, nothing can lodge on their surface. With the drains and cesspools down, all will be in readiness for the foundation, for the formation of which clinkers from the furnaces, burrs or broken bricks from the kiln, slag from any iron foundry, or other hard material of that character, is most valuable. If none of these can be had near, and chalk alone is available, that forms an excellent substitute, and should, in any case, be used for filling up the interstices between the bricks, burrs, &c., forming the bottom, for reasons already stated above. Lime cobbles, or the siftings after lime has been slaked come in even better than chalk, and failing either, gravel of an adhesive nature may be used in their stead. Now we come to the next layer, which should be rough, stony gravel of a good binding character, and with this spread and levelled evenly down, the finishing off should be effected by using some fine, keeping the middle of the walk at least an inch higher than the sides. This, if the walk is not wide, will be sufficient to throw the water off to the gratings, where it will quickly pass away, and as soon as the gravel is dry enough after rain it should be well rolled, and the same after frost, as frost lifts the surface. With regard to old faulty walks, they may be improved by first breaking them up a little, and then adding the best binding gravel that can be obtained, but this must have plenty of small stones in it, as otherwise it will not bear the weight or wear that may come upon it.

Where there is but little traffic, nothing looks nicer or is so agreeable to walk on as turf paths made from 3 feet to 4 feet wide, and their keep involves less labour and attention than gravel, as the mowing machine can be quickly run over and the Grass cut once a week during summer, and there the thing ends. With gravel there will be weeds, which must be pulled out, and frequent rolling is required to have the surface good.

In places where there are shrubbery borders these Grass walks form a fine setting to the sides, such as can be had in no other way, but in situations of that kind they should be much wider, and those who happen to have walks made of gravel through their shrubberies and which are not satisfactory will find it the best thing to do to turf them over or sow seeds in the spring. All that is necessary by way of preparation is to scatter an inch or so of fine soil over before laying the turf or sowing the seed, and unless the position is very hot and dry, the Grass will grow sufficiently strong and make a fine bottom. S. D.

SOCIETIES AND EXHIBITIONS.

THE NATIONAL DAHLIA SHOW.

The usual annual meeting of the supporters of this exhibition took place by kind permission at the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on the 14th inst. The balance sheet showed subscriptions for the past year £59 10s. 6d., with the usual vote of £50 from the Crystal Palace Company. The payments amounted to £114 10s. 6d., including £103 10s. paid as prizes, and the balance was made up by a *pro rata* deduction from the prize money awarded to professional growers, as provided under Rule 10. The accounts were duly passed. A conversation then took place on the advisability of forming a permanent society, with rules and regulations and a properly constituted executive. It was thought if this were done several of the exhibitors who do not subscribe to the fund might be induced to do so. Eventually the matter was left in the hands of the committee. Mr. Glasscock reported that he had received a communication from Mr. W. G. Head on behalf of the Crystal Palace Company to the effect that the directors would give the same amount as last year towards the compilation of a prize schedule, and also supply, as heretofore, cards, the necessary staging, take the entries as heretofore, and print the schedule of prizes as formerly. This offer was accepted with hearty thanks to the Crystal Palace authorities, and the first Friday and Saturday in September were named as the most suitable dates for the show in 1889, subject to the approval of the manager at the Crystal Palace. It was resolved that the judges should be selected from the exhibitors, the amateurs to judge the trade

flowers, and *vice versa*; the luncheon to the judges to be discontinued as a charge in the balance sheet. The schedule of prizes as offered last year was passed as that for the show to take place in September next. The hon. secretary stated that he had been in communication with the trustees of the Turner Memorial Fund with a view of obtaining a grant for the exhibition next year, but he had been informed that any contribution to the fund for the coming year had already been promised for the promotion of Tulip culture. Mr. Glasscock intimated that, owing to age and increasing infirmities, he should have to relinquish the post of hon. secretary and treasurer, and he proposed that Mr. W. T. Girdlestone should be elected in his stead. Mr. Girdlestone having consented, the nomination was seconded and carried unanimously. A cordial vote of thanks was passed to Mr. Glasscock for his past services. Some changes were made in the committee, and the proceedings closed with a cordial vote of thanks to the chairman for presiding.

The Scientific Committee of the Royal Horticultural Society.—Your strictures on this body last week induce me to send you the enclosed, with a few comments thereon. An apparently very simple matter, and easy of explanation by a coach-builder or a carpenter, you will perceive, bamboozled the committee, who submitted the matter to a superior authority.

Oak wood, defective.—Specimens of Oak wood which had been used for spokes of wheels, but found to be remarkably brittle and consequently useless, were submitted to Professor H. Marshall Ward for examination and report. The following communication was received from him: "I have cut numerous sections of the pieces of Oak, and have made a very thorough examination of the wood, but must say I can find no traces of fungi or pronounced decomposition. Nevertheless, the tracheides of the wood seem to be abnormally short, and have occasionally granular 'deposits' in them—also in the medullary ray cells—which I should like to know more about. I cannot explain the matter, but should be glad of further specimens for examination."

I waited a week for the above "report," and I am bound to say it is a scientific explanation of a matter where no science was needed. "Spoke wood" is always procured from Oak trees of no great age, fast grown, clean and straight in its longitudinal fibre, because such timber is tough and strong, and good spoke wood is often set out and described as such in timber lots and fetches a better price. Old Oak is often full of "granular deposits," is what timber merchants call "tender," and is quite unfit for spokes or any purpose of that kind. Any woodman would have told the committee this at once. But is it not rather sad that a body like the "scientific" committee had not sufficient common knowledge and physiological skill to explain the mystery offhand?—The Sawmill Man.

PHOTOGRAPHIC COMPETITION.

We have to thank our readers for so fully entering into this competition, the decisions as to which have taken much time. The result of the competition is as follows:—

First prize of seven guineas to the Earl of Annesley, Castlewellan, Co. Down, for a large number of well-chosen, admirably-photographed, and interesting garden subjects, some very remarkable. Undoubtedly the best collection sent to us.

Second prize of four guineas.—Mr. Mason Good, Winchfield, Hants. Pretty garden plants and country houses. Photographs well and tastefully done.

Third prize of three guineas.—Mr. Robert Murray, 13, Windsor Terrace, Plymouth, for beautiful photographs of fine old Devonshire gardens and country houses. Cork trees in Mount-Edgcumbe, and other photographs showing well the beauty of the country near.

Extra prize of two and a half guineas to the Rev. J. A. Lloyd, Broad Hinton Vicarage, Swindon, Wilts, for nice tender photographs of garden flowers, plants, and cottages.

Extra prize of two guineas to Mr. R. A. Bradley, Field Head, Alderley Edge, Cheshire, for a large number of photographs, including some of good garden plants and country houses.

Extra prize of two guineas to Mr. T. C. March, 35, Chapel Street, Belgrave Square, London. Beautiful photographs of varied forms of floral table decorations, some of them rather formal in arrangement, but all admirably photographed.

Prizes are also awarded to the following competitors for each photograph chosen for engraving out of lots other than the principal winning ones:—

Mr. W. Thompson, 78, Turf Lane, Hollinwood, near Oldham. Three excellent photographs of two cottages and a fine Walnut tree in a country lane.

Mr. B. Warner, Inwood, Henstridge. Photographs of fine plants of Vinca rosea, Cissus discolor, and Allamanda Hendersoni.

Mrs. Ernest Crossfield, Baycliffe, Lymm. Three very good photographs of Olearia Haasti, Passiflora princeps, and Cistus florentinus.

Commander Walters, R.N., 13, Cromwell Road, West Brighton. Three good photographs of Magnolias, Dasylirion acrotrichum, and Croton Warreni.

Mr. Allister Murray, Durie, Leven, Fife. Three good photographs of Balcaskie House, a vase of cut Sweet Peas, and view of Balfour House.

Major Arthur Terry, Burvale. Three excellent photographs of white Passion Flowers, a Hop arbour, and a fine Sunflower.

Mr. T. N. Green, Milton Park, Peterboro'. Two views in pleasure grounds in Milton Park, and Weigela Van Houttei.

Mr. V. C. Baird, Broughty Ferry, N.B. Two beautiful photographs of Chrysanthemum Madame Desgrange and a spray of Hawthorn.

Mr. W. G. Burston, Kinnerton, Chester. A branch of Dumelow's Seedling (Wellington) Apple and a fine specimen of Acer Negundo variegatum.

Miss Dryden, Canons Ashby, Byfield, Northamptonshire. The garden at Canons Ashby and Eydon Hall, Notts.

Mr. Vesey G. Nash, Glenview, Upton, Cork. Hanging-basket filled with Campanula, and wall of a greenhouse covered with creeping plants.

Mr. Percy C. Groves, Portland Street, Worcester. Beautiful photographs of Pteris and an excellent group of Roses.

Mr. James D. Cox, Woodford, Broughty Ferry, N.B. An Orchid (Cattleya Trianæ) and a fine specimen of the Silver Fir at Roseneath.

Mr. F. Skinner, High Street, Tenterden. A large Ash tree and a very fine specimen of Adiantum farleyense.

Mr. W. Norman Blake, 74, Midland Road, Bedford. Two sorts of Potatoes perfectly shown.

Mr. O. M. Stevenson, Sherwood, Scotstonhill, near Glasgow. Cut trusses of zonal Pelargoniums and cut Carnations and Picotees.

Mr. D. Buchanan, Lambton Gardens, Fence Houses, Durham. Pancratium fragrans and a fine bunch of Cannon Hall Muscat Grape.

Mr. G. Tallents, Coddinton House, Newark, Notts. A Cheshunt Hybrid Rose on house and white Gladiolus.

Mr. G. P. Piper, Ferndale, Pennsylvania, Exeter. Ferns in conservatory and house porch covered with Clematis and Jasmine.

Mrs. Hewitt, Devoke Lodge, Walton-on-Thames. Thrumpton, Kegworth, Derby. View of the house and garden, and another view of the same from the banks of the Trent.

Miss Gaisford, Offington, Worthing. An old cottage at Lancing, Sussex, and well-grown Marguerites.

Mr. Alwyne Scrase-Dickins, Coolhurst, Horsham Gordonia anomala and Deutzia scabra.

Mrs. Edmund Kerrison, Pembroke Lodge, Camberley, Surrey. A winter bouquet of dried Grasses.

Mr. S. Fowler Jones, Quarry Bank, Malton. Cawdor Castle and gardens.

Mr. Joseph Raines, Oakville, Westerfield Road, Ipswich. Fuchsia on a wall.

Mr. G. Ross Galloway, Monaliadh, Inverness. Hydrangea.

Dr. Thornton Perkins, Warwick. Maranta zebrina grouped with other plants.

Mr. M. C. J. Harris, Axminster, Devon. Clematis and Jasmine on a thatched cottage.

Mrs. E. Quare, Honington House, Matching Green, Harlow, Essex. A group of greenhouse plants in flower.

Mr. Watkins, 33, Taff Street, Ferndale, near Pontypridd. Begonia weltoniensis grown in a window.

Mr. Isaac Milsom, Claydon Park, Winslow, Bucks. Catalpa tree in flower.

Mr. Thomas Pimlott, Whirley Road, Macclesfield. A fine climbing Rose in flower.

Mr. T. Stokoe, Clare, Suffolk. Sandringham House and gardens.

Mr. John L. Robinson, 198, Great Brunswick Street, Dublin. Haddon Hall from the terrace.

Mr. George Randall, Chudleigh House, Stratford-on-Avon. Flowers on a house.

Mrs. Nutcombe Gould, Knowle, Bovey Tracey, South Devon. Fine specimen of Pinus insignis.

Mr. Walter Laidlaw, Jedburgh Abbey Gardens, Jedburgh, N.B. Arum Dracunculus.

Miss A. Newman, Burton Latimer Rectory, Kettering. Old standard Heliotrope at Finedon Hall.

Mr. Thomas Smail, 16, High Street, Jedburgh, N.B. Charming window garden over shop.

Captain Beckett, Avondel, Hollington Park, St. Leonards-on-Sea. Fruit-bearing branch of Beurré d'Amanlis Pear.

Mrs. S. Ward, Brewery House, Haverhill, Suffolk. Maiden-hair Fern growing outside a porous jar.

Miss Bateman, Esther Cottage, Ponder's End, Middlesex. Hare's-foot Fern (Davallia Mariesi elegans) in a room.

Miss F. E. Pope, Combe Down, South Devon. Fruit-bearing branch of Lord Suffield Apple.

Mr. George Ingram, Ascot, Berks. A picturesque keeper's cottage.

In all, prizes to 50 ladies and gentlemen have been awarded, and were duly posted to those above-mentioned.

We have to thank Mr. James Pulham, of Broxbourne, for kindly sending us a large collection of photographs of some of the many admirable artificial rock gardens he has made. The photographs, however, are not so good as his work, nor is the planting of the rock gardens always done with good taste afterwards. Upon that almost wholly depends the good or bad effect of such work.

Failures.—We examined carefully (and more than once) every set received, so that no one of merit should be passed over. The causes of failure are most frequently that some of the photographs are so over-exposed that they come out as black as jet. Other causes are: The want of simple natural ways of arranging cut flowers. The complex bundles generally seen look worse in a photograph than they actually are. The backgrounds, too, are not always considered in relation to the colour of the flowers; a crowd of so-called "artistic" objects around is fatal, as is the flower-jar all set over with a pattern. The common hard geometrical garden is never so shocking as when photographed. To engrave some of these would be the severest comment that could be made on the style. In printing and toning many fail. In many of the photographs of the interiors of greenhouses, Orchid houses, &c., the groups of plants selected for illustration are so crowded together as to render it impossible to distinguish one kind from another. In the case of Grape Vines and fruit-bearing branches and trees of Apples, Pears, and Plums, the fruit is taken much too small, and, therefore, cannot be recognised accurately. Very common things now and then are a cause of failure, as Lilium auratum, which has been so often done. On the other hand, some beautiful common things are never done well—as an Apple, Pear, or Thorn tree in bloom, and many wild flowers.

Anthracite coal.—In reply to "B." in The Garden, Dec. 15 (p. 567), this coal will burn freely, but it requires more draught than coke or ordinary coal. It also gives out far more heat, is more steady and lasting, also cleaner than coke, and will suit any boiler, large or small. My anthracite costs me 25s. per ton delivered. My boiler is a check end saddle, with nearly 600 feet of 4 inch pipes, half of which

are in a stove, where the temperature is never allowed to go below 60°; the rest are in a greenhouse and fernery. The average cost of fuel does not exceed 6s. per week, which, I believe, is cheaper than coke, and not half the trouble. I make up the fire about 9 p.m., and at 7 the next morning it is nice and bright with the water seldom below 100°. I burn all the ashes and nothing leaves the stoke-hole but clinkers. Frequently during this autumn I have not touched the fire between 9 p.m. and noon of the following day. The price of coke here is 13s. per chaldron, and of steam coals about 15s. A friend of mine burns coal and coke mixed, and it costs him nearly double in proportion to what it does me, and in cold weather he has to spend half his time stoking. I sweep the flues out about twice a year and then do not get more than half a peck of dust or soot, which is much less than I should get if I burned coke.—R. C., *Norwich.*

—— I am now burning anthracite in preference to coke in one of the perpetual-burning Scandinavian stoves in a warm greenhouse. I find anthracite burns as freely as coke, or more so, under the same conditions. It gives much more heat, is more reliable, and lasts just about twice as long. I fill my stove only once in twenty-four hours. It is much cleaner than coke, making less than half the quantity of ashes and no clinkers. Apart from the labour of stoking, I consider that anthracite at the price I can buy it, 23s. per ton, is a cheaper fuel than coke, which now costs me 1s. 2d. a sack. It gives off fewer fumes, and is less trouble to break up.—Enfield.

NOTES OF THE WEEK.

Scenes in Hawaiian Islands are a feature of interest in the *Illustrated London News* of the 8th inst. The illustrations are from photographs taken by Mr. Scott B. Wilson, son of Mr. G. F. Wilson, of Weybridge. From these an excellent idea can be obtained of the rich tropical scenery and vegetation of these interesting islands.

Clethra arborea in Cornwall.—I have sent you a few flowers of Clethra arborea, cut from a plant growing at Trewidden in an open, sheltered place. The reason that I sent you these flowers is because I saw in your paper a note concerning the plant. Our specimen is about 6 feet by 4 feet and covered with bloom, and it has been so for the last two months.—George Maddern, *Trewidden Gardens, Penzance.*

Louis Kropatsch.—As will be seen from the note at p. 550 of The Garden, I have been appointed head gardener at the Imperial Parks and Gardens, the Prater, Vienna, having been in former years at Laxenburg, and lately at Miramar. Should any correspondent of The Garden come to Vienna, I shall be very pleased to have the honour of his visit.—Louis Kropatsch.

Rhododendron Davisi.—We send herewith a truss of Rhododendron Davisi, now blooming with us in a cool greenhouse. The plants will continue in bloom perhaps until April next. This hybrid was raised from the pretty little R. retusum, crossed with the fine orange-flowered R. javanicum. The foliage is very handsome, and the habit of the plant is more bushy than that of R. javanicum.—Isaac Davies and Son, *Ormskirk, Lancashire.*

Lælia præstans.—Mr. John Gordon, Miramar, Exmouth, writes that Lælia præstans is now in flower in the Odontoglossum house. This is a Brazilian species of no mean beauty; it is dwarf, evergreen, and partakes of the character of Cattleya marginata in growth, and also in the size of the richly-coloured flowers. As is almost invariably the rule, it differs considerably, some varieties having great richness of tint and beauty of form, others just the reverse.

Weather at Bournemouth.—I had thought that in the Isle of Wight we were well to the front in all that appertains to the eccentricities of the year, but I am told now that this is quite a mistake. We are stationary and behindhand compared with other places—*e.g.*, I hear from a relative who lives in Dean Park, Bournemouth, that while thrushes and blackbirds are here merely singing anticipatory songs, they have with her taken to business at once; and she can aver, as a positive fact, that in the very next garden to her own a thrush is now sitting on a nest which contains five eggs. So far as I know, this beats the record. What could go beyond it?—H. E.

Lilium neilgherrense.—A fine specimen of this Lily is now in bloom in the conservatory here; it is 6 feet high in its pot, has five flowers on the stem, and scents the house. In Elwes' Monograph it is said "Though I have not seen more than three flowers on a single stem, I believe it is capable of producing far more." Perhaps some of your readers who know the Lily in its own country will inform us how many flowers they have observed in its wild state.—George F. Wilson, *Heatherbank, Weybridge Heath.*

Butcher's Broom in Essex.—The Butcher's Broom is no rarity, but it is seldom seen in such beauty as in the garden of Mr. Chaplin, Harlow, Essex. The plant is about 4 feet high, crowded with berries that are about the size of those of small Cherries, and showing beautiful shades of brown and red. Although a wild plant it is worth growing in the shrubbery, as much for its singularity of character as for its showy berries. It frequently occurs wild in the south and west of England.

Pleroma macrantha is flowering with the greatest freedom in the greenhouse at Kew. Such a fact is worthy of note, especially by those who grow this lovely flower in stoves and houses that are devoted to plants requiring a large amount of heat. It is seldom the Pleroma is seen in condition; and the reason seems to be that the plant is grown in a stove when it only needs a greenhouse. This Pleroma, or Lasiandra, as it is sometimes called, has rich purplish flowers of distinct beauty, and is one of the greatest treasures we have received from Tropical America. The plant at Kew is trained along the rafters, and has not the starved look that stamps the majority of the specimens seen in private gardens.

Impatiens Hookeriana.—A well-flowered plant of this fine Impatiens may now be seen in the T range at Kew. It is 2 feet high, and rather more through, the branches all erect, leafy at the top, each branch bearing two or three racemes of flowers. These are usually in pairs; the spur is narrow, 2 inches long, and curved; the segments are fleshy, recurved, the two lower ones spreading and lip-like; colour pure white, with veins and spots of crimson on the pair of lip-like segments. As a garden plant this Impatiens is too uncertain in the development of flowers to be of much account. Now and again it blooms freely, but it will not bear comparison with I. Hawkeri, I. Sultani, and I. platypetala. When in flower, however, it is handsome. We believe the treatment most likely to induce this plant to flower is as follows: Plant in rich soil, and treat the plant liberally in regard to water, heat, and sunlight till August. After this, withhold water and expose the plant to full sunshine till November. Then water again, and the buds should soon appear. It was introduced from Ceylon in 1852.

Royal Horticultural Society.—We understand that, with a view to retrenchment of office expenditure, and with the hope of being able to devote more money to Chiswick, the council of the Royal Horticultural Society have decided to leave the position of assistant secretary vacant for the present. Mr. Charles J. Grahame, who has so well filled that office during the past year, fully concurs in the propriety of this step, and having the society's welfare at heart is in entire accord with the council's decision. The honorary secretary, the Rev. W. Wilks, has most kindly undertaken to be responsible for all official correspondence, and, considering the main objects he has in view, viz., the rehabilitation of Chiswick and the resuscitation of the society's journal, we are sure that he will meet with every indulgence at the hands of Fellows and others if sometimes he finds it impossible to keep the correspondence quite up to date. The council of the Royal Horticultural Society has arranged to hold at Chiswick, on July 2 and 3, 1889, a conference or congress on Roses. The National Rose Society has cordially met them by appointing a number of rosarians to act as its representatives on the general and executive committees of the conference. The council hope to receive the assistance of all the principal Rose growers in the country.

The greenhouse at Kew is in its winter dress, and with even a selection of ordinary plants if they are well grown, it is not difficult to make a house cheerful. In full bloom at the present time are the rich scarlet Sericographis Ghiesbreghti, Reinwardtia tetragona, the old Justicia speciosa, Salvia splendens, S. leucantha, the showy Hibbertia dentata, a climber which was figured in The Garden of July 28, 1888; Agathæa cælestis, that has beautiful blue Daisy-like flowers; Christmas Roses, Cestrum (Habrothamnus) elegans, that clambers up one of the pillars; the fragrant Luculia gratissima, and the inevitable Poinsettia pulcherrima. These are only a few of the things that may be used in the greenhouse at this season of the year. Those who have the means can, of course, have forced Paper-white Narcissi, Roman Hyacinths, and other spring subjects.

Cypripedium insigne. — As showing the variability of this fine old winter-flowering Orchid, I forward you a few blooms cut from two large old plants we have here. As you will see, one has the dorsal sepal much broader, and with a larger portion of white on the upper part than the other, which is distinct, as having a yellower tint over the whole of the flower than No. 1 has. Plants with from twenty to thirty flowers on each, well thrown up above the green foliage, are useful for decorations at this dull season. Few, if any, Orchids are better for room decoration. The flowers do not suffer from being a week or so in a warm room.—H. J. C.

*** What our correspondent writes is correct, and the two sets of blooms sent show how much C. insigne varies. They both represent good forms; the flowers large, well marked, and robust. This variability is more conspicuous in other Orchids, as, for instance, Odontoglossum Harryanum, which in some phases is exceedingly poor, but undeniably superb in others.—Ed.

Gros Colman Grapes.—Although much has been written against this handsome Grape it has not lessened its popularity, as the demand for it is certainly on the increase, and many more tons of this Grape will pass through the markets during this festive season than of several other varieties put together. Quite ordinary samples will also realise 1s. per lb. more than such sorts as Alicante, Barbarossa, Gros Maroc, &c. But it is the great contrast between well and indifferently cultivated samples that I wish to illustrate, and herewith send you some of each for that purpose. No. 1 are those of our own growing. The Vines are started into growth about the middle of January, and the fruit is fairly well coloured by the middle of July. I do not, however, consider it fit for table for six months after colouring; in fact, no Grape improves more by hanging than this variety. No. 2 is a very fair sample as grown for and sold in the market for 3s. per lb. These Vines are allowed to start naturally in April, consequently do not begin to colour before the end of September. The leaves begin to decay before the fruit is properly finished, and the inferiority of these Grapes is not surprising. I hope the above few remarks will be sufficient inducement to cultivators to give this variety the necessary long season of growth, and allow it to hang sufficiently long to ripen. If this were attended to we should have fewer complaints.—J. H. Goodacre.

*** No. 1, a remarkably fine sample, the berries as large as Plums, richly coloured, and of a refreshing flavour. No. 2 had smaller berries, not so well coloured, and the flavour not so rich.—Ed.

Carnations unhealthy (*C. B. L.*).—Please send name and address, as also specimens of your Carnations.

Names of plants.—*W. Beswick*,—Cymbidium Mastersi. ——*H. Downing.*—Juglans nigra (Black Walnut.)——*J. Murton* ——The Saxifrage is S. ceratophylla; the other is Amicia zygomeris——*Orchid in tin box.*—White form of Cymbidium Mastersi.——*Mrs. Jennings.*—It is only an ordinary form of L. anceps, with no varietal name as far as we know.——*G. Mantin* —1, Angræcum eburneum; 2, a Dendrochilum, apparently.

WOODS & FORESTS.

THE CHESTNUT AND ITS USES.

The Chestnut (Castanea sativa, Mill.) is one of the most graceful of English grown trees, but though so generally grown in parks and plantations, it is not a native tree. It seems, however, to be of Eastern origin, and to have been brought into Europe by the Greeks from Asia Minor about the year 504 B.C. It appears to have rapidly propagated itself, for Theophrastus, writing scarcely two centuries after its reputed introduction, states that Mount Olympus was then nearly covered with Chestnut trees. Dioscorides speaks of it under the names of Castana or Sardianai Balansi. From Greece the Chestnut is said to have been carried into Italy in the reign of Tiberius Cæsar, and the Romans adopted the Greek names, calling the tree itself Castanea, and the nuts Glans Sardiana. More probably, however, it was introduced at some earlier period, for Pliny, who was born during the reign of Tiberius, enumerated eight kinds, and says the nuts were ground into meal and made into bread by the poor, at the same time lamenting that so little value was set upon them.

In this country we distinguish the Chestnut by the names Sweet Chestnut and Spanish Chestnut, the term sweet being given on account of the sweetness of the nuts and in contradistinction to Horse Chestnuts, which are bitter, and Spanish, because the finest Chestnuts formerly came to this country from Spain, though France now supplies us with the best quality and the largest quantity. Some difference of opinion has existed with reference to the derivation of our word Chestnut in consequence of some authors writing it Chesnut. In all the modern European languages the Chestnut tree is designated by varying corruptions of the ancient Greek Kastanon, usually more or less modified by the Latin form Castanea. The Chestnut tree lives to a great age. A celebrated tree at Tortworth, Gloucestershire, is said to date from the time of King Egbert, and it has been suggested that it may have been one of the original trees planted by the Romans. The largest tree recorded is the celebrated one on Mount Etna. It is called the "Chestnut of a Hundred Horses," and gets its name from the vast spread of its branches. The story told concerning the tree is, that Jeanne of Aragon when travelling from Spain to Naples stopped at Sicily, and accompanied by all the nobility of Catania paid a visit to Mount Etna. She was on horseback, as were also her suite, and a storm having come on, she took shelter under this tree, the vast foliage of which sufficed to protect the queen and all her cavaliers from the rain. It is from this memorable adventure, they add, that the old tree took the name of "Chestnut Tree of the Hundred Horses." An exact measurement round the wide-spreading trunk or trunks, for it divides into several just above the ground, gives a circumference of 190 feet. It is said that a shepherd's house is built in the hollow of the trunk, and during the winter the waste wood supplies him with sufficient fuel, while the nuts furnish him with abundance of food through the latter part of the summer.

Loudon mentions a tree in Studley Park which in his time was 112 feet high, with a trunk 7 feet 4½ inches in diameter at 1 foot from the ground, and a head 91 feet 6 inches across. The ordinary size of full-grown trees in favourable situations in this country is from 50 feet to 80 feet high with a trunk 4 feet or 5 feet in diameter near the ground. The trunk is covered with a thick bark full of wide deep cracks, and is usually unbranched for a considerable height. The wood is of a light brown colour, somewhat porous, but with a clean fine grain and moderately hard. At one time it was much planted for its timber in consequence of its having a reputation for building purposes, as it was generally supposed that the best and soundest timbers in our oldest buildings were of Chestnut; it has, however, been shown that these old timbers are mostly formed of Oak. At the present time there is no great demand for Chestnut wood, and when used it is mostly for ordinary work, such as for posts, palings, Hop poles, &c. The wood is, however, durable under water and could be well used for piles and similar work.

Numerous varieties of the Chestnut are known, especially on the Continent, differing chiefly in the relative size and quality of their fruits, their productiveness, and in the time of ripening and period for which they keep good. Very little attention is paid to the Chestnut tree in this country as a fruit tree; our summers and autumns are not sufficiently long and warm as a general rule to enable this tree to produce such large and well-ripened fruits as in countries more favourably situated, and even a tolerably good crop worth the trouble of collecting cannot be regarded with any degree of certainty. Our markets are therefore principally supplied from the Continent, those fruits from France, perhaps, being considered of the best quality. In the south of France, Italy, Spain, and Portugal, the Chestnut crop is of considerable importance, not only on account of the home and foreign trade in the nuts, but from the important place they occupy in the domestic economy of the great mass of the population. In many parts, especially in the rural districts, Chestnuts and Chestnut flour form the principal article or basis of the food of the poorer inhabitants, among whom it serves as a substitute for the Potato and grain-flour bread of other nations. All classes, however, those of the towns as well as of the rural districts, are much larger consumers of Chestnuts than we are in this country. In the collection and preservation of Chestnuts it is necessary that they should be perfectly ripe before being gathered, and to ensure this the common practice is to allow them to fall naturally from the tree and to collect them daily from off the ground. They are then spread out on hurdles in a dry airy place and afterwards exposed to the sun, but in some parts the early advent of winter does not allow of the entire crop being gathered in this manner, and to prevent the nuts being injured by frost and snow the trees are thrashed and the unopened husks beaten down. These are then thrown together in heaps and left till wanted or preserved in barrels of sand, but as a general rule the Chestnuts obtained in this way will not keep, and are usually at once trodden out by the peasants in their wooden sabots and sent to the nearest market for immediate use. The Chestnuts intended for keeping for a year or more are prepared by being first slightly boiled and then dried in an oven or kiln. In making Chestnut flour it is necessary first to roast or smoke-dry the nuts; this is done in a kind of kiln with a paved floor pierced with holes, upon which a thin layer of Chestnuts is spread and a smouldering fire kindled beneath. When the nuts begin to sweat, or to give out moisture, they are taken out and set on one side to cool and a fresh supply put in, and this is repeated until a sufficient quantity has accumulated to fill the kiln to the depth of about a foot. A gentle fire is then kindled beneath them and gradually augmented during two or three days, after which it is kept up for nine or ten days, the nuts being regularly turned during the whole time. This not only roasts the kernels, but loosens the skins, and to separate these they are put into sacks and rubbed and afterwards winnowed. The kernels are then ground in a mill in the ordinary way. Chestnut flower will keep good for several years either in casks or well-corked jars. It is a common food in Middle and Southern France and Italy, and is used either for making puddings or for a kind of girdle cake, which is a thin flat cake made of the flour mixed with milk and a little salt, or sometimes made richer by the addition of eggs and butter. Smoked and dried Chestnuts as prepared for food at Castigliano, together with Chestnut flour, and cakes made from it are exhibited in the Kew Museum. Though Chestnuts in their fresh state are very indigestible, the flour has been analysed by Prof. Church, and reported as being an easily digested article of food.

John R. Jackson.

Museum, Royal Gardens, Kew.

The Sycamore.—I read J. B. Webster's interesting notes in The Garden, Dec. 15, about the Sycamore tree. I find in this very exposed island that the Sycamore tree is about the best to stand the severe cold north-east winds, and I quite agree with him in all he says about it. We are planting the Sycamore on the roadsides, and also in hedgerows. As I am somewhat concerned in this work, I wish to know what distance ought to be allowed between each tree. We are now importing fine young Sycamore trees, from 10 feet to 12 feet high, and I thought of allowing 15 feet; but I should be thankful for any advice, especially as it is a public affair.—John L. Mansell, *Guernsey.*

Care in tree planting.—The length of time which it takes to rectify mistakes in planting should make the forester doubly careful to ascertain by observation and analysis the capabilities of the land he selects for plantations, as it sometimes takes years to discover and the work of a lifetime to rectify what has been done amiss, and free-growing and flourishing trees even of an inferior kind are far preferable to stunted specimens of the choicest sorts.

Influence of soil on trees.—In plantations intended mainly for profit, grouping according to soil and situation will be found the surest method. It is often asserted that the finest Oak, Ash, Elm, and Beech are to be seen as single specimens in the midst of, or upon the margins of, other plantations. But wherever such an instance occurs the particular tree is generally upon its own soil, and is found to be flourishing at the expense of all around it. An Oak in a deep loamy soil resting upon clay; an Ash or an Elm in a loamy gravel; a Beech upon a calcareous gravel resting upon a bed of chalk; a Scotch Pine at a considerable elevation, and in a gravelly soil which affords it complete drainage; a Horse Chestnut in a deep loam, with a dry bottom; a Mountain Ash in a high situation where it meets with light sandy land; a Birch in a light black loam with a gravelly substratum; and a Spanish Chestnut in a dry loamy soil upon gravel, afford at once the finest specimen trees and the most serviceable timber.

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"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

TEMPERATURES AND FORCING.

THE advent of another season of fruit-forcing brings us face to face with the vexed question of temperatures, which, with the extreme variableness of our climate, are always difficult matters to give any very definite instructions upon, not so much in respect to the degrees of temperature for each house, but as to how far they should be followed in all weathers. Certain figures may be fixed upon for a vinery or Peach house, and if strictly adhered to through all conditions of the weather, will prove more harmful than adopting a more elastic scale. The system of fixed temperatures—that is, in so far as drawing a hard-and-fast line which must not be deviated from—is practically a thing of the past; but even now I am of opinion too much importance is attached to a few degrees either way. And yet, for the guidance of those upon whom devolves the duty of attending to and regulating the heating apparatus, some fixed scale is necessary. The cultivator who from long experience has become so accustomed to the smell and feel of forcing houses can tell on the moment of entering whether the temperature is or has been for some time previously near the proper figure. I have detected the traces of a few hours' hard firing upon entering a house, notwithstanding the thermometer at that moment stood near enough to the regulation figures to admit of any fault.

For the guidance, then, of those who cannot be expected to act as thermometers something approaching a fixed scale is desirable. A simple plan I have found very useful is to write with a pencil on the piece of board to which the thermometer is attached the figures to be observed as a guide in regulating the heat of the house. For example, in starting an early Peach house, night 45° to 50°, day 50° to 55°, would denote the amount of heat desired by artificial means alone, a still further fall of 5° being permitted on severe frosty nights; whilst on bright days, which, unfortunately, do not often occur, a maximum of 75° may be allowed. As growth advances the figures can be altered by painting over the old ones and writing others. What I desire, however, by these remarks is, that while accepting these figures as a guide, those in charge should endeavour to supplement them by a due observance of other points of no less importance to the ultimate success of the crop. When the given temperature inadvertently falls much below or rises in excess of the point it is unwise to hasten it back to the required figure. Far better is it to rectify it gradually, thus avoiding sudden checks from cold currents of air or burning hot pipes. Where a number of houses, each containing different subjects, are all heated from one and the same boiler, it requires an intimate knowledge of the different valves to have the proper heating of the various divisions under command, the greatest difficulty often being experienced in keeping up a gentle flow only in houses recently started at a time when the fires are being driven hard to maintain the heat in other parts. This difficulty can be overcome to a great extent by turning the heat off such houses the last thing at night and turning it on again the first thing in the morning. It is not safe, however, to trust to this after the plants have pushed into growth. The greatest danger to Peach buds is to be feared from high night temperatures before they burst. High night temperatures are now universally condemned as injudicious; moreover, where such treatment is persisted in, the results are attenuated growth, sterile blossoms, bud-dropping, fruit-dropping, and other evils. It is, therefore, requisite to constantly impress this fact upon the minds of young men, as the chances are that the majority of them will err on the opposite side. At the same time, while advocating low night temperatures as beneficial, there is a danger of carrying this practice too far and exposing ourselves to other dangers. It is, I admit, a very pleasing and pretty sight upon entering a house in the early morning to see beads of dew sparkling upon the points of the leaves; they may, however, be looked upon as danger signals, warning those in charge to exercise extra care in airing, guarding against a sudden rise of the temperature and its consequent harmful effects upon the tender foliage and fruit. It will, I think, be conceded on all sides that the lower the night temperature—which under glass must be to a great extent considered an artificial one—the greater is the care needed in regulating its rise, especially if the morning is bright. Very low temperatures at night also retard growth, which may not be an unmixed evil, but where time is an object they cannot be indulged in, and a figure sufficiently high to encourage continuous growth can be found without having recourse to burning and vitiating the atmosphere with overheated pipes.

Houses provided with ample heating surface evenly distributed possess a considerable advantage in this respect over those only furnished with a few rows of piping, which must of necessity be made very hot at times, producing a dry, arid atmosphere; whilst the same temperature maintained by double the amount of piping at a moderate heat is soft and comfortable—what we should term a growing atmosphere. External coverings are serviceable during bright frosty nights; they prevent radiation and conserve the heat of the house, thus economising fuel. During the long spells of cold, sunless weather we often experience in winter and spring, and which prove very trying to all forced fruit, nothing is gained by trying to push the plants at the same pace as in more favourable weather. Better results will follow when the external temperature and conditions of the weather are studied, being guided to a certain extent by them in regulating the forcing, and while leaden skies and piercing winds prevail, the grower must be content with slow progress, taking advantage of a change to brighter conditions to make up for lost time.

A. BARKER.

A collection of Pears planted a hundred and forty-eight years ago.—At a period when discussions have been taking place as to the numbers and qualities of Pears, it may be amusing to the present generation of gardeners to learn the sorts which were planted against the walls of a garden in Craven, in Yorkshire, in the year 1740. The number of each sort planted shows probably the favour with which the Pear was regarded. Five Green Burée, 5 Brown Burée, 5 Cresson, 1 Summer Bergamot, 2 York Bergamot, 4 Orange Bergamot, 2 Bergamot, 1 Summer Bonchristien, 2 French Bonchristien, 1 Winter Bonchristien, 1 Spanish Bonchristien, 1 York Bonchristien, 6 Colman, 3 Russalet, 1 Swan's Egg, 2 Cruise Madame, 1 Mr. York Pear, 1 Citron de Carme, 2 Doyeni, 2 Ambrosia, 1 Melling's Pear of March. The original spelling is left untouched. The soil of the garden in which this selection of Pears was planted is upon a limestone subsoil.—E. B. T.

GRAPE CULTURE FOR MARKET.

WHEN I mention that one Covent Garden salesman alone disposes annually of upwards of 500 tons of Grapes, some idea may be formed of the vast area of glass devoted to this fruit at the present time, and it will not occasion surprise that Black Hamburghs, which a few years ago were good enough to make 2s. 6d. per lb., should now not realise more than one-third of that price. The present aspect of commercial Grape culture is really a matter for serious consideration. It is true that we are apparently rapidly becoming a fruit-eating people, and the higher value placed of late on fruit as an article of food will probably account for the ability to dispose of an amount of Grapes at the present time that it would have been impossible to do but a few years back. I am told, for instance, that the consumption of the imported or grocer's Grapes has wonderfully increased, and that as these mostly go into the hands of the working classes, we have a proof that fruit generally is coming to be considered more of a necessity than formerly. This is, of course, gratifying to the producer so long as the prices remain sufficiently high to allow of the desired profitable margin. We may, however, take it for granted that at no remote period the Grape grower will have to content himself with prices much below those that prevail at the present time. How can it be otherwise, when miles of vineries are being put up not only in market gardens, but in private places, where years ago such doings would never have been dreamt of. It is true that there always was a certain amount of surplus produce coming into market from private gardens with which the market grower had to reckon, but it was never sufficient to seriously affect prices. Moreover, in a general way the quality was not quite good enough to interfere with the market gardener's best produce. It is very different now. A new race of growers has sprung up who endeavour, and not without success in many instances, to combine profit with pleasure, and the amount of Grapes brought into the London markets from private gardens probably more than equals what was grown in market gardens alone twenty years ago. Diminished incomes, the result of the long-continued depression in agriculture, have caused many to turn their attention to market gardening. There exists, I believe, a widespread belief that fruit culture under glass is just now one of the most profitable industries, this being due to the existence of so many large market gardens that have sprung up Mushroom-like during the last few years. I was told the other day of a man who is reported to have made £20,000 in this way within twenty years, and the rapid formation of great areas of glass houses favour the notion that fortunes are to be made, or, as a friend said, "If you can but get into the swim, you are bound to make money fast in market culture." It is not only that glass is being continually put up for Grapes in gardens where the culture of this fruit has hitherto formed part of the ordinary work, but persons who have had no knowledge of market gardening whatever are going in for Grape growing, in the perfect assurance that, provided they can employ the necessary capital, they are sure to make good profits. They have, they think, but to put up the requisite amount of glass, employ a competent man as manager, and, with a small profit per lb., the desired income will be obtained. A military gentleman has just bought a place here. He is putting up ranges of vineries nearly 200 feet long, and he calculates that at 1s. 6d. per lb. he will make enough to pay the whole expenses of his establishment, and something over. In another instance, a friend has taken charge of a newly-formed place, the property of a large newsagent, who is going into Grape-growing for market without any practical knowledge of the business.

These are but two of many similar instances that have come under my notice lately, and they serve to show that we have not yet seen the full development of commercial Grape culture in this country,

Then, again, we have foreign imports to take into consideration. These are already large and are likely to increase at a rapid rate. In Belgium and Holland there are districts where Grape-growing has been taken up to such an extent, that one might think fruit enough would be produced there to supply our markets, for the greater proportion is destined for this country. In a village near Brussels more than half a hundred market gardeners are engaged in this branch of gardening. But a few years ago only one man was thus occupied. The houses are roughly built and not well heated, and up to the present the fruit grown in them has been of medium quality, being principally Hamburghs; but other kinds are being planted, and every extra ton of Grapes from abroad will help to lower the price of home-grown fruit. All that the Grape grower can do under such circumstances is to grow up to a high standard, so as to command the best price. It is certain that our markets are now glutted with Grapes of medium quality and which it will never pay to grow here. The Grapes that hold the highest positions are the Alicante, Gros Colman, and Muscat of Alexandria. It is noteworthy that Lady Downe's, at one time the most favoured of the late black kinds, and the only one of them that was grown to any extent, is now comparatively little grown. It is not really needed, as the Alicante is showy, and will furnish a supply till the new year is somewhat advanced, when Gros Colman, which is much larger in berry than Lady Downe's and keeps quite as well, takes its place. It has, moreover, constitutional defects which lower it in the market grower's estimation, who naturally prefers sure bearers. Some still grow a house of Hamburghs to come in as the Colmans and Muscats are finished to carry them on through late spring and early summer, but many do not attempt forcing at all. A distinguishing mark of Grape culture at the present time is the more simple way in which this fruit is cultivated. At one time, few things were more discussed in gardening papers than the draining and aëration of Vine borders. It is instructive to note how rarely mention is now made of such details. They may still be practised in some private gardens, but they do not, and never have, much concerned the market grower. The one great idea with Grape growers of the old school was to prevent the roots from striking down into a cold subsoil. Many and complicated were the devices for keeping them from doing so. It may truly be said that the modern method of culture quite does away with all need of any such cumbrous expedients.

In the first place, the modern Grape grower looks about for a suitable soil, which should be loamy and neither very light nor heavy. This found, he prepares the rooting medium for his Vines in about as simple a way as one would or should for fruit trees. The ground is trenched to a moderate depth, plenty of manure being worked in with perhaps a fair share of bones. The houses are simply, but strongly built, in width not less than 24 feet and with a tolerably sharp roof angle, an important item in the case of late vineries, when the crop has to be kept without blemish through the wet, cold months of winter. In some cases the houses are put up in blocks, so that the ground on which they stand is one large border in which the roots can ramble at will. If, on the contrary, they are isolated, the ground is prepared so as to give the roots the choice of being either outside or inside. The houses, I should mention, are almost invariably built to run north and south, so as to equalise light as much as possible. Top ventilation is abundantly provided for, but at the sides in a general way a single board suffices. Expensive side lights are not patronised by market growers, neither are they needful for Grape houses of this description.

The means of applying water at will is, of course, indispensable. It would be sheer folly to attempt Grape culture in this way without having the power to thoroughly soak the inside borders whenever necessary. The ability to obtain heavy crops of highly finished fruit indeed depends upon the supply of water. From time to time, according to the weather and condition of the crop, the borders are pointed over with the fork and thoroughly watered. It will easily be seen what this, in conjunction with timely top-dressings, does. The natural inclination of the roots to strike downwards is overcome by means of the abundant food and never-failing moisture nearer the surface. Roots will always find their way to where their needs are best supplied, and they will not go down into a cold, hungry subsoil when they can find food, warmth, and moisture elsewhere. The natural result is that the whole of the prepared soil in time gets filled with roots that are always healthy, because in the winter they are away from all debilitating influences. It is easy to see how very different is the condition of the roots of such Vines and of those that have rambled downwards in the summer in search of moisture, that are often lying in cold water all the winter, and that do not feel the summer's stimulating influence till far in the season. With a mass of healthy fibres always within reach of food and moisture it is practicable to produce those heavy crops of highly finished Grapes that render the growth of this fruit remunerative. The healthy and comparatively active roots are also a wonderful help in the preservation of the berries in a fresh condition through the winter.

J. C. B.

FRUITS UNDER GLASS.

Pot Vines

started over bottom-heat early in November will now be sufficiently advanced to admit of the majority of the canes being tied up to the wires, whilst any that show signs of breaking unevenly must be kept point downwards and well syringed with warm water until the most sluggish buds are fairly on the move. When this stage is reached and the bunches in the square pointed shoots can be distinguished, all double breaks must be reduced to one and syringing may be discontinued or greatly modified, especially during a continuance of the dull, dark weather which has prevailed throughout the early part of the winter. Atmospheric moisture, nevertheless, must be sufficiently abundant to support a stout short-jointed growth; therefore, the better to secure this and at the same time to supplement the heat from the pipes, the fermenting leaves must be forked over every day and renovated from the reserve at short intervals. If forcing was commenced at a minimum of 50° to 55° and a maximum of 55° to 65°, a general rise of 5° may now be made, and this must be gradually increased to 65° at night and 75° by day from artificial heat and 80° with sun by the time the Grapes are in flower. If any of the laterals show more than one bunch reduce them to that number, reserving the best; pinch out the point at the second leaf beyond, and tie down by degrees. As each cane will not be allowed to mature more than six or eight bunches, and nothing is gained by leaving all the shows to flower, the weak ones should be taken off before they reach this stage, but the shoots which have produced them need not be tied down, as many of them will have to be removed to make room for the full development of the foliage after the Grapes are thinned. Hamburghs and Madresfield Court Muscat, the best black Grapes, Foster's Seedling and Buckland Sweetwater, two favourite white varieties, will set well in a temperature ranging from 65° at night to 75° or 80° by day, but all of them should be fertilised, particularly the latter, and, considering that they have bottom-heat and are wanted very early in the season, a few degrees more, especially through bright days, will do them no harm. Very little, however, is gained by this high and early pressure, as rest through the first half can always be made good when sun heat favours early closing through the second. As yet I have said nothing about those very important factors, the roots, but they must not be overlooked. I said at the outset water sparingly, as many good Vines are ruined by over-watering before they break into leaf, but once this stage is reached and the foliage becomes developed, the quantity of tepid water may be gradually increased. Top-dressing, too, sometimes previously mixed and laid by to ferment, must be given little and often as the roots creep through to the surface, as frequent watering washes away its stimulating properties. There prevails an impression that good rotten manure cannot be surpassed, neither can it when the berries are set and swelling freely; but up to this stage a rich compost, consisting of rough turf, lumps of hair plaster, and bone-dust, is in every way preferable. Ventilation at this early season is a difficult matter, as it frequently happens that, after a very low external temperature necessitating strong fire-heat through the night, a bright sun rushes up the internal temperature, when the only alternative is the admission, or rather the outlet, of air. Many people lower the temperature by opening all the top ventilators, but beyond the chink, which should be put on as soon as the sun touches the glass, it is much safer to work rather more freely upon the front openings, which should be protected externally with coarse canvas to break the force of piercing wind, and internally by the pipes placed immediately opposite to them. By this method, whilst letting out vitiated air, the house can always be kept full. Chilling draughts, the common cause of rust and scalding or scorching, are avoided, and yet the temperature will not be injuriously lowered. Prevention, however, being better than cure, the heating apparatus should always be well assisted by a good bed of fermenting leaves, which not only economises fuel, but throws up a continuous stream of warm vapour, which favours night ventilation and enables the attendant to admit fresh air little and often until the maximum is reached.

The Early Vinery.

If well soaked with water at a temperature of 90° and raised to about 60° by means of a substantial body of fermenting Oak or Beech leaves, the internal borders should continue moist enough until the Grapes are set, but much depends upon the width, depth, and nature of the compost, the quantity of roots, and the age of the Vines. If well drained, inside borders are more likely to suffer from want than too much, which in the case of young vigorous Vines should consist of pure tepid water only, whilst old plants always open to stimulants may be the better for two waterings with good diluted liquid before the Grapes come into bloom. If outside borders have been well covered with old lights or shutters and a little help from artificial warmth is in favour, the swelling of the buds marks the best time for the application of fermenting leaves, which are preferable to stable manure. Many Grape growers object to warm coverings, asserting that the check which follows this removal does more harm than the material has done good, and I quite agree with them, but they remove it when a layer of gradually decaying leaves draws active roots to the surface and acts as an excellent summer mulch, which can be reduced by degrees, and finally cleared away when the wood is ripe and the time has arrived for top-dressing. If well protected from cold rain and falls of snow, a good body of warm leaves will retain some heat for several months, but those who disapprove of a surface covering may set the outside roots going and facilitate setting by filling the unoccupied part of the border area with a mixture of stable manure and leaves, the warmth and ammonia from which will draw through the drainage and gradually excite the deeply seated roots, for after all that has been said for and against bottom-heat, no one can deny that torpid roots lying in cold borders when the Grapes are in flower are not the cause of the majority of our failures in securing a perfect set of fruit. When young Vines are left rather long, they should be well arched over the fermenting material with their points on a level with their roots to ensure an even break from all the eyes, but immediately this end has been secured they must be led up to the wires to prevent the young growths from becoming weakened and distorted by the absence of light. By the time this stage is reached, the temperature should range from 50° to 55° through the night and 10° higher by day, but the moment the bunches can be seen a gradual rise of 5° more must be commenced, and so on until a minimum of 65° is attained by the time they come into flower. As growth proceeds and the best bunches can be distinguished, disbudding must be attended to, and whether one or two shoots from each spur be re-

tained, the clusters on each must be reduced to one. In these sensational times the great rage runs in favour of big bunches; consequently all the largest shows are left to develop, and in this way the grower often handicaps himself, as these large clusters, weighing 2 lbs. to 4 lbs. each, sometimes finish badly, where two or three compact handsome bunches, heavier in the aggregate, give the largest berries and lay on perfect colour.

Successional houses now ready for starting early in January may soon be shut up, and in the event of the inside borders inclining to the dry side, two moderate waterings before fire-heat is applied will do them no harm, but much good, as the first supply of warm water will prepare the compost for the free passage of the second. Fermenting material may then be introduced and built up into a substantial ridge, where the warmth will raise the temperature of the soil containing the roots to about 60°, and most likely, the weather continuing mild, it will be found quite strong enough to start the buds without the aid of fire-heat. Outside borders must be kept well covered with leaves, Fern, or long litter, but the addition of warmth will hardly be necessary, especially where the inside roots are plentiful and sufficiently active to support the Vines through the flowering stage. Where small houses are devoted to early Muscats the last week in December is a good time for closing and coaxing the Vines steadily along. Requiring rather more heat than is good for Hamburghs, we make warm leaves play a prominent part, not only inside, but outside also, where a narrow border, not more than 3 feet in width, built over the main pipes leading to another house, is completely enveloped in hot leaves, with the result that the Grapes set as freely as Hamburghs, and ripen their roots as well as their fruit very early. Those who would grow Gros Colman to its highest perfection should have one rod at least in the early Muscat house, where heat and plenty of time supply all the good points which can be put into a Grape of third-rate quality. Gros Maroc, on the other hand, which ripens and colours quickly and does not keep long, should not have a place in the Muscat house, that is, unless handsome clusters are wanted for any special purpose as soon as they are fit for cutting. The new white Gros Colman, rather unfavourably noticed last year, has fruited here, and I must say I am very much pleased with it. The Vine, in a 10-inch pot from the vendors, produced half a dozen small bunches which set very freely and swelled their berries, which are nearly transparent, to the size of fair Hamburghs, but this size from good canes I have no doubt may be doubled. They contain one stone only, are remarkably sweet, quite free from the disagreeable earthy flavour so generally objected to in the type, and being much thinner skinned they are fit for use before the leaves fall. Consumers, invalids especially, who like a sweet, vinous, juicy Grape will find White Gros Colman very refreshing, but, judging from the thinness of the skin and the character of the pulp, I question if it will keep its colour and plumpness right through the spring.

Late Grapes.

Lady Downe's, Alicante, Mrs. Pince's Muscat and the like, having cast all their leaves, may be cut down and transferred to the Grape room about the end of the month. The houses meantime must be kept dry and cool with just sufficient fire heat to admit of a free circulation of air on fine days and to prevent condensation of moisture beneath the glass. A temperature ranging from 50° by day to 40° by night will not create a heavy strain upon the hot-water pipes, but it will suit the Grapes and the Vines, especially when the weather is dull, cold, and damp and the ventilators cannot be opened. The outside borders having received such a bountiful supply of rain should be protected with old lights or shutters, but once the Grapes are cut these may be removed and replaced with a layer of long litter for protection from frost during the winter. When the Grapes are cut the Vines should be pruned and washed, dressed with styptic, and watered moderately, but not too freely, until the wounds are healed. All old mulching and loose soil, too, may be removed and replaced with good fresh compost, bone dust, or light rich manure to be washed in during the season of rest, which, by dint of liberal ventilation, should extend over the first eight or ten weeks in the new year. If the inside borders require still further attention, partial or entire removal, this work should be deferred until the buds begin to swell, when the newly-laid roots will at once strike into the fresh warm compost, and the Vines will hardly feel the check; whereas, lifted as soon as the Grapes are cut, and allowed to lie in cold compost during the season of rest, the chances will run strongly in favour of the loss of the roots, followed by a check from which the Vines will never recover.

Figs.

When the terminal buds in the early house have pushed into leaf the temperature may be raised to 60° through the night and 70° to 75° by day. The syringe, too, must be copiously plied pretty early on bright, fine mornings, especially after hard firing, and again about 1 p.m., when the leaves will become dry before nightfall. Being so subject to red spider, trees in light, airy houses cannot easily be overdone with atmospheric moisture; hence the advantage of fermenting material for keeping up the supply, and although I do not give preference to hot manure, this is a case in which manure may be mixed with the leaves with decided advantage. When large trees have borders 5 feet or 6 feet in width they do not require more than half the space allotted to the roots, but instead of giving them a continuous run of soil, say 3 feet in width, it is a good plan to let each tree have a block of compost to itself, as the roots can then be kept at home and the intervening breaks come in well for the fermenting material, which can be turned and renovated at pleasure. If not more than 5 feet square and resting upon ample drainage in well-cemented pits, three out of four of the sides of these blocks of compost, supported by turf walls, which we fork down and rebuild every year, can be brought under the direct influence of heat from the beds of leaves; consequently root action is rapid—just the thing for preventing dropping, as so often happens when the crop should be swelling up for ripening. The depth, again—about 18 inches—being ample gives the roots all the advantages without the risks enjoyed by pot trees, but they must have plenty of tepid water from the first start, and good mulching when the crop is swelling. As growth proceeds, it will be necessary to tie in all the leading shoots, allowing ample space for the full development of the foliage; whilst side growths may be pinched once at the fourth or fifth leaf, and weak spray must be cut out to a single bud to prevent the possibility of crowding. If the house is efficiently heated, a chink of night air should be put on at banking time and taken off first thing in the morning, when the fires should be stirred to secure a rise before the house is syringed.

Succession houses.—Where these structures are devoted to Figs, the 1st of January is a good time to start the second, as the trees, under the influence of increasing daylight and sun-heat, not only come on faster, but stand sharper forcing than their predecessors which were shut up in November. Their treatment as to bottom heat, liberal supplies of warm water and syringing must be precisely the same, but the air temperature may range somewhat higher, particularly when the house can be shut up with sun-heat and moisture. The latest house having hot-water pipes to fall back upon in bad weather may be cleansed and put in order for coming on with the advancing spring, but, like the latest Peach house, it must be kept dry and cool by abundant ventilation and the rejection of all plants which may be injured by a few degrees of morning frost. If trees in unheated houses and wall cases have not been detached from the roof trellises, no time should be lost in getting them untied and drawn down towards the floor. If the latter is kept quite dry, well-ripened trees will stand a long spell of severe frost without losing a single bud or young figlet, but perfectly protected from wind and wet they may be still further shielded by the introduction of a few fronds of dry Bracken or sheets of frigi domo. Trees against the dry back walls are less likely to suffer, but these, like trellis trees, must be detached sooner or later; therefore the sooner the better.

W. C.

Stove and Greenhouse.

CROTONS AT HANDCROSS PARK.

In the glasshouses at Handcross at this season of the year may be seen the fine plants that figure at the leading exhibitions in the country. Those who have been impressed with the specimens as seen at the shows may perhaps have wondered what their home accommodation is like. For the Crotons Mr. Warren has recently erected and fitted with all the latest improvements a large new structure. In this new house Crotons seem perfectly at home revelling in tropical heat and abundant moisture. A few other fine-foliaged plants occupy the same house, but its contents are chiefly Crotons, which may be seen in all stages and of all sizes, from those in small pots fresh from the propagating house up to the enormous bushes well known in the exhibition tent. It is surprising how quickly the small plants can be grown on to exhibition size. It is necessary, however, to always have some young specimens coming on, for the best plants are often damaged by constantly being exhibited, and to such an extent that, Mr. Offer informed us, it was often necessary to keep a large plant at home for a whole season in order that it might recover from the ill effects of the previous season's exhibiting. At the time of our visit some of these giants still showed traces of the fight. In the house there are a large broad centre stage and two side ones. Upon the centre stage stand the largest plants.

We may say that there is no private collection of these, the prettiest of foliage plants, that can compare with Mr. Warren's. The collection is not kept as collections of things sometimes are, merely for itself, and without regard to culture or the health of the plants. The leaves of the broad-leaved kinds are very broad and as healthy as those of the Laurel, while some of the leaves of the narrow-leaved sorts measure quite 2 feet in length. Probably among this last section, C. Warreni is the best. This variety was introduced by Mr. B. S. Williams from the South Sea Islands, and named in compliment to Mr. Warren. It is useless to attempt to describe the colour effect of many of the most beautiful kinds, as the shades in many cases pass from one to the other by such imperceptible gradations. In addition to C. Warreni other good kinds noted were C. tortuosum, Morti, undulatum, Youngi, roseo-pictum, Queen Victoria, interruptum, volutum, Williamsi, Disraeli, Challenger, and the old, but graceful angustifolium.

Those enumerated by no means represent the collection, but at the time of our visit the kinds named were particularly striking. Mr. Warren is continually adding the best new varieties to his collection, but although Crotons, like most other stove plants, have of recent years grown into disfavour, it is satisfactory to know that there is at least one place where they receive a good share of the attention they deserve.

Bomarea Carderi.—This Columbian Alstrœmeriad is a noble climbing plant for the greenhouse, and is widely different from most of the subjects employed for the purpose. It forms a stout root-stock from whence are pushed up succulent stems that grow away rapidly, and soon extend for a considerable distance. The flowers are borne in large terminal umbel-like clusters, in the case of a vigorous specimen as much as a yard across, while the individual blooms are in shape very much like those of the Lapageria, the colour (in a good variety) being of a rich pink, while the inner segments are pale green, much spotted with deep brownish purple. It is a plant by no means difficult to cultivate, provided suitable treatment be accorded it. This Bomarea is very impatient of being confined in pots, and should, if possible, be always planted out. Thorough drainage is very essential to its well-do-

ing. Good turfy loam, lightened by an admixture of peat or leaf mould, silver sand, and well decayed manure, will suit it perfectly, as when once established in this compost the Bomarea will grow away rapidly. Blooms are often produced even when the plant is confined in pots, but they are small and badly coloured compared with those borne on the same plant after it has been subjected to more liberal treatment. The colouring of the flowers, too, is very much influenced by the position of the plant, for if developed in a structure that is too much shaded the blooms are much thinner in texture and poorer in colour than where well exposed to the sun. Bomareas cannot be increased from cuttings, but occasionally division can be resorted to, though the usual way of propagating them is by means of seeds, which are generally freely produced. As in the case of Lapagerias, slugs are fond of the succulent shoots of the Bomarea just as they burst through the ground.—H. P.

WORK IN PLANT HOUSES.

Greenhouse. — Lapagerias. — Lapagerias are comparatively slow growers during the first year or two, but when once they get strong at the root they make corresponding progress in top growth. When planted out in a bed of sufficient size, the plants keep on improving for ten or twelve years, after which they often begin to make weaker growth. When in this state it is better to destroy the old specimens and put in younger ones. This may be done during the latter part of the year or beginning of the new, according to the temperature kept up in the house in which they are to be grown. Lapagerias require no more warmth than will keep out frost, and they do better so treated than where more heat is used. When only a little higher temperature than that of an ordinary greenhouse is maintained the plants begin to make growth in the winter, which is better avoided, as the young shoots formed in the dull season are liable to injury from the admission of cold air if it comes in direct contact with them. From the hard texture of the mature leaves it is frequently supposed that the young plants will not suffer in the way named, but they are so sensitive, that a cold current will cripple them and prevent their attaining more than half their natural size, usually also stopping the affected shoots from making further progress. As it is necessary to disentangle the roots to some extent when turning out the plants, it is requisite to do the work before the top growth begins to move in the least. In preparing a bed for them, the material should be of the best description. Good turfy peat used in a lumpy state, with a liberal addition of charcoal or potsherds and enough sand to ensure lasting porosity, are the requisite materials. The bed must be well drained, and means taken to prevent the soil from getting down into the drainage. One thing to be avoided in planting out Lapagerias is turning the plants out before they have got large enough to be in a condition to take hold of the soil at once. When small examples, such as occupy 6-inch or 7-inch pots, are planted out, they have not sufficient roots to take freely to the soil, and the shoots are not usually long enough to be within reach of sufficient light. Through these defects the plants frequently dwindle away, or remain for a length of time without making much progress.

Layering Lapagerias.—Where young stock is required or where any exceptionally fine variety of either the red or the white form exists that it is desirable to increase, layering is the best means of propagation. This may be done at any time of the year. The usual way is to lay about 2 inches of fresh soil on the surface of the bed in which the plant to be layered is planted out. On this strong shoots of the past summer's growth should be layered their whole length, covering the shoots with soil so as to leave only about half of each leaf standing erect above the soil. The shoots should be secured with small hooked sticks at short intervals to hold them firmly in their places. Press the material moderately firm and keep it slightly moist, but not too wet. When the young shoots have grown a little, top growth begins to move, each bud pushing up a shoot; these appear in spring and when the layered shoots are strong they grow fast, attaining a length of 6 feet or 8 feet. In a short time they are in a condition for removal and potting off. The separation should be effected before the top growth has ceased and the season is too far advanced to allow the roots to make some progress in the pots. When the young plants are not separated until late in the season no roots are made after potting, and in this way they remain dormant through the winter, the effect of which is that the following season's growth suffers. A strong growth when layered will often push up eight or ten stout shoots, each of which should have a stick inserted in the soil for it to twine round.

Stove.—Allamandas.—The time that these plants begin to flower in spring depends on the heat that is kept up, and also on the time the plants are cut back in autumn or winter. Plants that began to bloom early last spring and have been some time at rest may now be cut in. The extent to which this is carried requires to be regulated by the size and strength of the specimens. Young examples that have been grown on from cuttings struck twelve or eighteen months back will not require reducing any further than by the removal of the ends of the shoots so far as they are not matured. Plants that are as large as required, and have already occupied the space allotted to them, may have from one-half to two-thirds of the length of the shoots removed, but it is better not to shorten the branches below where they were cut back to last. There are few things that will bear so much feeding as Allamandas. By constant assistance of this kind the plants may be grown in much smaller pots than is often supposed. When grown on the roof of a stove there is some advantage in having the plants in pots rather than planting them out in the usual way. Another advantage that accrues from having several medium-sized examples is that the treatment can be varied so as to have flowers earlier in spring and also later in autumn than when one plant alone is used. By following this course I have had an unbroken succession of bloom from the end of April up to the close of the year.

Nepenthes.—Well-grown plants of any of the finer kinds of Nepenthes, either species or hybrids, are always attractive. But it is not until they have been headed back two or three times that large-sized, well-furnished specimens are obtained. Even when single-stemmed plants are strong and vigorous they seldom produce more than two stems after the first cutting back, but after the second time of heading in they will make from four to half a dozen shoots. It is a mistake to let the plants go too long without removing their tops, as after the stems have got from 2½ feet to 3 feet high, they generally begin to form long, thin pitchers, devoid of the wing-like appendages that add so much to their appearance, in addition to which the plants get bare at the bottom. My own practice with these Nepenthes has been to cut them down in the autumn, as then the growth is less active than earlier in the season. When the operation is carried out at this season the plants have time during the winter to push their buds, and be in a condition to start into active growth as soon as there is an increase of heat. Plants that have got into the state indicated, or that show signs of producing indifferently shaped pitchers, should be cut back at once. The specimens look best when the young growths spring from the base, but unless the old stems are headed low enough, or means are taken to force them to break near the bottom, only the eyes that are immediately below where the stems were shortened to will break. With Nepenthes, as with most other things, heading down to the bottom tends to weaken the plants very much; consequently it is better to leave about 10 inches or 12 inches of the stems with the leaves attached. When treated in this manner it is necessary to cut out all the eyes in the upper portion of the stems that are retained, leaving about three eyes at the bottom of each. Any of the strong growers, of which N. Rafflesiana may be taken as an example, will make from 15 inches to 20 inches of stem in a year, necessitating their being headed back every two years. Even the strongest growing kinds form fewer roots in proportion to the top growth they make than most things, and their roots cannot bear too much room. If this is given the material generally becomes sour, causing the fibres to decay, in which case it is as well to throw the plants away. When the plants lose their roots, either in the way described or by unskilful potting, they soon show it, the leaves having a shrivelled appearance and the nerves standing out prominently. Every time the plants are headed back the soil should be renewed, the plants turned out, and the balls plunged in a pail of tepid water. By this means the old material can be easily worked away with the fingers, or the plants can be laid on their sides and the old soil washed away with the syringe. Whichever course is adopted, more than ordinary care is required, as the roots are so fragile that they break with the least touch. The soil should consist of the fibrous matter out of the best Orchid peat, with all the earthy portion removed. To this should be added about one-third of potsherds or charcoal and sand. In potting, the material must not be pressed down in the pots in the usual way, for if this is done, most of the roots will be broken. It should be put in loosely, with no more pressing than that which a soaking of water will give it. To grow Nepenthes well the night temperature in winter should not be lower than 65°; if a few degrees higher, except in very severe weather, it will be all the better. Nothing less than the heat sufficient for Cucumbers during winter will answer for the plants under notice. When a temperature such as advised can be given them, plants that are cut back may be repotted at the same time. Where the heat is deficient it will be better not to repot until the end of February. The best position for Nepenthes is near the roof, so that the tops of the plants are about 18 inches from the glass. When the roof ventilators are at the end of the house the plants occupy, the former should be kept closed during winter and not opened wide in summer, during which time a thin piece of scrim canvas should be fixed under the openings, so as to prevent the external air coming in direct contact with the plants. T. B.

Esmeralda Clarkei is a rare plant now blooming in the Studley House collection. In growth it much resembles its near relative and better-known plant, E. Cathcarti. The flowers, which, however, are not so large, are chocolate-brown, with transverse yellow bands and a small and curiously marked lip. It is a welcome addition to our cultivated Vandas.

Flowers from Addlestone.—I send you a bunch of flowers gathered in the open air here this morning, consisting of Rose, Anemone, Periwinkle, Primrose, Pansy, and Violet. We can scarcely claim to have had the open season that many localities have been favoured with, as October began with severe frosts, which cut off the bedding plants as well as Peas and Beans; and no later than last Friday week the ice was strong enough to bear. Under these circumstances spring flowers are all the more remarkable at Christmas.—E. O. M., *Addlestone*.

Orchids at Devonhurst—Mr. Wright, gardener to Mr. Watts, Devonhurst, Chiswick, has made a good beginning with Orchids, the collection numbering many distinct species and varieties. As the flowers are cut for house decoration almost as quickly as they open, there is never a great display of bloom, but on a recent visit we found a good spike of Lælia autumnalis atrorubens, a beautiful variety of one of the best of this large genus; Odontoglossum Lindleyanum, greenish yellow, blotched sparsely with brown; Cypripedium insigne, a specimen of which had twenty blooms; Catasetum tridentatum, Epidendrum cochleatum majus, a singular, but by no means beautiful form; Odontoglossum maculatum, O. Rossi majus, Lycaste Skinneri, Dendrobium nobile, and Calanthe Veitchi. The fogs are as troublesome here as in the heart of London, and dozens of flowers are destroyed before they have a chance of expanding.

OLDSWINFORD CASTLE, STOURBRIDGE.

Those who admire fine country houses will find pleasure in a ramble in the vicinity of Stourbridge, a town that has in itself many quaint and interesting features. Oldswinford Castle, the home of J. Evers Swindell, J.P., is placed in this picturesque portion of the none too beautiful county of Staffordshire. A glance at the accompanying engraving will show that it is a house of solid architecture, many-angled, and far more imposing than some of the erections of recent date that are often puerile imitations of the most famous "homes of England." There is something more than architectural beauty in Oldswinford Castle, and that is the many kinds of creepers that hide the bareness of the walls. A house without greenery to relieve its harsh, cold outlines loses much of its old-fashioned aspect; but here we have Jasmines, Roses, Japanese Honeysuckles, the pink and white-flowered Pyrus japonica, and last, but not least, the glossy Ivy; that, as will be seen by reference to the illustration, has overgrown completely the two outside chimneys. We wish that Ivy were more used to hide ugly angles, chimneys, and unsightly corners, as there is certainly nothing that can be used with better effect. Some, let us hope, from a mistaken notion of the character of the finest of evergreen climbers, tear it from the walls, and we could cite instances of folly of this kind. But it neither promotes damp, dry rot, nor any other evils that are supposed to accrue from its use. The widespreading lawn in front of the house is another feature we are pleased to see, but would rather have had the mass of shrubs in front of one of the principal rooms removed; it looks like a patch on a beautiful carpet, and hides a full view of the house. Travellers by rail to Worcester will have an excellent and picturesque glimpse of Oldswinford Castle between Stourbridge and the famous cathedral city.



Oldswinford Castle, Stourbridge. Engraved for The Garden.

KITCHEN GARDEN.

COOKING WINTER VEGETABLES.

According to my experience, gardeners have too frequent cause of complaint against the denizens of the kitchen. It is, to say the least, extremely annoying to find so little care and so few pains being taken with vegetables that have cost a considerable amount of labour and expense to produce, and especially vexatious are the many and frequent cases of waste and extravagance to be met with. Sometimes, however, the gardener is somewhat to blame for any friction existing between the kitchen and the garden, and if he will persist in opposing the reasonable requests of the cook, he will in all probability be the greatest sufferer.

What gardeners have most to complain of is the want of either the will or the skill to send vegetables to the table properly. Some cooks there are, and it has been my good fortune to be associated with such, who take as much pains with vegetables as any other portions of a meal. In the supposed "good old times," when large joints predominated at the table, and when vegetables were not so much appreciated as they now are, a very moderate variety of vegetables only was needed. Now-a-days, when joints rarely find their way to the table, many fancy dishes are required, and vegetables are largely used in the formation of these. Variety, again, is insisted upon, and as this cannot be always ensured by the gardener, the cook must or ought to remedy this by varying the style of preparing or dressing the vegetables. Those who hold the old-fashioned ideas do not admit the necessity for, or the wisdom of, greatly varying the methods of preparing vegetables; but such, it is my belief, are in a great minority, and both the cooks and gardeners will do well to conform to the prevailing fashions as quickly as possible. The latter, as a rule, are contented with the perusal and study of garden literature, which treats principally or entirely of the production of the various fruits and vegetables required in the kitchen and elsewhere; but if they paid more attention to the comparatively few works on preparing garden produce for the table, they would better realise both what to grow and how to select for use. The gardener should learn that the biggest vegetables, or even those that are awarded prizes at flower shows, are not always the best for the dining-table; far from it, in fact. Very rarely indeed are large vegetables sent to the table, and instead of sending to the kitchen the largest specimens, most of which require greatly reducing in size, thus entailing both waste and loss of quality, smaller or medium-sized, quickly grown produce should as much as possible be selected. Thus medium-sized to small Potatoes, Onions, Carrots, Turnips, Beet, and other roots which require little or no cutting up are best, while close and comparatively small hearts of Cauliflowers, Broccoli, Savoys, and Chou de Burghley are the finest. Close and small Brussels Sprouts are much superior to the large types, which ought to be grown for the market only. Very large Celery requires, or at any rate receives, a severe trim-

ming, and is therefore largely wasted. On the other hand, there is no risk of being blamed for growing and forcing too large Asparagus, Seakale, or kidney Beans, though these may be partially spoilt before they reach the table. The less these are set or immersed in water the more tender they are, and much the same can be said in the case of various other vegetables, freshness being a great desideratum.

Unfortunately, it does not all rest with those who serve the kitchen, as the cook may easily make or mar the work of the gardener. The literature of the kitchen, more especially that part which relates to vegetables, is somewhat limited, but if what few treatises there are on the subject were more diffusely circulated and read, gardeners would have every reason to be thankful. All cannot have an opportunity of learning their profession under expert *chefs*, but if they cannot gain experience in this way, it would be very much to the advantage of employers if they were sent for a few lessons to a school of cookery, or else to a *chef* in a large public establishment. Among the books selected ought to be Francatelli's cookery book, this containing numerous excellent recipes for cooking vegetables as well as a great variety of other useful information. Messrs. Sutton and Sons, Reading, have published a most serviceable treatise entitled, "The Art of Preparing Vegetables for the Table," and this ought to be in the hands of all interested in providing the best of everything for the table. "Dressed Vegetables à la mode," by Mrs. de Salis, contains numerous recipes for preparing vegetables, and these are or ought to be readily understood by cooks possessing ordinary intelligence. Another valuable little treatise by the same authoress, entitled "Savouries à la mode," is also most instructive, vegetables largely figuring in some of the savoury dishes described.

By way of supplement to the foregoing generalities I shall venture to offer a few observations on cooking certain vegetables with perhaps a few instructions culled from the books just named. The Potato is the most popular of all vegetables, yet, strange to say, it is rarely properly cooked. Gardeners are constantly being blamed for the inferior quality of the Potatoes grown, when more often than not the cooking is most in fault. All authorities agree that they ought not to be peeled long before being cooked, a few hours with their jackets off and in cold water quite spoiling both appearance and quality. The simplest, and on the whole the best, method of cooking most varieties is to place them in boiling water with a little salt added, and keep them boiling fast till nearly done, when the water ought to be strained from them, though not too closely, and be then set near the fire with the lid tilted. This both finishes the cooking and thoroughly dries the Potatoes. Potatoes ought to be kept in the saucepan till wanted. If wanted quickly, the saucepan, after the draining is done, should be held over the fire with the lid tilted, and to prevent burning, be occasionally well shaken. Many err in boiling Potatoes too long and others fail to allow sufficient time for them to dry or steam properly, hard centres being the consequence. Champions may be cooked in this way, or, better still, be prepared with the aid of a steamer. Regents and Schoolmaster very frequently can only be steamed, and with their jackets on, as they are apt to melt away when boiled. There are about forty different methods of either preparing Potatoes for the table or of utilising them in various fanciful ways, many of which are much appreciated.

In point of general utility the Brassica tribe comes next, this including Broccoli, Cauliflowers, Borecole, Brussels Sprouts, Cabbage and Savoys. The secret of success in preparing these in every case lies in the fact that they must be cooked quickly, or otherwise they may be hard; not too long, or they may be "done to rags," and with the lids off the saucepans, or the colour will be bad. All should be placed direct into boiling water, duly salted and kept boiling briskly. A Broccoli or Cauliflower requires to be boiled from fifteen to thirty minutes, according to its size; Borecole and Cabbage, including Savoys, about twenty minutes, and Brussels Sprouts from twelve to fifteen minutes. There are about ten fancy methods of preparing Broccoli and Cauliflowers, but only a few modes of serving either Brussels Sprouts or Cabbages.

Carrots, when old, require a considerable amount of cooking, or from one to two hours' boiling, but the tender young roots can be rendered fit for the table in half an hour. They ought to be put in boiling water, and not sliced in any way till after they are boiled. There are about eight recognised modes of varying the preparation of Carrots, and Turnips are sent to the table in nearly as many different ways. These, again, ought to be put into boiling water, and should be ready in about twenty minutes. A good cook would not quarter small roots, nor the larger ones, till after they are boiled. No less than eighteen different methods of using Onions as a vegetable, or other than for soups, are given, though perhaps the simplest would suit most tastes. Boiled whole in gravy till quite tender or melting, and served with a thick sauce made of melted butter, flour, and Worcestershire sauce, they are very delicious. Parsnips are usually considered a second-rate vegetable, but they ought to find their way on to the dining table much oftener than they do, either whole, in fritters, or balls. The proper way to cook them is to place whole roots into boiling water, and let them boil very gently till quite tender, from one to two hours' simmering being necessary. They ought to be only just covered with water in the first instance, too much water spoiling the flavour. Salsafy and Scorzonera are cooked similarly, and in six or more different methods. More of these ought to be cooked than is the case, as they can be prepared in a very tasty manner. Salsafy is sometimes known as the vegetable oyster, and the American recipe for preparing mock oysters I can strongly recommend. It is as follows: Scrape the Salsafy roots thoroughly and lay in cold water ten or fifteen minutes; boil whole till tender, drain, and when cold, mash with a wooden spoon to a smooth paste, picking out all the fibres. Moisten with a little milk; add a tablespoonful of butter and an egg and half for every cupful of Salsafy; beat the eggs light, make into round cakes, dredge with flour, and fry brown, or it may be sent up in a fireproof china dish with breadcrumbs on the top, browned and steeped in butter. W. I.

Garden walks.—For kitchen gardens there can, I think, be no question but that concrete walks or paths are the best, whether they be made of tar and fine gravel or cement and the latter, or granite chips, if properly constructed, as they are good in all weathers, and will bear whatever wear is brought on them. In addition to this, there is another great advantage, in that they never harbour weeds, as others do, entailing no end of time and labour to keep them clean. Next to having a good sound bottom and the foundations right, the most important point in the formation of concrete or tar paths is to see that the sides or edgings are well put in, as there lie the weak or strong points, for unless guarded at these points the sides break away, and there is no repairing without making a bad-looking patch. Ash paths, as mentioned by "W. I.," are, in my opinion, an abomination in a garden, only to be tolerated when something better cannot be had, as the ashes, after frost and wet, become soft, adhere to the soles of boots, and are carried about, disfiguring other paths where those wearing them may happen to tread. We had them here years ago, but I was very glad to get rid of them and hope never to have to do with them again. While differing this much with "W. I.," I quite agree with all he says in favour of grass walks where there is not too much traffic, as they are far superior as a setting to flower borders, which they help much to adorn; while as regards keeping in order, they take less time and attention than gravel, for now that we have such perfect mowing machines a run over once a week during summer is all that is necessary to make them look well.—S. D.

TURNIPS.

One feature of the meeting of the Royal Horticultural Society on the 11th inst. was a collection of Turnips sent from the Chiswick gardens of the society. It was but a limited representation of the large number of varieties in cultivation, but it was useful as indicating some of the best sorts grown for garden culture. I have before me a select seed list published in 1817, and that gives but two sorts of garden Turnips as cultivated at that time in gardens, namely, the Stone and Early Dutch. In twenty years from that time the yellow-fleshed garden Turnips had appeared upon the scene, although the white-fleshed garden varieties had been only sparingly extended. The yellow-fleshed garden Turnips are considered as intermediate between the white garden Turnips and the field Swedes, but I can scarcely favour the idea of a cross. I am disposed to think they have originated in selections, and repeated selections have operated to deepen the yellow colour found in the flesh until it has assumed the degree found in Beck's Golden Stone or some of the Scotch selections. There is a material difference between the Swedes so-called and the Turnips, which causes me further to doubt that the yellow garden Turnips are the result of a cross. The larger in size the Swedes grow, a given weight of roots is found to contain a greater portion of nutritious matter, while in the case of the common Turnip, this, after attaining a certain size, loses a proportionate quantity of that most valuable part of its composition.

Of the white Turnips the most attractive in their shape and quality were those of the Snowball type. Nearly thirty years ago Beck's Improved Snowball Turnip was sent out, a fine type, the result of several years' persistent selection, and to this day that remains the model white garden Turnip for shape and quality. Its symmetry has been recognised by having the name of Model bestowed upon it. It was also seen as Model White Globe, Dobbie's New Model, and Silver Ball. But it is the old Improved Snowball, not a bit improved in shape, because it was perfect in that respect when first sent out. The White American Strap-leaved was also there, which I consider is a selection from the Early Flat Dutch, but differs in the character of the leaves, these forming an oblong entire blade, which is toothed on the margin, but not divided or lobed. This peculiarity is not confined to this particular variety; it is often met with in other types, and the difference in itself is of no special importance. Then there was the Green-top White Stone, which is always recommended as a good hardy winter variety. The Covent Garden White Globe is evidently a globular form of the last named. Stratton's Green Round appears to be the same. Vilmorin's Early Stone is Green-top Stone. The Extra Early Milan, a purple-topped variety that is now being much grown by gardeners for an early crop, appears to be a selection from the Early White Dutch, but with a purple top. The Milan Purple-top Strap-leaved and the Early Red Strap-leaved appear to be the same in all respects. Here was to be seen also the Early Red-top American

Stone, and Veitch's Red Globe appears to be a long selection from this.

Of the golden varieties, a type of Turnip that is much more esteemed for culinary purposes in the north of England and Scotland than in the south, the Golden Ball is the best type, as presenting to view the handsomest round form, One of the best coloured was the Yellow Finland from Messrs. Vilmorin and Co. This was small, flat, deep in colour, and is said to be an exceedingly hardy and rather early variety, and very suitable for sowing late in autumn. All the yellow Turnips should be eaten when quite young, and they make a very delicious vegetable. The Yellow Malta, Yellow Dutch, and Yellow Finland, from others, appeared to be the same—a well-coloured flat Turnip with a slightly green top. But yellow Turnips, though considered by some to be superior in point of table quality to the white ones, will scarcely become a popular vegetable in the south, owing to the strong prejudice against them on account of their colour.

R. D.

KITCHEN GARDEN NOTES.

Now we have arrived at the end of the year, a few retrospective remarks on the successes and failures that were met with may be given. On the whole, the failures were fewer than might have been expected, and, as far as some crops were concerned, they never were better. Perhaps in less favoured localities a very different state of affairs resulted, from the lateness of the spring and the dull, sunless summer weather that prevailed, a severe frost early in October also completely spoiling what promised to be a fairly satisfactory autumn. Much grumbling was the natural consequence of such a showery summer, but had we been again favoured with a hot and dry summer, the results must have been most disastrous in many localities. The ground not being thoroughly moistened to a good depth during the previous winter and spring, it would have been completely parched if the summer had been as hot and dry as many wished, and this, coupled with low springs and empty ditches and ponds, would have been a national disaster. Only those who have occasion to dig deeply on uncultivated ground are really aware how very dry the ground was, and all the rains that have fallen within the last two months have scarcely soaked the land.

Asparagus.—Correspondents, north as well as south of the country, agree with me that the Asparagus crop was exceptionally good in every respect. Why this should be so is not so clear, but probably it is largely due to the comparatively warm and dry state of the soil. Plenty of sunshine in 1887 matured the growth, the warmth in the ground being especially beneficial to the roots and crowns, and in all probability fewer roots than usual perished during the winter. The growth this year was strong from first to last, and there was plenty of time for that reserved to ripen satisfactorily. What the effect of a long spell of wet weather will have upon it remains to be proved. We hear of Asparagus being cut recently, but it is to be hoped such cases are the exception, as a good rest is needed, and such an abnormal state of affairs must end badly.

Globe Artichokes were much later than usual, but they were never more plentiful nor superior in point of quality. We cut large numbers of fine heads from June to November, a few being available as late as the middle of November. Well grown, they are much appreciated in many establishments, and where a good variety of vegetables is needed daily they are indispensable. The green Globe is much superior to the purple-headed variety, and ought always to be grown in preference to the latter. Jerusalem Artichokes grew to a great height, and the stalks were unusually late in ripening. The crops are plentiful and rather coarse, but there are abundance of medium-sized tubers available which a good cook ought to be able to serve up in a tempting manner.

Beans.—A showery season suited Broad Beans, the crops being heavy and the quality good. They are not usually considered high class, but if gathered before the Beans are old and the skins tough, and a little trouble is taken in preparing them for the table, they form a by no means despicable dish. The Improved Long-pods are early, most productive, and the quality good. Among the later broad podded varieties, Green Windsor is the best in point of quality. Kidney Beans failed on cold, heavy land, but were very productive and continuous bearing on warm borders, where, fortunately, most of ours were grown. Owners of comparatively small gardens rarely grow enough of these, one sowing being the usual extent of their culture. It should be remembered they are of quick growth, very productive, but not, as a rule, very continuous bearing; consequently two or three sowings ought always to be made. They are more delicately flavoured, and, if gathered before the seeds commence to mature, more tender than runner Beans. Ne Plus Ultra is a good early variety, and Canadian Wonder forms a good succession. A difficulty was experienced in raising good even rows of the latter, so many seeds perishing in the ground, but though late, the crops were exceptionally heavy, and a supply could be had to near the middle of October. We prefer the old Scarlet, this producing abundance of small pods in large clusters. Mammoth Scarlet, Jubilee, Girtford Giant, and Ne Plus Ultra are all suitable for cultivation where extra large pods are required.

Beet, where sown early, grew too strongly, many of the roots being very coarse and stringy, but the May sowing did well. Crimson Ball again proved the best early variety, this being a good form of Egyptian or Turnip-rooted Beet. Dell's Crimson, of which there are several synonyms, is hard to surpass for the main crop, this rarely becoming too coarse. It can usually be depended upon to come true to name, and that is more than can be said of several other varieties catalogued.

Borecole is strong, and should be serviceable later on. Read's New Hearting is the most profitable variety, this forming good hearts as well as a later supply of greens. The dwarf and tall green curled varieties, however, are not to be despised, these being very hardy, and both the tops and side shoots properly cooked are very tender, succulent, and mildly flavoured.

Broccoli. — Capital breadths of these are to be seen, a showery, mild season favouring a vigorous and late growth. Whether such strong plants will be proof against a moderately severe frost remains to be seen. In all probability the sturdy short-stemmed plants, such as were plentiful last year, are the best for our climate, as they are much the hardiest, and usually form good hearts. Veitch's Autumn Protecting has been abundant and good for many weeks, and will be available till the Sandringham selection of Snow's Winter White is ready for use. The latter promises well, the stock evidently being more pure than often met with. Spring White, Cooling's Matchless, Perfection, and Leamington are good mid-season varieties, and for the later crops, Model, Champion, Late White, Ledsham's Latest of All, and Late Queen are the best tried here.

Brussels Sprouts never were better—at least, such is our experience. After repeated trials we have finally selected Ne Plus Ultra as being the best in every respect, Northaw Prize, mentioned on page 539, being simply the same variety re-named. The stock is remarkably even and well selected, not a failure being found among the several hundred plants we now have on the ground. Paragon also produces small, close sprouts of good quality, but the variety has a weak constitution and fails on heavy land.

Cabbage.—Being moisture-loving subjects, these thrived in the past year. Good hearts were plentiful and very tender, the second crops being nearly equal to those first cut. Earliest of All is not well selected, but those who prefer extra early and large conical hearts should give this novelty a trial. Ellam's Dwarf is yet the best for private gardens, being of neat growth, early, and very tender when cooked. A true stock of Wheeler's Imperial invariably does well in the south-western counties. It is of moderate growth, hardy and early, the quality also being fairly good. London or Rosette Colewort is the best for sowing in June, and being planted thickly on good ground, proves very serviceable during the winter. Chou de Burghley may be described as the best winter Cabbage in cultivation. Raised early, it is apt to become coarse and of little service, but plants raised in May can be planted more thickly, and these will form smaller, hardier, and better hearts in every way.

Carrots.—Seeds came up thickly, and heavy crops are the rule. Coarseness is prevalent, and there was no avoiding this, as even those sown late in April grew to a great size. The top growth was late in maturing, and already the roots are forming fresh fibres. French Forcing is a variety of quick growth, but Nantes Horn is only a few days later, and forms much better roots. The last-named is suitable for either early, main, or late crops, and is the most serviceable variety in cultivation. Scarlet Model forms thicker roots, these being well coloured and keep well. The old James's Intermediate is now superseded by the superior forms of it, such as Matchless Scarlet and New Intermediate. Scarlet Perfection promises to be a most desirable variety. It is the result of a cross between the Intermediate and Long Surrey, and to a certain extent resembles both. We have abundance of medium-sized, well-coloured roots of it, which promise to keep well. Long Surrey was previously the best late variety, and a shorter-rooted form is a decided gain.

Cauliflowers.—Easter Early Forcing is always serviceable, and Dwarf Erfurt Mammoth forms a very good succession. Pearl was again serviceable, and Magnum Bonum (Sutton and Sons), a novelty, proved to be the best summer variety. It is of neat habit and forms large close heads almost equal to those produced by the ever popular Autumn Giant. On the whole, the season of 1888 was very favourable to the growth of good Cauliflowers.

Celery being a moisture-loving plant, it naturally revelled in the showery weather, but in spite of the supposed favourable season, much of it is bolting much earlier than usual. Dryness at the roots at some period of the plants' growth and a mild autumn are the most probable causes of this unfortunate occurrence. Incomparable White and White Gem were very good as early as September, and Standard-bearer has since proved quite as good in every way, as stated when first distributed. It promises to become popular for both main and late crops. Major Clarke's Solid Red never fails to do well, this closely resembling Leicester Red. It is of compact growth and very heavy, solid, and sweet.

Leeks.—Ayton Castle and The Lyon grow to a good size, are hardy, and mildly flavoured, and no better Parsnip than The Student can be recommended. The latter is very good this season, the only fault being coarseness in some of the roots.

Onion crops were late in maturing and the bulbs are keeping badly. A hot and dry summer suits them best, a moderate crop of well-ripened, medium-sized, and small bulbs being of more value than double the weight badly matured. The Queen, White Naples, and Mammoth White Italian are early and mildly flavoured, but do not keep so well as the Giant and Lemon Roccas. All these are suitable for autumn sowing, and for spring sowing Main Crop, Giant Zittau, Banbury Improved, The Wroxton, and James's Keeping are among the best that can be selected.

Peas.—These were late and did not fill well. Chelsea Gem and American Wonder, two popular dwarf, wrinkled-seeded varieties, were the first fit to gather, and they cropped well. Extra Early, a round-seeded variety, was again serviceable, and William I. almost as profitable as ever. Perfect Gem, which only attains a height of about 2 feet, gave us a capital crop of well-filled pods, and this should prove of especial value to the owners of small gardens. Telephone, Criterion, Duke of Albany, Ne Plus Ultra, Princess Royal, Prodigy, and Sturdy have again given great satisfac-

tion, these, as a rule, cropping heavily and filling well.

Potatoes. — The haulm escaped late frosts, and seeing how well the ground worked, we fully anticipated obtaining heavy crops. Only the earliest on warm borders escaped disease. The haulm of all the rest was badly affected, and in some instances the tubers were also ruined. Old Ashleaf, Veitch's Improved, and Myatt's Ashleaf perfected moderately good crops in spite of the disease, and Cole's Favourite, a second early, also again did remarkably well. Those least affected by disease were Scotch Champion, Laxton's Reward, Abundance, Holborn Russet, Prime Minister, Chiswick Favourite, and Magnum Bonum. The first and last-named of these are as good to eat as ever they were.

Turnips.—The very earliest sowings were almost failures, but from July to December they were never more abundant or superior as regards quality. The latest sown have continued to swell up to the present time (December 18), and altogether lovers of Turnips have had a good time of it. Early Milan again proved the best for the earliest crops, and it is hardier than expected. Snowball is good for early and late sowing; Veitch's Red Globe never fails; and Chirk Castle Blackstone is the hardiest and one of the most delicately flavoured of the lot.

Tomatoes were a failure, only a few districts escaping disease. We had a few ripe fruits on a good selection of Large Red, all the rest being badly diseased early in the season. In some parts of Devonshire fairly good crops were gathered, and I hear, too, that gardens in the midlands were fortunate in this respect. There were many failures under glass, notably where no fire-heat was given.

Vegetable Marrows on heaps of manure grew too strongly, and did not yield many fruits. Our plants on ordinary garden ground were more productive, notably Pen-y-byd, this excellent variety being but little affected by dull, wet weather. White Bush is of compact growth and fairly productive, while the Long White is yet one of the best. Savoys grew rapidly, and are much too early. Savoys Tom Thumb, Early Dwarf Ulm, Gilbert's Universal, and Drumhead form a capital succession. Spinach was, and is still, plentiful and succulent. Victoria Improved Round is a great advance on the old form, and is good for either the summer or winter crops. Spinach Beet has grown very strongly, but is not much in demand while the ordinary Spinach is available.

Salading.—Lettuces were as fine as usual, and they did not run to seed so quickly as in hot weather. Early Paris Market is the best for frames and the earliest crops on sunny borders. Perfect Gem is fine during the summer and early autumn months. Standwell (Carter and Co.) fully deserved the name given to it, and another good Cabbage Lettuce will be found in Sutton's Favourite. Among Cos varieties, there are none to surpass a good selection of Paris White, Hick's Hardy being good for standing through the winter, while the Bath or Brown is suitable for either summer or autumn sowing. Endive is especially good this season. Model is suitable for the earliest supplies. Green Curled is somewhat later and hardier, and the best keeper will be found in the invaluable Improved Broad-leaved Batavian. Radishes were eatable throughout the summer. The little short-topped forcing Turnip varieties were very crisp and sweet both at the beginning and end of the season. French Breakfast and Olive Scarlet are quick growing, pretty, and crisp. Wood's Frame is a profitable early variety. Red and White Turnips are suitable for summer sowing, and Long Scarlet Short-top is the best for the autumn. W. I. M.

Is blossoming detrimental to development of Potato tubers?—The subject of the relation between blossoming and the development of tubers in the Potato is dealt with in a pamphlet recently issued by Mr. E. Woolny, a German scientist. In Germany, where, owing mainly to the climate, the blooming of Potatoes is much restricted, the tubers are, as a rule, larger than in Chili, the habitat of the Potato, where it flowers abundantly. This fact seems to indicate a sort of balance between the two modes of reproduction by the tubers and by the seeds; the energy of the one seems to bring about the decadence of the other. In this country, by suppressing the flowers, a grower on one occasion was enabled to increase the harvest to the extent of 2670 pounds per acre. Woolny recognises that, from his experiments, the development of the flower is prejudicial to that of the tubers. Experiments were conducted in 1886 on many varieties that produce flowers. Four plots were planted with each variety, one acting as a duplicate or control, being left to itself; the inflorescence on the other three was cut at three different periods. The inflorescence most often cut off produced the crop of greatest weight; it also exercised an influence on the number as well as size of the tubers. However, the early varieties, and the plants which had not been topped till late, gave a contrary result—one crop being poor, probably because there remained some little time between the operation and the maturity of the tubers, and the season had been especially dry from July 14 to August 25. These experiments confirm the theory that climatic influences have a good deal to do with the yield of Potatoes. Dryness and sunlight are generally believed to induce bloom and humidity; a sky more or less cloudy is more favourable to the formation of tubers.—*North British Agriculturist.*

ASPARAGUS CULTURE UNDER DIFFICULTIES.

There are some soils in this country that will grow excellent Asparagus without any special preparation, and others that require much labour expended upon them before they are fit for the reception of the roots. What appears to best suit this most valuable vegetable is a friable sandy loam resting on a gravelly or well-drained subsoil, and such conditions, unfortunately, are the exception. Of such importance has this crop become, however, that all must attempt its culture. In some instances where Asparagus fails when grown on or rather below the ordinary level, all that is necessary is to revert to the older methods, that is, to plant on raised beds, but this can scarcely be termed growing it under difficulties. It is the cold clayey soils that are the most difficult to deal with, these rarely producing good produce, and eventually proving fatal to the plants. The cheapest practice in the end, although by far the most laborious, is to completely change the character of both the surface and subsoil, and as this is a rather big undertaking it ought to extend over several years. In one large garden situated in the Weald of Kent, where the soil is naturally a stiff, retentive clayey loam, the subsoil in many instances solid clay, the work of completely changing the character of the soil to a depth of about 2 feet, first for the Asparagus, and eventually for all succeeding crops, has been going on for many years with the very best results. Much the same methods are being adopted in another large garden in this district, where clay of a different character, but equally as stiff and retentive, is the staple, and instead of uncertain crops of spindly shoots, abundance of fine succulent growth is now annually cut from the beds.

At this season of the year those who have failed to grow good Asparagus, owing to the heavy nature of the soil, ought to commence the formation of a series of beds somewhat as I shall briefly advise, and they may rest well assured ultimate success is certain. It will probably, though not in all cases necessarily, entail the loss of crops from a strip of ground for one season, but this ought not to have a deterrent effect. The first proceeding should be to mark out a breadth of ground, 6 feet wide, in a sunny, well-drained position, and of a good length, or according to circumstances, this being sufficient for one bed of Asparagus. Supposing the top soil to have been cultivated for several years, this ought to be in fairly good working order, and it may be some of the subsoil will have been much improved by the addition of various substances. All that is found fairly friable should be thrown out on each side of the space marked out and formed into a neat ridge, and then comes the heavy part of the work. Not less than 1 foot of the clayey subsoil ought to be dug and wheeled out of the garden, and if it cannot be burnt or is not of any service at the time, sooner or later a use will be found for it. In the Kentish garden alluded to the bottom of the intended bed was hollowed out and a single 2-inch pipe drain laid through the centre, this being duly connected with a main drain on the lower side. Over the bottom were then placed sufficient rough stones, brick ends, and coarse mortar rubbish to just bury the pipes, finishing off with the finest of this imperishable material. From that time to the end of the following year, or for about twelve months, a large trench thus prepared ought to be kept open, the only exception being when there is sufficient material for completing a bed in time for planting in the following April. What is wanted is plenty of decaying vegetable matter, such as Grass from the mowing machines, sweepings and trimmings of walks, leaves, stable manure, weeds, and other refuse of a soft nature, and also plenty of charred rubbish, burnt clay, wood and coal ashes, and sand. When sufficient of this has accumulated, or say a depth of about 18 inches, one half of the soil previously thrown out of the trench should be returned, and the whole well mixed together without, however, disturbing the drainage. Supposing the trench is kept open all the year, a second turning of this extraordinary mixture may well be given, and if this is done in dry weather the whole may be lightly trampled down. It ought, when finished, to be within 6 inches of the ordinary level of the garden, subsequent additions raising the bed another 12 inches. The long exposure of the soil thrown out usually has a thorough pulverising effect, and this mixed with abundance of leaf soil, decayed stable manure, sifted soil from the frame ground, sand, the contents of a smother, and any other fine light mould is exactly what is wanted for the completion of the bed. Should the various ingredients of this compost be rather scarce or not more than equal in bulk to the ordinary soil mixed with it, extra pains must be taken with the mixing, the work being best carried out when the soil is dry. It will be further benefited if thrown up into two ridges till near planting time.

It is of the greatest importance that the upper portion of the bed be largely composed of mould that will not bind together or again become very retentive of moisture, as it is only light, free-working soils that are well adapted to the production of fine well-blanched Asparagus. To have this in perfection necessitates planting from 6 inches to 8 inches deep, and the eventual burial of the crowns to that depth. Covered so deeply by heavy soil the crops are later, and if the plants do not eventually succumb, they form weakly and but little valued shoots. Those, then, who cannot adopt the radical measures I have just advised, ought at any rate to see that the subsoil is well drained and the surface improved by the addition of any suitable substances that can be collected. As before stated, the process of forming Asparagus beds in this fashion must in most cases be piecemeal, and may well be gradually extended all over the garden. A fresh bed being planted every spring, the time will come when an old one may be broken up every winter and the contents forced. Supposing either one-year-old or two-year-old plants are put out, these ought not to be cut from till the third season, and certainly ought not to be lifted for forcing before they have been cut from for five or six seasons. Such fine strong roots as result from planting 18 inches apart in three rows 18 inches asunder would remain in a profitable state with very little further trouble for many years, but when lifted and forced they yield a far more valuable lot of shoots than do the weakly clumps obtained by breaking up less well-made beds.

Those who have tried completely changing the character of the garden soil to a good depth consider that the Asparagus crops repay for the trouble taken, but this is not the only gain. When the Asparagus is cleared off, wonderful crops of runner

Beans, Peas, and other vegetables are obtained from the ground in succession, and the improvement is of such a permanent character that it is almost impossible to ruin it by bad treatment.

W. Iggulden.

Ferns.

W. H. Gower.

ASPLENIUM FLACCIDUM ODONTITES.

The plant we here figure is one of the forms of A. flaccidum, which is one of the most variable Ferns with which I am acquainted. The figure here given is taken from a specimen sent home from New Zealand, its native country, so that no modification has come about through cultivation. The common form of A. flaccidum in English gardens produces long pendulous fronds some 3 feet or more in length, the pinnæ being distant, narrow, some 6 inches long, deep green in colour, and viviparous. It is well suited for growing in baskets in the greenhouse. The form, however, now under consideration is quite unsuited for basket purposes, being erect in habit and thick and leathery in texture, thus proving that, in spite of what may be said to the contrary, such a variation deserves a distinct name for garden purposes. As will be seen by our figure, the sori are both numerous and bold, and in this it differs from the typical plant; these contrast well with the pale green, which is the usual colour of all the numerous forms of the species. The form in question was a few years ago common in cultivation; it is an evergreen greenhouse plant, well adapted for a nook in the rockery, and being so different in habit to the pendulous form, it may with perfect safety be planted in juxtaposition with it. As a pot plant this form is not one of the most attractive Ferns, its rigid habit being against its forming a graceful specimen, but when planted out it is a very charming subject, and well deserves the attention of all readers of The Garden.

DICRANOGLOSSUM FURCATUM.

This is a pretty Fern, which I have not seen in cultivation for some few years, but it well deserves a place in every collection for its thoroughly distinct character. The plant named above is sometimes named Tænitis furcata, to which, however, it does not appear to have any affinity, and again Cuspidaria furcata, but as the last name was previously given to a genus of Bignoniaceous plants, it could not also be applied to a Fern. This species is said to be abundant in South America, particularly in Ecuador and the valley of the Amazon, and so it must also be in the island of Trinidad, as from this last-named place I have frequently received it in quantity, and it was this form which I succeeded in establishing in cultivation. It is a plant with a short creeping rhizome, which is woolly, and the fronds are tufted, growing a foot or more in height, sometimes considerably less, and on some rare occasions they attain a height of 18 inches. The divisions are narrow, seldom exceeding a quarter of an inch in breadth, although I have seen a form of this plant in which they are always broader, even in a young state. The fronds are coriaceous in texture, pendent and bright green, the upper and lower surface being covered more or less with small thin scales. It forms a beautiful object in a small jutting pocket in the stove rockwork, producing a pleasing effect, which is not obtained by any other Fern with which I am acquainted. Naturally the plant appears to grow in stiff yellow loam and leaf-mould, and in a similar mixture with some turfy peat added I have found it succeed well under cultivation. It likes stove heat and a very moist atmosphere; an indication of this is given by the plants when they arrive in this country, as they have the upper side of the fronds covered with growing Moss. W. H. G.

Ferns for a cool stove (*G. T.*).—Yes, you can grow the following; they will not occupy much space: Davallia canariensis (the Hare's-foot Fern) for hanging basket; Adiantum dolabriforme in similar position. Be sure you get this plant. A. lunulatum is a similar kind, and is often sold for it. The advantage of dolabriforme lies in its evergreen character, lunulatum being deciduous. A. cuneatum: no one can do without this useful Maiden-hair for cutting. Anemidictyon Phyllitidis, a flowering Fern; Asplenium Belangeri; A. cicutarium, a charming Fern, but if watered over the fronds it turns black; Blechnum brasiliense, B. occidentale, Doryopteris palmata, Lastrea hispida, Lomaria gibba, Platycerium alcicorne for bracket. Some good hardy Ferns next week.—W. H. G.



Asplenium flaccidum odontites. Engraved for The Garden.

Humata (Davallia) Tyermani.—This Fern was named by Moore after Mr. Tyerman, of the Liverpool Gardens, who, it was supposed, had introduced it from West Africa. But a short time afterwards, in the South, I saw several plants of this species which had come home with Dendrobium nobile, thus proving its Indian origin. It is a lovely plant for either pot or basket culture, the rhizome being densely covered with large white chaffy scales. The fronds are stiff and leathery in texture and intensely deep green in colour. They are very suitable for cutting, as from their consistency they do not flag or droop for a very long time. I recently noted this in very fine condition with Mr. Bingham, in Miss Goldsmid's garden on Wimbledon Common. The Davallias are all handsome plants, and should really receive more attention than has been accorded them during the past few years.—W. H. G.

SOILS AND COMPOSTS.

No garden, however small, can well be carried on without its soil and compost heaps, as where plants are grown in pots it is essential for their welfare that they have suitable soil, without which they make but little progress, and are seldom seen in a satisfactory condition. In extensive places, where there are old pastures to run to to cut turfy loam from, there is no difficulty in making up a compost fit for almost any purpose, as fibrous loam forms the basis of most soils for plant culture, and it is

only Orchids, Heaths, and Azaleas that require peat, although it must be admitted that peat is very useful to add to loam, as a mixture to correct its binding tendency and give humus for the roots of plants to feed on, but as to its real necessity, much depends on the loam. This, to be of the best quality, should be of a yellow or hazel colour and full of fibre, but not too stiff and heavy, as without a fair amount of sand in it, it soon becomes close and heavy. In cutting the loam ready for carting and stacking, the spade should not be driven in more than about 6 inches, as that is quite thick enough for the sods, and when these are carted, they should be stacked, grass side down, and brought up narrow at the top, so as to form a ridge, and thus keep out wet and let the air and weather play on the sides. Although this stacking and storing are very desirable, I do not hold with allowing the loam to lie long, as, roughly speaking, the fresher the loam is, so long as the Grass is dead, the better, as when stored for any length of time the whole of the fibre becomes decomposed, and therefore it is advisable to get in only a year's supply. What is required for immediate use, or for potting at any time during the winter, should be placed under cover that it may be in a fit condition for handling, whatever the weather may be. Not only is it desirable that loam should not be long stacked, but on no account ought manure to be laid between the sods or placed with it, as what enriching it requires is best given later on when it is chopped up and prepared for the potting, as then a little bone dust or a dash of soot is all that is needed for most things, and the two together form an excellent stimulant. Those who have not a park or meadow to fall back on for loam, may often get what they require from waste parts by the roadside, where patches of turfy loam are to be met with, but failing this privilege the only thing to be done is to resort to dealers who supply peat, loam, or leaf mould, or mixtures all ready for use. Peat is always a scarce commodity, and can only be obtained in certain districts where there are commons or heaths.

In some places peat is thick, but with that, as with loam, it is only the top that is valuable, as this contains the fibre, which alone should be used for hard-wooded plants. Before, however, it is fit for these it should be cut into sods and stored for a few months in the same way as advised for the loam. Leaf-mould is nearly as valuable as peat, and for many things answers the same purpose, and in cases where the loam is of a heavy texture, leaf-mould is indispensable as a corrective to mix with it. Used in that way, all soft-wooded plants are greatly benefited by having a small portion added to the loam in which they are potted. This being so, all who grow plants in pots should endeavour to have a store, the best being that from leaves laid up in a heap and kept turned from time to time to keep them sweet and hasten decomposition. Leaf-mould when prepared in this way is always superior to any saved from hotbeds or made from leaves that have been fermented. In places where there are many Oak and Beech trees growing, good leaf-mould may be obtained, but it is important that there be no Beech nuts nor pieces of wood in it. Leaf soil before being used should be sifted and rendered fine, as then it blends with the loam much better, and all that is wanted to make the mixture perfect for most plants is the addition of a little sharp sand, which will keep the whole porous. The quantity required varies according to the nature of the loam and the subjects to be potted, as those that need much water when growing will take more, and such things as Camellias and others of that class less. With regard to manure, beyond that already mentioned, that from cows, sheep, or deer is best for potting purposes, but neither must be used green, but laid up for a year or so in some dry shed or under cover, and there turned and broken up till it becomes quite pulverised. Some of the artificial manures are valuable, and may either be used as substitutes for any or all of those just referred to either at the time of potting or after, as most of them are readily soluble, and if sprinkled on the surface of the soil are soon washed in, or they may be applied by putting a little in the water before watering the plants. S. D.

ORCHIDS.

W. H. GOWER.

EPIDENDRUM WALLISI.

This species of a large, and to some extent despised genus is a veritable gem for winter-flowering; indeed, Mr. Bickerstaff, who has charge of the rich and rare collection at Burford Lodge, says it is almost always in bloom, and, as seen at this garden, it grows to a good size and flowers profusely, the individual blooms being large and highly coloured. It is a plant which is found in New Grenada, but I do not think from the coolest part, as it thrives best in the Cattleya house. I am told by Mr. Shuttleworth, of Clapham Park Road, who has recently imported a batch, that it grows naturally in a place which is difficult of access, and on account of the expense of transit the tall stems are cut down within some 6 inches of the ground. This system, I think, must induce weak growth and cause the imported plants to be much longer in displaying their full beauty; hence the plant has not become so well known in cultivation as it deserves.

The Epidendrum genus is, comparatively speaking, a weedy one, and as such quantities of the poor-flowered kinds were the first to be introduced it obtained a bad name, and any plant with the suspicion of belonging to the Epidendrum family was at once condemned. In this plant we have a species quite out of the common. It grows several feet in height without pseudo-bulbs, but with slender Reed-like stems, these being clothed with oblong lanceolate leaves, which are some 4 inches or 5 inches long and about 1 inch wide, acute at the points, and sheathing at the base. The blade of the leaf is rich deep green, but the sheathing base which envelops the Reed-like stem is thickly freckled with reddish-brown, the leaves being alternate and arranged in a two-ranked fashion. The raceme is terminal and many-flowered, each of the flowers being about 1½ inches across. In addition to the terminal raceme, lateral ones, which are smaller, are pushed out on the stem. Each lateral raceme springs from opposite the base of each leaf, and opens its flowers from the top downwards, in the same manner as the Toddy Palm of India (Caryota urens) does its flowers. The flowers, sweetly scented, with a delicate musky odour, are rich golden yellow, more or less dotted with bright crimson; the lip is large and fan-shaped, white, with numerous beautifully feathered lines of bright rich purple, this being an uncommon combination of colours which is at once attractive and pleasing. The individual flowers are very long-lived, and this, combined with the fact of all the lateral racemes requiring some time to expand, renders a strong plant with numerous flowering stems gay for many months. The flowers, as they are displayed in full force during the winter season, would lead an experienced grower to the just conclusion that the Epidendrum does not require to be kept dry at any time in the year, and yet in spite of this I recently noted in two separate collections a plant of this species dried almost to death, and upon asking what the plant was, I was told "it was that plant that was cracked up so much a year or two ago, E. Wallisi, but the thing would never grow." This is how good plants are often ruined and cast on one side, and become lost to cultivation. I hope, however, these plants are on the right road towards recovery. This is a practice which a few years ago was largely indulged in by some of our leading theorists, who will interfere with practice of which they know nothing. There can be neither sense, reason, nor cultivation in drying a plant in winter to such an extent as to kill all the summer's growth, and when the season for growth comes round again the plant has the greatest difficulty in recovering itself from the winter's check. One cannot make an Evergreen into a deciduous tree by drying it. Even our deciduous trees in winter get as much moisture as the Evergreens.

Epidendrum Wallisi enjoys a very liberal supply of water during the period of growth, and, therefore, requires ample drainage. During the winter months, unless a fair amount is given, the plant shrivels and becomes weak, whilst if it is of flowering size the flowers cannot be developed without sustenance.

I have observed the finest plants growing in the heat of an intermediate house at the coolest end, the soil used being good peat fibre and Sphagnum Moss. It is a species which will increase in favour, and which deserves to find a home in every collection of stove plants.

Sophronitis grandiflora.—Fine examples of this are now to be found in Mr. F. C. Jacomb's garden at Cheam Park, where I noted not only several very large-flowered forms, but an example which bears two flowers on each spike; such a form is a great acquisition, and should be taken care of. I may add that this species thrives admirably in the cool house with the Odontoglossums, the structure being a span roof with plenty of light and good atmospheric moisture, which the plants appear to fully enjoy.—G.

Cattleya Bowringiana.—What a gem this plant has been during the last two months of the year. It may be justly called the autumn-flowering O. Skinneri, but it has already produced more variety as regard colour than Mr. Skinner's plant. It is a Veitchian introduction, and is of the greatest utility. The fault found with it at first was want of size in the flowers, but the number of flowers produced upon the spike amply compensates for this, as I have seen it lately in several collections.—W. H. G.

Oncidium crispum ochraceum.—This is a new form of this plant, just named from imported plants received by Mr. Shuttleworth, of Clapham Park Road, from Brazil. The plants bear very large-branched spikes, and the individual flowers which opened in the case show them to be as large or larger than those of a good O. Marshallianum, and they appear to be of a bright crimson colour, with some yellow. There are only a few plants of this fine variety. They were collected and sent home as being quite a distinct variety, and this has been verified by our veteran orchidologist.—W. H. G.

Cypripedium Leeanum maculatum.—This hybrid originated with Sir Trevor Lawrence, and a quantity of beautiful forms are now flowering at Burford Lodge, but the one named as above is quite distinct. It is a large flower, the dorsal sepal pure white, heavily spotted with large dots of purplish magenta, with a small arc of bright green at the base; the petals are very bright, being flushed with dull crimson, and the pouch is also richly coloured. This form and the œnanthum varieties are specially good, as the flowers, which are freely produced, are very bright and cheerful.

Epidendrum stenopetalum.—This is a rare, although not a new plant, which I recently noted flowering in Sir Trevor Lawrence's collection. It has erect stem-like growths and flowers, which at first sight impress one with the idea that it is Dendrobium bigibbum. The flowers are produced in umbels from the top of the stem; sepals and petals narrow, the lip large, bright rose colour, with a white patch on the disc. It is said to be a native

of Venezuela, in forests, at some 3000 feet elevation, and is another gem for the cool house. It is said to flower naturally from October through the remaining months of the year, so that in cultivation this appears to be its flowering season, which adds materially to its value.

Lycaste Measuresiana.—This is one of the very handsomest forms of the old L. plana which has yet cropped up in cultivation, and which I recently noted with Messrs. Sander and Co. at St. Albans; the flowers, freely produced, are large and richly coloured, the white petals and the lip being thickly covered with carmine dots arranged in lines. The Lycastes have become a numerous family in cultivation. A complete series is extremely showy and interesting; blooming in winter and lasting long in perfection, they are essentially amateurs' plants, more especially as they thrive under cool treatment.—G.

Odontoglossum blandum.—This exquisite species, although discovered by Blunt whilst collecting for the Messrs. Low, of Clapton, upwards of twenty years ago, has never become common. I have seen it, however, lately in various collections in bloom, and it well deserves the attention of growers at home, as it is said to have been almost exterminated in its native habitat, which is near Ocana, in New Grenada, at some 6500 feet elevation in very wet situations, and where it is said to flower all the year round. It is a dwarf plant, well rendered on plate 28 of Bateman's "Monograph of Odontoglossums," the flowers on the raceme having some slight resemblance to those of the rare O. nævium majus.—W.

Odontoglossum Londesboroughianum.—This beautiful and distinct plant worthily records the interest taken in Orchids by Lord Londesborough, and it is now some twelve years ago since the plant opened its flowers in his garden at Norbiton, in Surrey, it having been introduced to Europe by the Messrs. Backhouse, of York, from some locality in Mexico, in which it is subject to great heat in the daytime, and which becomes very cold at night. It is a plant of rambling habit, and requires to be grown upon rafts of wood with some peat fibre and Sphagnum Moss. The flowers, produced in long racemes, are rich golden yellow in colour; the lip clear, saving a few red dots just in front of the claw; the sepals and petals are banded transversely with short streaks of chocolate. This species is now flowering in the Wilton House collection at Southampton.—W. H. G.

Cattleya Walkeriana.—Although not by any means a rare plant of late years, it is not seen so frequently in collections in a flowering state, as its beautiful flowers would warrant. In fact, it is usually considered difficult to manage, but, judging by the quantity of flowers of this species in Mr. Bonny's nursery at Hextable, he must have been unconscious of the difficulty, or has overcome it, for there the plant grows vigorously and flowers most freely. The plant is dwarf in habit, and the great peculiarity in the species is that, instead of the scape issuing from between the leaves on the top of the pseudo-bulbs, it produces from the rhizome a small, slender, leafless shoot which bears the flower, and which afterwards dies, and from its base arises a growth. The flowers, produced either singly or in pairs, are large, measuring upwards of 4 inches across, and they are usually of a bright rosy purple, although they vary considerably in depth of colour. It likes heat, light, and moisture. —W. H. G.

Phalænopsis Stuartiana.—This is a charming plant, one of the importations of the Clapton Nurseries, and worthily named to commemorate the present energetic head of the firm. The leaves are very similar to those of P. Schilleriana, but with age the marbling wears away, and they become of a uniform dull green. The flowers are freely produced, and on a plant in Mr. Jacomb's garden at Cheam Park I recently noted a spike about 18 inches in length bearing thirty flowers of good size; indeed, Phalænopsids of all kinds bid fair to thrive well in this establishment. I would strongly advise Mr. May, the gardener, to use some salt and liquid cow manure underneath the stages, in a similar manner to Mr. Searing at Cheshunt, for I am sure, in spite of what has recently been written in disparagement of this practice, that several collections have begun to revive after having been thus treated. The flowers of Stuartiana are pure white, the inferior half of the lower sepals being profusely dotted with rose and crimson dots; as also is the lip. It comes from the Philippines.—W.

THE GENUS STANHOPEA.

I was pleased to read at page 549 that a correspondent has been "continually receiving inquiries regarding these plants." It shows that there is a greater interest being taken in them now than there used to be. For my part, I have admired this genus of Orchids ever since I was an apprentice in a large garden in Scotland, and will never forget the flowering of a fine plant of S. tigrina. "W. H. G." does not give a larger published list than thirty-six species and varieties, but, to go no further, Paxton's "Botanical Dictionary" gives a list of forty-six species and varieties in 1868. I have been tempted to make a few remarks upon them, because I saw recently a number of beautiful species really well grown in the garden of the Rev. F. D. Horner at Lowfields, Burton-in-Lonsdale. Mr. Horner is an amateur gardener and an ardent lover of plants. He is better known as an Auricula and Tulip fancier than as a collector and cultivator of Orchids, but though a florist of the old school, like his father, he has a keen eye to the beautiful in Nature, and in the Orchid family not only the beautiful, but the grotesque and singular character of some Orchids, notably the Stanhopeas, is equally fascinating. Mrs. Horner is a keen Orchid fancier also, and has in a short time acquired considerable knowledge of their culture and habits. Fashionable Orchids are not thought of. They are grown at Lowfields for their sweetness and beauty, for their intrinsic worth, and perhaps their quaintness. We have to thank our enterprising Orchid importers that Orchids are as cheap or cheaper than any class of greenhouse or stove plants, and they are as easily grown as any other garden plants. We often read in The Garden descriptions of famous collections of Orchids, but I am not sure that any of them can compete with the small Lowfields collection as an object lesson for amateurs of small means who cannot afford to pay extravagant prices for their plants.

The houses where the plants are grown are of the simplest construction. Any carpenter could put up such structures. There is a lean-to in two divisions in a sunny corner of the walled garden. It is only 25 feet long, by 10 feet wide. The cool house, 12 feet long by 4½ feet wide, is in front of it. The whole lot might be put under the stage of some of our modern Cattleya houses, and one might pass through without noticing it, and yet the space is packed full of nice healthy growing plants, which may possibly give more real pleasure to the owner than the richest collection in the country. The plants have all been collected as opportunity offered, and at a small cost. There is no trained gardener on the place. Mr. and Mrs. Horner look after their own plants, and as a correct list of the different species in flower has been kept by Mrs. Horner for every month of the year, it might be interesting to give the numbers. In December, 1887, there were in flower 35 distinct species; in January, 1888, 35 species; in February, 33; in March, 32; in April, 42; in May, 48; in June, 54; in July, 41; in August, 34; in September, 39; in October, 38; and in November, 37. How few cultivators could give such results from the space at their disposal in proportion to the size of the collection. As a rule, large houses are filled with hundreds of one species of Cattleya, and hundreds of other species. They make a glorious display in their season, I admit, but during several months in the year the ordinary Cattleya house is very dull. Now, the Cattleyas are all right in their way. I have nothing to say against them, but other choice Orchids might also be cultivated, and amongst them the Stanhopeas. Mr. Horner has had several species in flower in his small collection during the last three months. I may add that another small house has been added to the establishment. It is span-roofed, 20 feet long by 12 feet wide, and, from its position, will be an excellent house for the cool Orchids. Many species of Orchids difficult to manage seem to thrive here, such as some of the Disas, Nanodes Medusæ, a miffy subject, which has been hung out of doors in an Apple tree during the summer months. Mr. Horner is also proud of what he calls his hanging groves of Cattleya citrina, of which he had a number of plants out of condition sent him. He has grown them up into great specimens, and the bulbs made last season are larger and healthier looking than any previously produced. In a note received from Mr. Horner a few days ago he says, "I do not know what I do to the Cattleya citrina particularly, but it never stops rooting, and I only follow it up." He believes in covering up the glass at night to retain the heat, rather than maintaining a high temperature at night by means of the hot-water pipes. He says every Orchid likes a restful temperature. His remark is, "That it is astonishing how little artificial heat will suffice in a strong frost under sacking, and if by any mischance the fire goes out the sacking stands in good stead against loss of needful warmth." I thought some of the amateur readers of The Garden who have to look after their own plants, and who are deterred from growing Orchids not only because of their expense, but also for the supposed difficulties of culture, might be tempted to take a few notes from Mr. Horner's experience. I know of many villa gardens where a good greenhouse has been built and filled with little but zonal Pelargoniums. Of course, there are some who prefer Pelargoniums, but there are others who would like to grow Orchids. J. D.

Dendrobium splendidissimum.—Flowers of a hybrid Dendrobe have been sent us from Mr. Buchan, Wilton House, Southampton; the seedling has been raised by his gardener, Mr. Osborne. The flower appears to us to be the same as that of the Veitchian hybrid named above, and has, we believe, been obtained from the same parents. The flower measures 3½ inches across the petals. These with the sepals are white faintly tipped with rose; lip very large, rich Indian purple, white in front, the extreme point tipped with rose. It is a superb and valuable form. The plant resembles a strong D. nobile in habit.

Lælia Goldieana.—This is another new Mexican plant of supposed hybrid origin. When garden hybrid Orchids were first mooted, botanists set their faces entirely against the idea, and I am not sure that the feeling is entirely eradicated, but yet we receive fresh proofs that Nature herself produces in abundance numerous beautiful forms which the botanist would fain have called species. The present plant is supposed to be the offspring of L. autumnalis and L. anceps, and it certainly has the character of the two happily combined. The sepals and petals are broader than those of autumnalis, but they are of the same shape and possess the same rich colour as the variety atro-rubens; the lip has the character of anceps, or, indeed, it may be said to have the side lobes of autumnalis and the front lobes of anceps, whilst the growth bears a strong resemblance to that of autumnalis. This plant was recently blooming with Mr. James, the Castle Nursery, West Norwood.—H. G.

Odontoglossum Schrœderianum. — What is the origin of this plant? No one at present knows. Professor Reichenbach guesses at its being a natural hybrid between O. tripudians and O. Pescatorei. The hybridisers at home must work out and solve the problem. Be its origin what it may, as I saw it lately with Mr. Sander at St. Albans, it is superb, and as distinct from all other Odontoglots as the now famous O. Harryanum, originally imported by Mr. Horsman, of Colchester. In growth, I think, the plant resembles O. læve, and, indeed, the dorsal sepal and the petals stand erect together, as in the flowers of læve, but they as well as the whole flower are much larger; the ground colour is soft creamy green, transversely banded with bright brown; the lip is something in the way of that of

læve, long, and with a full rounded front, where it is pure white, the base being stained with a large blotch of crimson. Its size, shape, and colours are very striking, and it emits a delightful fragrance resembling that of Vanilla. At present it is an exceedingly rare plant. It is named in honour of Baron Schröder, in whose beautiful collection I also saw it last season.—W. H. G.

Vanda lamellata Boxalli.—This is a plant which we have recently found in bloom in several collections round London, and which appears to be much admired, and deservedly so. It is one of the many introductions of the Messrs. Low, of Clapton, and deservedly commemorates one of the most painstaking and successful collectors ever sent out by that firm. It is a small-growing species, with a slender erect stem, leaves closely set, recurved and bright green. The spikes, which are freely produced, are erect, and have a score or more of bright handsome flowers, which remain a very long time in full beauty; sepals and petals slightly reflexed, the upper sepal and the petals creamy white, becoming of a lemon-yellow with age, the interior half of the lateral sepals being reddish brown; lip large for the size of the plant, rich rosy purple. This, like all the small-growing Vandas, requires more care than the larger growing plants of the tricolor and suavis section, and their chaste beauty amply repays for the attention. It is a native of the Philippine Islands.

Dendrobium Treacherianum.—I saw this species in flower for the first time last season, and I was pleased to see recently an importation of plants in good condition. It is another of the Messrs. Low's introductions from Northern Borneo, and well deserves extended cultivation. In general appearance it very much resembles a Bolbophyllum, and thrives best on a bare block of wood. It has a creeping rhizome, and produces stout pseudo-bulbs, which are about 3 inches high, and strongly and prominently angled. The pseudo-bulbs bear a pair of short, leathery, dark green leaves, from between which the flower-spike, bearing from two to three flowers, issues. The sepals and petals are spreading, nearly equal, white, suffused with mauve, and streaked with claret; lip three-lobed, side ones erect, deep purple, the front lobe paler. It is a beautiful and very distinct winter-blooming plant, which I think requires strong heat and an abundance of moisture in the atmosphere.—W.

Rose Garden.

ROSES FOR WET SEASONS.

There is little to add to what Mr. Girdlestone has so well said on this most interesting subject (p. 548). The subject, however, is full of mystery as well as pregnant with interest. Few beforehand would have selected the Roses that distinguished themselves, in spite of the adverse influences of rain and weather, and it still remains uncertain whether the most perfect Roses of the late very faulty season were fostered by wet or formed and painted by cold. How, for example, did it come to pass that the cup-shaped Baroness and her family of white sports having passed through days and weeks of water without speck, flaw, or tarnish, was one of the greatest mysteries of the past Rose season. This is the more surprising when contrasted with the general truth—that delicate pink and pure white flowers are, as a rule, the soonest and the most severely injured by water. There were also degrees of endurance among the three white Roses, Mabel Morrison, Merveille de Lyon, and White Baroness, the latter being far and away with us the purest and best of the three. But in striking contrast to the perfection of these three Roses was the failure of Boule de Neige, of which we hardly cut a perfect bloom during the summer or autumn of 1888. Few opened perfectly, and those that did were much tarnished and almost destitute of their specially unique and satisfying fragrance. The latter is a point not noted by Mr. Girdlestone. But the season told against the fragrance of Roses, as well as tarnished their beauty and hindered the full and perfect development of their size and colour, unless in exceptional cases. The Baroness Rothschild family, unfortunately, can hardly be cited in proof of this, as they have little or no fragrance in any season.

But La France is a good case in point. This most charming, beautiful, and sweet of all pink Roses not only refused to open during the past season, but seemed robbed of fully half its fragrance. And yet its firmly compacted pointed buds seem built up to throw off water, and the petals are so numerous and so compactly overlapped, that until the blooms were fully expanded hardly a drop of water could either enter or remain within the flower. And yet the open-cupped Baroness and her progeny, filled with water, passed through it all unscathed, whilst La France got tarnished, rotted, ruined, and robbed of the major portion of its fragrance in the process of development. All this becomes the more surprising when contrasted with the perfection of La France's near relative, Cannes la Coquette, though Mr. Girdlestone finds good cause for this difference in the greater substance, brighter colour, and more upright habit of the beautiful daughter of La France. By the way, the latter quality is hardly likely to help the Coquette to endure the rain better. So far as the Baroness Rothschild type of Roses go, possibly their unusual quality during the last summer originated in the abnormal coolness of the latter rather than in any excess of wet apparent or real.

During hot, dry seasons the whole of this type of Rose expand suddenly as a flash in a wide pan, basin, or cup; whereas during such a cool Rose season as that of 1888, the flowers opened more slowly, less widely, and with greater substance and finish than usual. And it is far more probable that the Roses were enabled to withstand the weather with impunity rather than that the abnormal rainfall was the cause of the high quality. D. T. F.

Raising seedling Roses.—The remarks of T. W. Girdlestone on this subject in The Garden for December 8 (p. 523) cannot but be useful to those who are engaged in raising seedling Roses, and although he leaves but little to be said, I must express my regret that when referring to the pruning of seedlings no mention was made of the way in which he dealt with the roots of strong-growing plants that have been raised in beds in the open air. It is a point on which I was for some time undecided, for the reason that, according to my experience, the majority of the strongest growing plants will make a tap root considerably longer than the branches above ground; this root will be quite straight and with few fibres attached to it. In my earliest attempts at raising seedling Roses I used to allow the tap root to remain its whole length until the seedlings were replanted in the spring, when it was reduced half its length, but I found that deferring the pruning of the roots weakened the plants considerably. It is now my practice to shorten the tap root as soon as the plants are taken out of the seed-bed. I recently lifted several hundred seedlings that were raised from seed sown in April; some of them had made growth 15 inches long with a tap root much longer. These plants are now laid in boxes of soil and placed in a cold frame. I did not intend to give the seedlings any protection this season, but owing to the continuance of mild weather the growth was so tender that I was afraid to risk them in the open. With regard to pruning the branches of seedling Roses the first season, I should say, decidedly do not do so, as I am quite satisfied that pruning delays the time of flowering.—J. C. C.

Garden Flora.

PLATE 681.

THE GREAT ORIENTAL BELLFLOWER.

(WITH A COLOURED PLATE OF OSTROWSKYA MAGNIFICA.*)

In this handsome novelty, we have undoubtedly one of the grandest acquisitions of recent years in the way of outdoor plants, and we are assured, on the highest authority, that it is quite hardy—indeed capable of withstanding the most severe cold of our climate. Dr. Regel, in his Descript. Plant. Nov. et Minus Cognitarum, fasc. ix., page 46, speaks of it as a wonderful campanulaceous plant, and a glance at the accompanying coloured plate only is needed in corroboration. It was first discovered by Dr. Albert Regel, to whom we are already largely indebted for many new plants, on the higher mountains of Chanat Darwas, in Eastern Bokhara, and described in the above work by Dr. Regel, 1884. About its distinct character, both generically and specifically, there can be no question, and although it strikes one at a first glance as resembling a huge Platycodon, its general arrangement and structure are totally distinct from those of any other campanulaceous plant, placing it rather in the Campanula than the Platycodon section in the "Genera Plantarum" arrangement. The huge tuberous roots when fully grown measure about 2 feet long, and this will be a good guide as to the depth of soil required to grow this giant Bellflower well. The roots are like those of the old and well-known Michauxia campanuloides, producing numerous buds at or near the apex, as in the latter plant, each of which forms a stem, and, if the plants be strong enough, capable of producing huge beautiful blossoms. The honour of first flowering it in England is due to the Messrs. Veitch and Sons, of Chelsea, who flowered it at their Coombe Wood Nursery in July of the present year. These specimens were shown at the Drill Hall, where they received a first-class certificate, and the stir caused at that time by the crowds round them was a very good index to their coming popularity. The honour of first flowering it in Europe, however, is due to Herr Max Leichtlin, of Baden-Baden, who, in the *Garden and Forest*, says that it flowered at Baden-Baden in 1887. It is as hardy as any weed, and though growing early, the young shoots are not harmed by frost. It is not particular as to soil, but prefers sandy loam, which in any case must be deeply worked, as the roots when reaching full size descend to a depth of 2 feet into the ground. He also states that great care must be taken in handling the roots, as they are exceedingly brittle, and a rough touch may cause them to decay. Next to its huge flowers, the most remarkable thing about the Ostrowskya is its peculiar capsule or fruit, which is unlike that of any other in this family. It is oval-shaped, opening by numerous longitudinal pores or apertures just under the rim, the divisions or ribs very strong, and connected on the inside by a thin whitish film, which breaks away as the seeds approach the ripening stage, the capsule in this case being upright. In Campanula proper the arrangement is different in different species. In C. persicifolia, the nearest approach

* Drawn for The Garden in Messrs. Veitch's nursery at Coombe Wood, July 18, 1888, by H. G. Moon. Lithographed and printed by Guillaume Severeyns.



THE GIANT BELL-FLOWER (OSTROWSKYA MAGNIFICA).

to the above of any we have examined, the fruit has three small holes about a third of the distance from the rim, and in this case also upright, but in C. macrantha the openings are at the base, the small lid reflexing towards the rim, and in this case the fruits are in a drooping position, as is also seen in C. rhomboidea and others, this character dividing the species about equally. The present is the first coloured plate of this plant, and perhaps the first from a living specimen. The plate in Regel's fasc is clearly taken from the dried specimen, and there the colour of the flower is given as lilac-blue. It is figured in the *Gartenflora*, 1887, p. 639, also from a dried specimen, or perhaps from the above figure; in the *Revue Horticole*, 1888, p. 344, which is a copy of the *Gartenflora* cut; and in Haage and Schmidt's catalogue, also a copy. In the *Gartenflora* the flowers are given as lilac or dark blue, though, unfortunately, no specimens yet flowered lead us to suppose it has this range of colour. The large corolla is from 5-9 lobed, the lobes ovate-pointed in lax terminal racemes, the blossoms on long stalks. The leaves are in whorls, oval or oblong, and deeply serrated.

It is very easily obtainable, seeds being now offered by our English dealers. They readily germinate in a cold frame, and although a few years intervene between sowing and flowering, the cultivator will be amply rewarded. It is named in honour of the illustrious scientist, M. N. Ostrowsky. D. K.

FLOWER GARDEN.

ROOTWORK.

THOUGH I entirely agree with what is said in THE GARDEN, pp. 501 and 555, as to the objections to rootwork with most alpines and small plants, owing to its harbouring their enemies, there are purposes for which we have found it satisfactory. It is used in each of our three gardens. The rootwork here was put up in 1871 to hide a boundary fence. A clever gardener in the neighbourhood had done some rootwork successfully, so I got his help, and some fine old roots, mostly of the Spanish Chestnut. We made a piece of rootwork of considerable size and planted it with small shrubs, such as Skimmias, Andromedas, Tree Ivies, &c., and a few of the dwarf-growing Retinosporas and Rhododendrons, and afterwards added Azalea mollis, now great bushes, and very beautiful in spring. At the bottom were bays, in which were Cyclamens of different sorts, Snowdrops, especially G. plicatus, Hepaticas, Lilies of the Valley, &c. With most of these the slugs and shell-snails did not much interfere, but they punished Primroses. Some of these bays, with their flowers, were beautifully drawn by the late Mr. Noel Humphreys, and figured in THE GARDEN. In this rootwork the necessity of getting height without sufficient width prevented some of the roots being bedded in sufficient soil to let them gradually decay without disturbing roots of plants, so though it answers the purpose for which it was designed, it is not all that can be desired, and would now be the better of being overhauled. The general effect is good. A few years ago, when I had a visit from the late Mr. Hovey, of Boston, I found him in the morning walking up and down before the rootwork. His comment was, "I like this the best of anything in your garden."

Rootwork No. 2 is at the cottage garden near here. In the formation of this we had the experience learnt from the last to guide us, and it is thoroughly satisfactory; almost everything planted on it is a picture of health except Andromeda floribunda, which wants damper soil. Skimmia japonica and oblata, all the Osmanthus species and varieties I could get, Spiræa Fortunei, &c., with high posts at the top, on which Clematis, Prairie Roses, &c., are tied and let grow wild, give an effect which is admired by all who see it. Pressure of work alone prevents our putting up a larger one near the last; the roots are ready, and also a goodly clump of Mr. Davis's, of Hillsborough, Pernettyas, large plants of very many-coloured berries. I think a bank of these will look very well, and at the same time make a good screen.

Rootwork No. 3 is at Oakwood, Wisley, but it hardly deserves the name, though in it good use of even old Oak stumps is made. We have large curved sloping beds for small plants facing south. The back of these is made by placing big tree roots on their sides; these make capital shelter from any cold wind which can get through the wood, and as many of the small roots are left on, they are good for training creepers of all sorts. I do not think this single line of roots with spaces between at the bottom will give harbour enough to anything injurious, and even uncovered the roots do not look bad.

GEORGE F. WILSON.

Heatherbank, Weybridge.

THE AURICULA.

THE Auricula has both an ancient and modern history. It can easily be traced back to the Primula Auricula of the European Alps. It is a pretty alpine in itself; the leaves are dusted more or less with a white farina; the flowers are yellow, with a white centre also powdered, and of a peculiar pleasant perfume. P. Balbisi is merely a pretty small-growing form of P. Auricula. P. venusta is a purple-formed type, and may probably be a hybrid from P. Auricula. Here at any rate we have the primal source of the show Auriculas. Probably it will never be known who brought the show Auricula into cultivation, but we know it was cultivated more than three centuries ago in England. The Auricula is not mentioned in Turner's "New Herbal," 1548, but fifteen years later the yellow Auricula was in cultivation, as Matthiolus mentions it in 1563, and we know from contemporary authors that all, or at least many of the alpine Auriculas were cultivated about that time. Clusius cultivated them in 1582, and the only plants he was successful with were P. Auricula and P. pubescens. He published in 1601 his "Rariorum Plantarum Historia," and in it he figured the first-named as Auricula ursi, and the latter as Auricula ursi 2. At that time, or at least in 1605, Auriculas were found of various colours, white, rose, and purple of many shades. Parkinson, who was contemporary with Clusius, but published a later work, the "Paradisus," was well acquainted with the works of Clusius and Matthiolus, as he frequently refers to them. He names and describes twenty-one varieties of show Auriculas in 1629, and gives a full page wood engraving of seven. There were purple, blood-red, tawny, "murrey" colour, violet, blush, scarlet or light red, rose, blue, the great white, the lesser white, yellow with eyes, the greater and lesser yellow, straw, the deeper yellow, the yellow variable, the variable green, and here we have the progenitor of the green-edged varieties. Coming down to the year 1720, we are fortunate in being able to refer to an important work, now in the Department of Botany, Natural History Museum, South Kensington. It had been prepared for a certain Count Dernatt, and contains many well-finished drawings of garden flowers. Amongst others the Auricula holds a prominent place, there being no less than forty-one varieties figured; but none of them could be compared with our present garden varieties, as the colours are not well arranged and the margin of the petals is generally jagged and uneven. Two out of the number show an approach to green on the edge, some have the colours in stripes, others are selfs, one named William Triumphant being a splendid variety with large showy crimson flowers. Philip Miller in the second edition of the "Gardeners' Dictionary," published in 1733, writes upon the Auricula, but gives no useful information. He does not give the name or description of a single variety. His remarks are—

To enumerate the diversities of this plant would be almost endless and impossible, for every year produces vast quantities of new flowers, differing in size, shape or colour of the flowers, and also in the leaves of these plants there is as great variety, so that the skilful florist is oftentimes capable of distinguishing the particular sorts thereby.

He further stated that so many new varieties were being continually raised from seeds, that it would be needless to mention any of them.

In 1757, three edged varieties are stated to have been in cultivation, viz, Eclipse (Potts), Rule Arbiter, and Hortaine. In 1785, Grime's Privateer and Popplewell's Conqueror were in cultivation. I have grown them both for many years, and can compare them with the modern varieties, the results being greatly in favour of the latter.

We do not know so much about the alpine Auricula as about the show section. Clusius is the first author who writes about it, and he evidently introduced it into cultivation. He sent plants of P. pubescens to his friend Van der Dilft in 1582, and cultivated forms of it were known in England in 1664. The alpine section has never broken into the rich and varied diversity of the show forms, and not much was known of it until Mr. Charles Turner, of Slough, began to raise seedlings about thirty years ago. The varieties are now very numerous and very beautiful. They are also excellent plants for the rock garden.

A list of the best show Auriculas that may be obtained in the trade are, of green edges, Rev. F. D. Horner (Simonite), Prince of Greens (Trail), Freedom (Booth), Colonel Taylor (Leigh), Apollo (Beeston), Prince of Wales (Ashton). Grey edged: George Lightbody (Headley), Lancashire Hero (Lancashire), Mabel (Douglas), Silvia (Douglas), Ajax (Horner), Richard Headley (Lightbody). White edged: Acme (Read), Conservative (Douglas), Smiling Beauty (Heap), John Simonite (Walker), Glory (Taylor), Ne Plus Ultra (Smith). Selfs: Heroine (Horner), Mrs. Potts (Barlow), Charles James Perry (Turner), Brunette (Pohlman), Lord of Lorne (Campbell), Duke of Albany (Douglas), Sapphire (Horner), a lovely variety, the nearest approach to a blue.

I do not approve of the selection of "W. S. B.," or his comments at p. 487. Nearly all the Auricula growers known to me, most of them working men, have purchased Heroine or Mrs. Potts, and if a selection of the best varieties are asked for, it is impossible to omit these two. Mrs. Potts is the best violet or blue self; the others are nowhere. Were I to choose, I would rather have Mrs. Potts and Heroine than the whole dozen named by "W. S. B." I would raise seedlings from them and thus be abreast of the times. "W. S. B." says the sorts named by him are really good and of tried merit. A few of them are good, but some of them never were good. Barker's Nonsuch, for instance, and Onward is quite out of date. Turner's Amy I never heard of. Mary Gray has been dropped by all good growers. Helen Lancaster I paid a guinea for, but the paste is too narrow, and the flower has a dismal look, and we only keep a plant or so of it. Sim's Eliza is one of the best named by "W. S. B.," but lacks brilliancy. King's Popsy I never heard of; Kay's Topsy is probably meant; it is fairly good, and is one of the parents of Heroine; its fault is that it produces an unequal truss with two or three good pips and a lot of inferior ones. Mrs. Sturrock is quite out of date, and will satisfy no one who knows an Auricula. Stadtholder I have not seen for years. Sunshine is the best yellow except Buttercup by the same raiser, which is superior. I have had too much stock of Sunshine more than once. "W. S. B." says he could lengthen his list considerably. So he may, but not with sorts worth growing. I have thrown away scores of seedlings

much better than any he can name. My advice to growers is to get the best sorts, even if they are few, and raise seedlings from them.

A few short remarks on culture may be useful at this time as a practical finish. We are now into the resting period, and in order that we may have a good bloom in April the plants should be freely exposed to the air in frames, or if in an Auricula house the lights ought to be open to their full extent. This treatment should be pursued until the first week in February, when the plants are ready to commence active growth, and from that time until the end of April the Auricula fancier finds the greatest pleasure in attending to his favourites, watching the development of truss and flower-buds; and there are few more interesting sights to a florist than a collection of Auriculas in the heyday of their full development, all the four classes being fully represented.

I advise every grower to raise seedlings. To my mind more than half the interest attached to the flowering of a collection of Auriculas is gone when there are no seedlings to anticipate. The very best varieties only should be selected as seed and pollen-bearers, and each class ought to be kept quite by itself. The variety set apart as a seed-bearer must have the pollen cases removed with a pair of sharp-pointed scissors before the flowers open. Hold the plant inverted while they are being removed so that they may drop on the ground instead of into the tube of the flower.

When the flower is quite developed the pollen may be transferred to the stigma with a small camel's-hair brush. The seeds will not be ripe until July, when they may at once be sown. May is probably the best month in which to repot the established plants. When they are done during that month they have time to well establish themselves. They may, however, be repotted in any month from May to September inclusive. The importance of the best decayed turfy loam has been frequently urged upon growers of Auriculas for potting, but this is not to be obtained easily in many places. Even Mr. Horner in his country district of Yorkshire has to be content with mould dug from his Potato plots, and he has grown as good, if not better, plants with ordinary garden soil as he was able to do with turfy loam. I may add here that seedlings flower more strongly than named and propagated varieties, but I should also add that it is necessary to raise an immense number of plants before any good varieties can be selected. But a prize may be found in a hundred, while a thousand plants may be searched for in vain for one. The smallest grower may find as much interest and pleasurable excitement in the work as those who can produce thousands. Most raisers of seedlings grow their plants always in pots, but I noticed when visiting Mr. Horner that he plants out his seedlings in beds in the open air during the summer months. They grow into large flowering specimens by September, when they are dug up and put into the pots in which they are to bloom.

James Douglas.

SHORT NOTES.—FLOWER.

Herbaceous plants and shrubs for the sea-side.—Can any reader oblige me with a list of hardy herbaceous plants and low-growing shrubs which would be likely to flourish in a rock close to the sea on the west coast of Inverness-shire? The spot in question is well sheltered from the north, and peat is easily obtained. Plants flowering in late summer and early autumn would be preferred.—A. W. N., *Arisaig*.

Diseased Christmas Roses.—Like Mr. C. Wolley Dod, I have found that the variety altifolius suffers most from the disease. Its first appearance with me was on a plant of that variety given to me in 1881. I have also found, as "F. W. B." mentions, that the disease appears to confine itself to the H. niger section. I have tried the remedies which "J. C. B." recommends, but have found the plants to suffer most where the soil has been the richest.—G. C.

Carnation Surls' Queen.—I have looked up some old Carnation lists, but cannot find the above. In "Hogg's Treatise on the Carnation," ed. 1822, p. 109, in a list of purple flakes there is a Stables' Queen, and if Mr. Hartland will make a keener scrutiny of the medal (as at this distance of time it may be slightly effaced) he may possibly identify it. The average life of a Carnation as stated by Mr. Dodwell, of Oxford, is fifteen years, but we have some excellent varieties many years older than that. A finely-coloured flower having a vigorous constitution would most likely be preserved to cultivation longer than a less favoured one. Such may have been Surls' or Stables' Queen.—R. V.

FLOWER GARDEN NOTES.

Winter foliage plants.—Hardy plants of any description that help to brighten what otherwise would be plots of bare soil deserve more attention than they usually get, and this neglect of them, no doubt, arises from want of thought or of failure to appreciate the full merit of common plants. The origin of this note is due to the good effect produced by large plots of seedling Limnanthes Douglasi planted on a long border of Roses, with here and there a plot of Sweet Williams and tufted Pansies. These three kinds of plants impart to the border considerable beauty, and if these three very common kinds of plants produce such an effect, how much more would the bestowal of a little more labour and thought accomplish in the same direction! Hardy annuals would of themselves make a choice foliage bed. The large size and various coloured leaves and stems of Sweet Williams would prove of great service. Wallflowers and Brompton Stocks afford desirable shades of colour; green and variegated Thymes, variegated Arabis, and Valeriana Phu aurea will all do good service in the same direction, and all are common and of the easiest possible culture. The plant that at the present time is the most effective in our herbaceous garden is Veronica Traversi, this being closely followed with bushes of Lavender, Rosemary, Aralia Sieboldi, and Christmas Roses. The enumeration of these plants may prove suggestive of others that might be used in the same way, the idea being to get a large amount of brightness in our flower border in winter at little cost of labour.

Funkias (Plantain Lilies).—We have immense clumps of these that have for some years formed an edging round sub-tropical beds, for which purpose they are invaluable. They are most suitable for marginal lines round large-growing sub-tropicals, as the foliage of the Funkias being broad and massive, it harmonises well with that of the taller growers. The plants having now got too large for their position and encroaching on the lawn, they are to be lifted, divided and replanted. The Funkias make grand lawn plants—I mean for planting in suitable positions in large clumps on the turf. Some of the strongest clumps now to be lifted are destined for this use, the most massive clumps and the largest growers being, of course, only used for this purpose. The remainder, after having been divided, will again be planted round the edgings of the same beds, and any that remain, in the herbaceous garden. The varieties most in favour are ovata, alba variegata, Sieboldi variegata, and subcordata. I ought to add that the plants resent frequent removal, so that they may with truth be termed permanent bedding plants.

Roses.—Except the plants we lifted last month, all are still in a growing state, and we occasionally cut a few flowers that are almost as good as those from a hothouse. This is especially the case in respect of the varieties Gloire de Dijon, Souvenir de la Malmaison, and Reine Marie Henriette. The wood of nearly all the trees is so unripe that a long continued hard frost would, it is to be feared, occasion sad destruction—such, at least, is my opinion; and with a view of mitigating such a disaster the beds are being dug up now, special orders to the men being to "dig deep; never mind destroying a few roots, but do not necessarily mutilate them." This procedure will, I think, give a slight check to growth, and thus aid ripening of the wood. All plants of Tea varieties, and any special new kinds, should be protected round the base either with Cocoa fibre or finely sifted ashes, and tender varieties on walls will be rendered safe by working in amongst the branches long dry Bracken or Heather. I give preference to the latter, because it is not so readily displaced by the wind.

Hedges and screens.—Evergreen plants alone should be used as hedges for pleasure and flower gardens, whether required for shelter to other plants, or as screens to hide objectionable objects, or as a background for the better display of flowers. Sweet Brier, Thorn, or Beech have such a starved appearance in winter, that unless compelled, I would never plant such hedges except as fences for the exclusion of cattle, and even for this purpose I would always give preference to Holly. Yew is too dark a green, and too funereal, and withal dangerous to animals, should they either nibble at the hedge or at the prunings. Holly, though a good glossy green, and therefore favourable as to colour, is apt to get patchy, and is difficult to repair, and always full of dead leaves. The Chinese Arbor-vitæ makes an excellent hedge if trimmed closely once a year, but it is of dingy colour, and the roots rob the soil more than those of most shrubs. Cupressus Lawsoniana, which has the most beautiful green, Fern-like foliage, bears clipping very well and makes a magnificent hedge, but, unfortunately, like the preceding, it is a free rooter, and would, if left alone, in about three years rob any flower border on which it was planted, so that the flowers would hardly be able to exist. It, however, bears mutilation of its roots without the least resentment, and, therefore, by annual trenching of the flower borders, and consequent cutting away of quantities of roots, flowers and hedge do well together. Thujopsis borealis makes, I think, even a better hedge than the Lawson Cypress, because it has a dense habit of growth, but it does not bear clipping so well, or rather the marks of the clipping remain visible for a much longer time. In two plants so nearly equal as to merit, this slight drawback is hardly worth consideration. As regards clipping and trimming, we do this work at any time most convenient, and as yet have never noticed any ill effect, no matter at what time of year it was done. We are now busy cutting Yew and Lawson Cypress hedges.

W. W.

CHRYSANTHEMUMS.

E. Molyneux.

QUEEN OF ENGLAND FAMILY.

To exhibitors of cut blooms the Queen family is the most important, as from this type of incurved bloom the back row of most of the stands is supplied either in large or small classes. There is not another family in the whole incurved section which tests the skill of the cultivator so well, neither is there any class of flower which assists the exhibitor in winning prizes so much as perfect blooms of this family. In the nine varieties which we can now count as having originated from the Queen of England are to be found forms, variable in colour, size and depth of bloom, and lasting properties. Essentially this family belongs to the exhibitor as being so much more valuable to him than to the grower who cultivates his plants for decoration. Under this method of culture none of the true characters of this family are developed if I except, perhaps, quantity of flowers which are produced on bush-grown plants. Therefore I have no hesitation in saying that to the exhibitor belongs the credit of showing what qualities the sports from the Queen family possess.

One reason why this family is grown rather largely as bush plants is the deep green colour of the leaves, which are retained longer in better condition than those of some varieties, while the plants also grow freely and are easily trained. Occasionally one sees a good specimen plant of some of this family, often Lord Alcester, but, taken as a whole, this family is

not much in favour with growers of specimen Chrysanthemums. Sometimes they are grown as standards; in this way they are more of a success, as fewer blooms are allowed to develop in this form of growth. As showing the high value this section finds amongst most judges of Chrysanthemums, where prizes are given to the premier bloom of a show this honour generally falls to one variety or other of this type—more often to Lord Alcester than any other. Even Princess of Wales, with all its delicate refinement of colour and even contour, has to give place to a representative of the Queen family. It may be that perfect examples of the Princess are not so plentiful now-a days as they were a few years since.

In the Queen family, masses of colour are to be had—golden, bronze, primrose, straw, and the purest of white in Empress of India, often called snowballs, and not inaptly so. In what other family can such a mass of florets in one bloom be found? A well-grown bloom of Empress of India, for instance, contains 2000 petals, weighing 3 ozs. Naturally the varieties of this family all flower about the same time and are classed as midseason sorts, and consequently are of no value for either early or late flowering. They are very distinct from any other type in their manner of growth, all possessing the same characteristic features, and are easily known from other sorts by their growth and form of the leaves; they must be classed as tall-growing varieties, sometimes reaching 8 feet high, but, as a rule, from 6 feet to 7 feet is their height, except in the case of crown bud selection, then good blooms are sometimes had from plants 5 feet high. The most important point of all in the production of high-class blooms is the time the buds are selected. In the south of England especially, more bad blooms are produced by the buds being selected at too early a date, the consequence being malformed flowers. In many cases where the buds are selected too early, the petals reflex instead of incurve. Instances of this have occurred where such blooms could have been exhibited as reflexed varieties almost without fear of detection. Blooms of Queen of England come nearly white from very early buds, while from the same plant flowers possessing the proper tinge of colour may be had. As a rule, what is known as the terminal bud produces the highest coloured, though smallest, flowers, but in the north of England this bud is formed too late to be of any service for the November shows; therefore, earlier buds are selected. As a general rule, buds formed from the 20th of August to the 10th of September in the south of England will produce the best blooms, while in the north the earlier date to the 1st of September will produce the best results. Propagation should commence early, so as to give the plants a long season of growth, as this family requires the wood thoroughly matured to produce blooms possessing all the characteristics named above. This has been a season in which the sportive character of this family has been exemplified in a large degree, and in some cases blooms which sported were of better quality than those upon plants of the same variety; for instance, Golden Queen of England sported from Queen of England, and produced much finer flowers than we had otherwise both in colour and texture. At the late Manchester show a flower of a very peculiar character was exhibited, a sport from Lord Alcester, the bottom part of which was similar to Queen of England, while towards the centre it was of the same colour as its parent—primrose. After this, who can say what we shall have next. The following are descriptions of the type and its variations:—

Queen of England is the original variety from which all have sprung. From the National Chrysanthemum Society's catalogue I learn it was introduced as early as 1847, being a seedling raised by Mr. Salter. Its colour is described as a delicate rose blush, with broad, finely-incurved florets. It is rather difficult to obtain in perfection.

Alfred Salter, which originated during the year 1856, was the first sport from the Queen. Seldom is this variety seen in perfection, the colour being often pale and the flower thin, too early bud-selection being the most common cause of defective blooms of this variety.

Golden Queen of England.—This is another sport from the original, which occurred during the year 1859. Straw yellow, the outer or lower florets striped bronzy pink and paler towards the centre. This is a variety also seldom seen in the best condition, owing to its liability to have reflexed florets. The terminal bud is the most certain to produce the best blooms as to colour and form. When in good condition it is a splendid back-row flower.

Empress of India originated in the year 1861 with Messrs. Downie, Laird, and Laing. Many synonyms, which I am pleased to find are fast dying out, have been given to this variety. Cultivators are becoming more interested in the nomenclature of the family and discard these synonymous appellations, so that scarcely ever do we find this variety called other than by its proper name. The colour is of the purest white, the petals broad and perfectly incurved, rendering it much the best white variety in existence; whilst it is almost the easiest to grow of the series, it being possible to obtain blooms both from crown and terminal buds.

Emily Dale is considered by some to be distinct from Golden Queen of England, but in my opinion they are one and the same thing. I am much strengthened in the opinion by the fact of never having seen them staged together. It is well known that change of soil, treatment, and situation will alter the colour slightly, which is perhaps the case with the variety in question. One of our best cultivators, Mr. C. Gibson, says, "I should certainly not like to show them both together" for fear of disqualification. This expression by one so well qualified to judge carries weight against their distinctiveness; therefore I have discarded the name Emily Dale and call all by the original name, Golden Queen of England, as being the least likely to confuse.

Golden Empress of India, as its name implies, was a sport from Empress of India, originating during the year 1877. Perhaps this variety is capable of producing the largest blooms of any; certainly its colour, which is a pleasing shade of pale yellow, is not excelled. The form of the blooms is invariably good from either crown or terminal buds, the development being alike perfect.

Lord Alcester, a sport from Golden Empress of India, is, in my opinion, the finest of all the Queen family. It is the easiest of all to grow, hardly ever failing to produce presentable blooms. During the time it has been in existence it has taken more premier awards than almost all other sorts of incurved put together, a fact which speaks for itself. The colour is pale primrose. It was during the year 1882, in the hands of an ex-policeman in the neighbourhood of Taunton, that it sported, and so badly was it grown that its merits were not observed. The following year Mr. Wills obtained a small plant, from which magnificent blooms were produced, showing well the quality existing, and to him the credit belongs of bringing to light the finest of all the varieties in the incurved section. Good specimen plants of this variety have been seen, showing its adaptability to a variety of purposes.

Bronze Queen of England.—In the year 1886 Messrs. Carter & Co. brought out this, a sport from Queen of England, and which at the time I considered likely to become a standard variety. The year following, unfortunately, scarcely a single good bloom was seen, owing possibly to the fact of its being over-propagated, and consequently rendered weak in constitution; at any rate, most of the flowers were of so reflexed a character, that a great many cultivators came to the conclusion that it would never be of any value. Fortunately, however, a few stuck to it, and by having, perhaps, an improved stock to begin with and having obtained a wider knowledge of its peculiarities and requirements, were able in the season following to produce good blooms. This variety is now regarded as being essential to a good stand of cut blooms, forming such a contrast to the other varieties of the Queen family.

We have this season a remarkable sport from Lord Alcester. Whether it be fixed or not I am unable to say, but perhaps Mr. Lambert will inform us of its exact characteristics, origin, and so forth, as sports from incurved varieties which possess special features are always welcome to a not overcrowded list. I also notice that the English raised varieties are, generally speaking, of a reliable kind. The Queen type produces cuttings freely, so that a new variety can soon be had in quantity.

MARKET CHRYSANTHEMUMS.

During the three weeks that followed the severe frosts of the early part of October there was something approaching a flower famine in London. The supply of bloom from the open air was almost annihilated, and Chrysanthemums that fill up such a big gap were generally not in. Good blooms of Elaine made from 10s. to 12s. per dozen, an extraordinarily high price, and one that in a general way is only to be got when January is far advanced. A London market grower who had to lament the destruction of the greater portion of his plants was lucky enough to get his Elaines and some early-blooming kinds under cover, and he made enough from one house to recoup him for all other losses. These abnormally high prices lasted no longer than up to the time when the main crop of Chrysanthemum bloom came in, but they are even now much higher than is generally the case in the early part of December. The prices have been about those obtained at Christmas and the new year in a general way. Several valuable additions have been made lately to the late blooming kinds. Princess Teck, the most valued of late bloomers, has shown a great tendency to sport of late, the result being that we have a fine yellow, a bronze, and a pure white, named respectively Mrs. Davis, Charles Gibson, and Lord Eversley. There can be no four kinds in cultivation that have such high value to the market grower as these.

Lord Eversley may possibly supplant Princess Teck altogether for market purposes, as it is certainly very poor in colour. As it was only sent out last year, it is early to pronounce decidedly on its value. My plants were rather weak, so that I could not get the blooms to their full development, but I fancy that they will prove to be rather more compact than those of the parent kind and finer in texture. Charles Gibson will undoubtedly be much grown, as bronzy tints are apparently rather fashionable just now. What we much need is a really good pink, or, better still, a crimson, form of Teck. Grandiflorum has long been a favourite with market growers, and I still think it the best of late yellows. The colour is so good and the foliage is so massive and of such a rich green, that the blooms have a very showy appearance when cut. Good foliage always enhances the value of the flowers. Governor of Guernsey is a variety that was sent out last spring as the best late yellow. I have seen no mention made of it this autumn, and can say nothing about it myself, having had my plants of it destroyed by frost. If any reader should have flowered it, will he kindly report on its merits. Fair Maid of Guernsey still holds a high place as a market kind. It is pure and large, elegant in form and not likely to be supplanted for some time. Well grown, it commands the best among prices in Covent Garden. Ethel and its yellow form are excellent for late blooms. Individually the blooms do not realise so much, but they are so abundantly produced and the plants are so vigorous, that I believe

they pay quite as well as kinds of higher quality. The same may be said of Boule de Neige, which produces two or three dozen fair-sized blooms in 7-inch pots. One, if not the latest of all, is Christmas Eve. This and Pelican can be had good in the middle of February. They are not, however, first-rate in quality. J. C. B.

Chrysanthemum cuttings.—I never remember a season when cuttings were so difficult to procure in good condition as the present. The plants object to throw up freely from the base, owing, I presume, to the effects of the past season. Those produced now are weak, of bad colour, and in many instances are forming flower buds instead of clean, free growths. The Queen family is especially bad in this direction. I would warn persons not having had experience in the growth of these plants of the difficulty there is later on when there is a tendency to produce buds instead of growth. Such cuttings as I have described should not be used. Mme. C. Audiguier, as also Thunberg, do not seem to produce any cuttings this year at all. Cuttings inserted last May and June from the side shoots or from the base, and grown on during the summer in 6-inch pots will be at the present time found to produce the best cuttings. The old stools or roots require very little water at present, just enough to prevent their leaves flagging. Where any weakly growths are likely to crowd other stronger growths, remove the weakly ones at once. If any plants do not show any signs of growth at all, remove the top-dressing, if any, unless it is full of roots, place the plants in a gentle heat, and syringe the stems daily, when if it is possible cuttings will spring from the base of the old stem or roots.—E. M.

Trees and Shrubs.

MISTLETOE.

In order to account for the appearance of plants of Mistletoe upon a tree of any kind, it has been generally said that the seed was first dropped there by a thrush or a blackbird, and, its glutinous nature causing it to adhere to the bark, it germinated where it fell; then, after the roots had penetrated the bark and established themselves between the bark and the wood, the plant had gone on developing itself until it fruited, when the berries, falling on and adhering to the lower branches, germinated, as the parent seed had done, and thus multiplied the number of Mistletoe plants on the tree.

Now, granting that in the first instance a bird may have dropped a seed on a tree, this seed must have fallen on and adhered to the upper part of the branch. How are we, then, to account for those plants of Mistletoe which are found growing out of the sides and the under part of a branch? Moreover, if the plants on the lower branches of a tree are produced from berries which have fallen from a plant on an upper branch, how are we to explain the fact that sometimes trees without Mistletoe are found growing directly underneath the branches of other trees of the same kind which are profusely laden with it? We have seen instances of this in groups of Poplars where the tallest trees bore numerous strong plants of Mistletoe which fruited plentifully, while small trees of the same kind which stood immediately under them never exhibited a single plant of Mistletoe growing on them, although every year they received a perfect shower of the berries. May it not really be the case that, once a plant of Mistletoe has been established on a tree, it makes its way and spreads itself through the substance of various parts of the tree by a process of internal gemmation or bud-production, and this, according as the already more or less impaired sap of the tree may have been still further vitiated by the advent of the parasite. This hypothesis appears to be supported by the frequently observed circumstance that when all the plants of Mistletoe have been cut away from a tree, fresh growths of it often start from various parts of the tree, even where previously there had been none, and these growths do not resemble the plants which are produced from seed, but present the appearance of small bushy shoots.

As to whether there are more than one species of Mistletoe, opinions will decide in the affirmative or otherwise according to the limitations which are given to the meaning of the term "species." If, as some authors do, we here consider as specific characters the habit and growth of the plants, the size of the fruit, the dimensions and forms of the leaves, &c., there are, no doubt, in the great diversity of the specimens ample grounds for classing them under different species, and in other genera characters of far less significance have been considered sufficiently important to constitute distinct species.

One of the most remarkable forms as regards



Weeping Mistletoe.

habit and mode of growth is the Weeping Mistletoe (here figured), which forms a huge bush of densely-ramified branches, which hang down perpendicularly for a distance of upwards of 3 feet. Viewed at a distance, Mistletoe plants appear to be all alike; but a closer inspection reveals more or less diversity in the leaves and fruit, and often in the mode of growth, some plants having the branches long, loosely set, and distant from one another; while in other plants they will be short and closely set, giving the plants the appearance of compact bushes.

The number of different kinds of trees on which the Mistletoe is parasitical is probably much greater than is generally known. The following interesting list, drawn up by Dr. Bonnet, appears in *Le Naturaliste* for 1879-80:—

Tilia grandifolia, Tilia parviflora, Acer campestre, Acer pseudo-Platanus, Acer platanoides, Æsculus Hippocastanum, Pavia flava, Vitis vinifera, Robinia Pseudacacia, Amygdalus communis, Prunus domestica, Prunus Cerasus, Prunus Mahaleb, Rosa canina, Cratægus monogyna, Cratægus Oxyacantha, Cratægus Crus-galli, Photinia serrulata, Cotoneaster microphylla, Mespilus germanica, Mespilus laciniata, Pyrus communis, Malus communis, Sorbus domestica, Sorbus Aucuparia, Sorbus torminalis, Cornus mas, Fraxinus excelsior, Ulmus campestris, Ulmus montana, Morus alba, Fagus sylvatica, Castanea vulgaris, Corylus Avellana, Carpinus Betulus, Quercus sessiliflora, Quercus pedunculata, Quercus crinita, Quercus Phellos, Quercus Ilex, Salix alba, Salix babylonica, Populus alba, Populus nigra, Populus pyramidalis, Populus tremula, Populus canescens, Populus canadensis, Populus candicans, Populus angulata, Betula alba, Alnus glutinosa, Platanus orientalis, Pinus sylvestris, Pinus Laricio, Larix europæa, Abies pectinata, Abies Apollinis, Abies cilicica, Picea excelsa.

Equally interesting are the following notes on this subject from correspondents in different parts of the world:—

M. Charles Baltet (Troyes): Found on the Apple tree, Pear tree, Sorbus, White Thorn, Sweet Brier, and Virginian Poplar. In the forest of the Aube, it was once found on an Oak by M. Bouquet de la Grye.

M. Boisbunel (Rouen): Found on the Apple tree, common Ash, Canadian Poplar, and Robinia.

M. Bernicau (Dol de Bretagne): On the Apple tree and the common Willow.

M. Blanchard (Brest): Although blackbirds breed in the neighbourhood of Brest, I have, notwithstanding all my endeavours, never been able to discover a single plant of Mistletoe there, in consequence of which it is not mentioned in my "Flore Brestoise." It is found in abundance in the arrondissement of Châteaulin, in the northern part of the arrondissement of Quimper, and in the southern part of that of Morlaix, but I have never seen it growing there on any trees except Plum trees and Virginian Poplars.

M. Clausen (Odessa, Russia): Found on Populus pyramidalis, P. tremula, P. alba, Salix vitellina, Fraxinus excelsior, F. oxyphylla, Ulmus campestris, Quercus Suber, Q. Robur, and Q. pubescens.

M. le Comte de Castillon (Haute-Garonne): On the Beam tree, White Thorn, Robinia, Lime tree, Apple tree, Carolina Poplar, and (once only) on the Hornbeam.

M. Daveau (Lisbon): The Mistletoe is very rarely found in Portugal. It has been recorded from Coltarès, which is six leagues from Lisbon, but I have never seen it, either there or elsewhere, in Portugal.

Dr. Philibert (Moscow): On the Pear tree.

M. Fouché (Ile-de-Ré): The Mistletoe does not grow naturally in the Ile-de-Ré, where, however, we have introduced it as a curiosity. We placed the seed on a Carolina Poplar and also on an Apple tree, where it has grown to perfection, but has never reproduced itself on other parts of the trees or on other trees, although it bears fruit every year, and Apple trees are very common, and blackbirds by no means rare, in the island.

M. Frœbel (Zurich): On the Apple tree, Poplar, Pear tree, White Thorn, and Ash.

M. Jouin (Metz): On the Apple tree, Poplar, Pear tree, Maple, Robinia, and Willow.

M. Lancezeur (Rennes): On the Apple tree and the Virginian and Canadian Poplar, which are the only kinds of Poplar on which I have ever seen it.

M. Lachaume (Havannah): I have never met with any Mistletoe here, although I have gone over nearly the whole of the island, in which blackbirds are plentiful.

M. Louis Leroy (Angers): Common on the Apple tree, rare on the Poplar; occasionally found on the Service Tree.

M. Metaxas (Bagdad): Although blackbirds abound in the East, I have never seen the Mistletoe growing here on any tree except the Oak. It is said to be common in the forests of Asia and in the island of Chio.

Mr. Collinson (England): In the year 1739, in the demesne of Lord Petre, Mistletoe was found on the following kinds of trees: Lime tree, Hazel (Corylus Avellana and C. tubulosa), Rowan tree, Robinia, Apple tree, Pear tree, White Thorn, common Maple, White Poplar, common Ash, Elm, Willow, Buckthorn, Holly, and Walnut tree.

M. Morren (Liege): On the Apple tree, Virginian Poplar, and Pinus sylvestris. I have seen one Mistletoe plant growing on a Lilac, and I have two plants (male and female) growing on a White Thorn.

Mr. Nicholson (Kew): On Acer rubrum, Tilia europæa, Cratægus Crus-galli, Populus nigra, and P. canadensis.

M. O. Thomas (Alsace-Lorraine): On the Apple tree, Canadian Poplar, Pear tree, and common Beech.

M. Pavard (Trianon): On the Apple tree, Pear tree, Robinia, Birch, Lime tree, and common Ash.

M. Racaud (Saragossa): Mistletoe is not found growing in the neighbourhood of Saragossa, nor have I met with it in any part of Aragon, except at Tolosa and San Sebastian, where it occurs on some Apple trees, although thrushes and blackbirds abound everywhere in Spain.

M. Robinet (Toulouse): On the Apple tree, Pear tree, Poplar, and Oak.

M. Rovelli (Lago Maggiore): Mistletoe is not to be found in some parts of Italy, while in other parts it is common enough. I have not met with any nearer to this place than the valley of Cannobbina, about twenty-five miles off, where it is found growing on Apple trees, Poplars, and Oaks.

Messieurs Transon (Orleans): On Poplars, Apple trees, Robinia, and Pyrus Aucuparia.

M. Thierry (Nice): I have never found Mistletoe growing on any kind of tree in the country of Nice.

M. Ch. Van Geert (Antwerp): Mistletoe is very common in the province of Namur, but I have never met with any in the Flemish provinces. It is found on Apple trees and Poplars. I have it growing here on a White Thorn, on which I placed the seed, but the plant has never spread or reproduced itself from its berries, although blackbirds are not at all scarce here.

M. Viviand-Morel (Lyons): Mistletoe is found here on Apple trees, Pear trees, Lime trees, Poplars, Spanish Chestnut, Robinia, and Plane trees.

From the above it may be seen that Mistletoe is found growing on a great variety of kinds of trees, but not, however, in a uniform manner on the same species; in this respect there is, indeed, a considerable degree of variation. Other remarkable facts may also be noticed, as, for instance, the total absence of Mistletoe in the arrondissement of Brest, where, at the same time, Apple trees, thrushes, and blackbirds abound; and similarly in the Ile-de-Ré and other places, where the same conditions and winged agents exist, the plant does not spread or reproduce itself. Why is this so?

In conclusion, we may mention that we have heard that some English botanist succeeded in growing a plant of Mistletoe on the stem of a Polypodium. We do not vouch for the possibility of this, but merely give the story for what it is worth. We may also add that besides having seen Mistletoe growing on all the kinds of trees above mentioned, we have also met with it on one tree on which it seldom occurs, namely, the Celtis or Nettle tree.—*Revue Horticole.*

The Spanish Jasmine (Jasminum grandiflorum).—Many Jasmines have flowers of delicious fragrance, and the Spanish Jasmine is no exception to the rule, as the flowers so freely borne at this season are very sweet-scented. The plant in question is of a loose habit of growth, though it can scarcely be called a climber, and is, both in foliage and flower, a good deal like the common Jasmine, but the blossoms are much larger and frequently suffused on the exterior with a reddish tinge, while the foliage is of a very deep green. Where large plants of this Jasmine exist they are very valuable for cutting from, and small bushy specimens may also be obtained if the young plants are stopped freely during their earlier stages. One thing to be borne in mind is that the plants must not be overpotted, as the roots are by no means vigorous. Its propagation is readily effected by means of cuttings put in during the early spring months. This Jasmine is a native of the Himalayas, but is largely cultivated throughout the tropics.—T.

Osmanthus ilicifolius.—This evergreen shrub possesses the desirable quality of thriving even in the smoke and dirt of towns, under which conditions it is far superior to the Holly, which in general characters it so much resembles, though really it is a near ally of the Privet, and is in no way related to the Holly. There are several varieties, but the best of all is the above-mentioned, which has almost olive-green, deeply cleft foliage, for the variegated varieties are very liable to be discoloured by the smoke and dirt of a winter in London. A useful variety, and one very different from the subject of this note, is myrtifolius, which forms a dense twiggy bush, furnished with dark green, spineless leaves, which are a good deal like those of the Myrtle. All the different kinds of Osmanthus are readily propagated by grafting on to the Privet, whose dense mass of roots serves them in good stead when they are transplanted. The Osmanthuses themselves also strike freely from cuttings put in a frame, and when established they are also liberally supplied with roots. The remarkably sweet-scented greenhouse shrub, usually known as Olea fragrans, is now frequently classed with the Osmanthus.—H. P.

TORREYAS.

(FŒTID YEWS.)

This genus of small ornamental trees, principally natives of Japan, China, and North America, is named after the late Dr. John Torrey, an American botanist, and one of the authors of the "North American Flora." Torreyas cannot be said to be thoroughly hardy in this country, yet, when planted under favourable conditions as regards soil, site and shelter, I have found some of them succeed very well, more especially in Ireland, where the climate is much milder than in Great Britain.

T. MYRISTICA (the Californian Nutmeg) I have found to be the hardiest of the tribe. It is indigenous to the Sierra Nevada, and was introduced into this country about the year 1848. In this country it forms a remarkably bushy well-furnished little tree, and is very suitable for planting as a standard on a small lawn or elsewhere where the site is moderately sheltered. When the tree is thoroughly established it naturally assumes a dense spreading habit of growth, and in order to correct this I have sometimes disbudded or cut back the terminal points of the rambling side branches, with the view of throwing additional strength into the principal leader, and thus induce it to assume a more upright habit. In its native habitats it is said to attain a height of from 20 feet to 40 feet, but in this country I have never seen it approach that size. The leaves of a thriving healthy tree are from 2 inches to 3 inches long, sharp-pointed, without any mid-rib, of a pale green colour on the upper surface and light green underneath. All the species of this genus emit a peculiar aroma when the leaves are bruised. Although the timber is of small size, yet it is said to be very durable, not liable to the attacks of insects, and is therefore used by the natives for a variety of purposes.

T. NUCIFERA (the Nut-bearing Torreya).—This species is indigenous to the islands of Niphon and Sikok, in Japan, where it is said to attain a height of from 20 feet to 30 feet, and is cultivated in many parts of that country for the sake of its nuts, which produce a useful oil which is used by the natives for cooking. Under favourable conditions as regards soil and shelter in this country, it only attains the size of a neat conical bush or small tree, and where it thrives it makes a compact small specimen. It produces abundance of small spreading horizontal branches, which are again divided into short twigs well clothed with leaves of a glossy green colour on the upper surface and of a glaucous hue beneath.

T. GRANDIS.—This fine species is a native of the north of China, where it was found by Fortune growing in the mountainous districts of that country. In its native habitats it is said to attain a large size, but in this country its hardiness cannot be depended upon, yet those who are fond of variety and rare species should give it a fair trial. Its leaves are of a glossy green colour on the surface with a whitish strip or band about three-quarters of an inch in length on each side of the mid-rib underneath.

T. TAXIFOLIA (the Yew-leaved Torreya).—This is a handsome species from Florida, where it is described as a conical spreading tree from 40 feet to 50 feet high. Like the former species, however, its hardiness cannot be depended upon in this country. It is of remarkably slow growth even under favourable circumstances, and never makes a fine specimen.

J. B. WEBSTER.

EVERGREEN WALL SHRUBS.

The following is a list of a few shrubs, both evergreen and deciduous, that are suited for walls. In taking those of an evergreen character, a prominent position must be given to the Ivies, among which great variety is now to be found, as may be seen in the able and exhaustive article on the subject on page 492 of The Garden. The Pyracantha, or at all events its variety Lælandi, is a really gorgeous object during the dull autumn days when laden with berries, which it retains for a considerable time if not stripped by birds. The small corymbs of white blossoms also form a pleasing feature towards the latter part of the spring. Another useful subject is Cotoneaster microphylla, which will cover walls not more than 6 feet high with a dense growth. The great profusion of small deep green leaves renders this bright and cheerful at all seasons, but twice in the year an additional feature is furnished by it. This is in the spring when laden with its myriads of tiny white blossoms, and again in the autumn, when these blossoms are succeeded by small, but bright red berries. The variegated Euonymuses are all useful for the purpose, but, of course, only from a foliage point of view. E. radicans, or at all events the variegated variety of it, will soon cover a considerable space with its bright, cheerful foliage, and in addition roots that lay hold of the bricks and attach themselves thereto after the manner of Ivy will be pushed out from various parts of the stem. Among the many varieties of Euonymus japonicus, two of the best are the golden variegated, usually known as aureus, and the large-leaved silver variegated (latifolius albus). The different Ceanothuses are all pretty wall shrubs, one of the best being the hybrid variety Gloire de Versailles, which flowers throughout the summer months, and often till cut by severe frosts. It is also one of the hardiest of its class. Where a greater variety is needed, Marie Simon, with pretty pink blossoms, affords a pleasing change. Escallonia macrantha will flower for months together; indeed, all the Escallonias do well against a wall. Berberis stenophylla is very seldom treated as a wall shrub, as it forms such a handsome single specimen, yet it has a very pleasing effect when trained to a wall and the slender, gracefully arching branches allowed to hang in a natural manner. The Mexican Orange Flower (Choisya ternata) is more satisfactory when protected by a wall than it is in the open ground, as it will there produce in abundance its pretty white, sweet-scented blossoms. Fabiana imbricata is a good wall plant in the south of England, as its pleasing white Heath-like blossoms are borne in great profusion. Neither the Choisya nor the Fabiana are suited for high walls, and to these may be added Olearia Haasti, whose white Daisy-like blossoms are borne in such profusion about July and the first half of August. The shrubby Veronicas, too, though seldom employed for such a purpose, rarely fail to flower so treated. Berberidopsis corallina, with deep green leathery leaves and pendulous blossoms of a bright crimson colour, is a very pretty wall climber, which must not, however, have too much space. Garrya elliptica, though it will grow as a bush, is a first-rate wall plant, and when so protected the dark green foliage attains a larger size than in the open. T.

WOODS & FORESTS.

THE NORWAY MAPLE.

(ACER PLATANOIDES)

This hardy timber tree combines the useful and ornamental to a large extent. It is not a native of Great Britain, but is found in great abundance in different parts of the Continent of Europe, where it is grown in some places to a large extent. In this country it never has been planted to the extent which its merits deserve, seeing that it is so hardy and useful that it can be grown with success on well-drained soil of average texture from the sea-coast up to some 1000 feet elevation. In early life it is a tree of rapid growth, and soon becomes established even on exposed situations, and when planted as a single specimen tree by itself it is very ornamental and is highly suitable for such a purpose. The contour of the tree in many cases has a great resemblance to that of the common Sycamore, yet to the practised eye the difference is of a very pronounced character, and can be seen at the first glance. There are very few trees of foreign origin that can compare with the Norway Maple as a specimen tree for a lawn. Its beautiful glossy green foliage is produced in early summer, while in autumn it assumes various tints of a bright yellowish golden colour, which affords a fine contrast with that of other trees of a more sombre appearance in its vicinity. Under favourable conditions it attains a size little inferior to that of the Sycamore, and as the wood is of a close, hard, firm texture and not apt to warp, it is used for similar purposes, and brings equally as good a price as the wood of that species. It is a capital subject for sea-coast planting, and when growing in average soil in such positions it makes rapid progress and attains a useful and profitable size.

The Maple is not apt to be affected by disease of any kind, and seldom suffers injury from the attacks of insect or fungoid pests. It is easily propagated from seeds, which it produces quite freely in this country, even at an early stage of its growth, and as these are ripe in early autumn, they should be collected and either sown at once on fine pulverised sandy soil, or mixed with dry sand or earth and kept over till spring, when they should be sown broadcast and covered to the depth of about half an inch with fine soil. When the plants are one year old they had better be planted into nursery lines about 2 feet asunder and about 8 inches apart in the rows, and if fine trees are desired, the young plants had better be moved several times. This class of trees should likewise be well attended to in the way of pruning in order to form clean stems and well-balanced uniform heads. All pruning necessary for this tribe of trees should be done in August to prevent bleeding.

When planting this class of trees, the ground at the spots where they are to be inserted should be trenched and broken up to a depth of at least 20 inches, and all dead roots or wood of any kind where it occurs removed. In cases where the soil is of a poor, thin texture, I have found it to be an advantage to add and mix a little fresh soil with the staple, in order to give the young trees a good start. The weather for some time back has been very propitious for carrying out such improvements, and I need hardly say when the trees are planted they should be staked, tied, and properly fenced for protection. There are several varieties of the Norway Maple, some of which are very suitable for planting as standards on grounds of small extent, as well as on the margins of plantations. I have used A. colchicum rubrum for this purpose and found it very effective, especially in autumn, when the foliage assumes tints of a pretty reddish colour.

A. STRIATUM (the Snake-barked Maple) is a native of North America, where it is said to attain a height of some 30 feet. It is a useful and ornamental tree, the black and white stripes which it exhibits on the bark giving it an unusual and interesting appearance.

A. MACROPHYLLUM (Pursh) is another valuable tree from North America, where it is said to attain a large size. As it combines useful and ornamental qualities to a large extent planters should give it a fair trial.

A. RUBRUM, likewise from North America, is found in damp, swampy ground, and assumes a low spreading habit of growth. In early summer it is conspicuous for its rich foliage and beautiful red blossom, which it produces in great abundance.

A. VILLOSUM (Wallich) is a hardy tree of recent introduction from the Himalayas, where it is said to grow alone with Pine and Birch trees on some of the snow-clad mountains of that country at high elevations.

A. CIRCINATUM is another tree of recent introduction from Oregon, where it is said to attain a height of some 40 feet. In autumn the leaves assume a deep scarlet colour, which renders it very ornamental.

A. SACCHARINUM (the Sugar Maple) is a valuable tree from North America, where it attains a height of some 70 feet. In this country, however, it only attains a height of about 40 feet. The whole Maple genus of trees displays great variety in size, shape, and colour of foliage, and as many of them produce valuable timber, they should be largely used in the formation of ornamental plantations.

J. B. WEBSTER.

FORESTRY.

Some writers assert that plantations do not pay, while many others maintain that they not only pay but in many cases actually give a better return to the proprietor in the shape of ground rent than arable land in the same locality under tillage. The evidence therefore is so conflicting to those who have not acquired a practical knowledge from their own experience and observation as to leave them in doubt whether or not it would be advisable to extend their plantations with a view to utility and profit, and thereby increase their incomes and add to the value of their property. I have no doubt but there are cases to be found here and there throughout the country where plantations do not pay, but I venture to say if the matter be thoroughly investigated it will be found in nine cases out of ten that mismanagement is the principal cause, and in order to show this I shall briefly notice a few mistakes in the cultivation of trees. In planting trees for profit they are generally inserted at a distance apart of from 3 feet to 4 feet with the view of obtaining early shelter, but as they cannot be grown as a remunerative crop at such a distance, early and judicious thinning becomes necessary as soon as the side branches begin to meet. When young trees are neglected and allowed to grow up in a crowded state until the side branches wither and decay for a distance of half the length of the stem from the ground upwards, they are not only deficient in roots, but the stems are always drawn up and never bring up their thickness in a uniform manner according to their height. When such trees are thinned many of them are apt to be upset by wind for want of proper roots to give them stability, while others have their roots strained to such an extent that their constitution is weakened and they gradually get bark-bound, which not only retards their progress for years afterwards, but also militates against their progress to such an extent that they never attain the size and dimensions of profitable timber trees. When trees are starved in this way both above and below ground at the outset, it will be seen how some plantations do not pay. This or any time before the buds get expanded in spring is a very proper time to thin young plantations, and as the work can be done during a time of frost when planting operations are at a standstill, planters will see the propriety of prosecuting the work in due time before the trees are damaged through confinement. If trees are not looked after and thinned at the proper time, as here specified, far better plant them at once at the distance apart where they are to remain till cut down as a crop.

Another serious mistake in the formation of young plantations is that of planting trees on soils and situations unsuitable for their growth and healthy development, and this should always be well considered before planting is commenced. Another point of no small importance is that of using trees, as far as the capabilities of the soil and exposure will admit, that are likely to command a ready sale in the locality, and as this of itself in many cases marks the line of demarcation as to profit or loss, it should never be lost sight of. I am well aware that some people without giving these salient points due consideration maintain that plantations do not pay.

Again, plantations in many cases are allowed to stand too long after they have ceased to add a sufficient quantity of new wood to their annual cubic contents, to warrant their being reserved longer as a paying crop. Such trees, when not cut and disposed of at the proper time, are only cumberers of the ground, and are always liable to contract disease, such as fracture by wind, heart-rot, &c. Even although the trees were to escape disease of any kind, yet the quality of the wood of some species is liable to become dry, short in the grain, and altogether of a brittle texture, thus often reducing its market value by one-half. But in addition to planting trees for profit, there is surely something to be said in favour of the shelter which they afford to cattle and crops of different kinds in the vicinity of the plantations. In discussing the merits and demerits of planting trees as a source of profit this point in their favour is often overlooked. Another point in favour of tree planting is that they improve poor barren ground in course of time, and render it fertile for the production of other crops. When the trees are established, the roots gradually break up and pulverise the hard inorganic subsoil, while the annual deposit of fallen leaves enriches the surface, so that trees, in a great measure, have proved to be the pioneers in advance in preparing the ground and improving the climate for the growth of less hardy plants.

J. B. W.

Composts for trees.—A well-made compost is one of the most valuable auxiliaries of the tree planter, and no opportunity of collecting materials for such should be lost by the judicious planter. Lime not only purifies and stimulates, but it also in the course of time enriches such admixtures of raw materials. It formed one of the principal ingredients in the composts so largely used by Sir Henry Stewart, whose transplanting operations carried out early in the present century are among the most successful on record. Upon land infested with insects, and upon mossy lands and peat bogs after drainage, a heavy dressing of lime will render it unnecessary to pare and burn the surface.

Repairing old hedges.—In case of a hedge being very patchy and weak, and, in itself, an insufficient fence against cattle, the following attention will make it secure: Stretch along the line in the fence, about 18 inches above the ground, a strand of strong wire fastened with staples to stakes set up about every 5 yards apart. The hedge should be trimmed down to the height of the wire, and afterwards allowed to grow over the wire so as to form a back-bone, as it were. Any new hedges that are still to be planted should be put in forthwith; the ground on which they are to stand should be trenched 12 inches or 15 inches deep, and from 4 feet to 4½ feet wide; bad soil or stones should be taken out, and good soil or chopped up turf added. A slightly raised bed or bank is preferable to planting on the level; this may be formed by placing the soil taken out of the ditch on to the bank, putting the best soil in the centre, and keeping the turf on the sides, which should be from 12 inches to 15 inches high and 3 feet wide at the top. The ditch may be from 3 feet to 3½ feet wide at top, and 2½ feet deep; the plants should be put in from about 5 inches to 6 inches apart.—OLD FORESTER.

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LIST OF PLANTS ILLUSTRATED IN COLOUR IN "THE GARDEN"

TO THE END OF 1888.

The following is a list of all the coloured drawings that have been published in The Garden up to the end of the thirty-fourth volume ending December 29, 1888 :—

A.

Abelia floribunda.
1878, May 18 ; Vol. XIII., p. 468.
— triflora.
1876, July 15 ; Vol. X., p. 58.
Abutilon igneum.
1880, Dec. 18; Vol. XVIII., p. 624.
— vitifolium.
1883, March 10 ; Vol. XXIII., p. 224.
Abutilons, group of seedling.
1881, May 21 ; Vol. XIX., p. 524.
Acacia leprosa and A. lineata.
1885, Nov. 21; Vol. XXVIII., p. 540.
Acantholimon glumaceum.
1887, April 16; Vol. XXXI., p. 350.
— venustum.
1878, March 2 ; Vol. XIII., p. 186.
Achillea rupestris.
1880, Sept. 25 ; Vol. XVIII., p. 306.
Adenocarpus decorticans.
1886, Nov. 27 ; Vol. XXX., p. 498.
Æthionema grandiflorum.
1876, January 29; Vol. IX., p. 108.
— pulchellum.
1884, April 19 ; Vol. XXV., p. 320.
Agalmyla longistyla.
1877, June 23 ; Vol. XI., p. 524.
Agonis flexuosa.
1886, March 6 ; Vol. XXIX., p. 214.
Allamanda Hendersoni.
1886, May 1 ; Vol. XXIX., p. 400.
Allium pedemontanum.
1879, Oct. 18 ; Vol. XVI., p. 350.
Alstrœmeria aurantiaca and vars.
1884, Dec. 27 ; Vol. XXVI., p. 540.
Alstrœmerias, hybrid.
1886, April 3; Vol. XXIX., p. 304.
Amaryllis Belladonna.
1888, March 24; Vol. XXXIII., p. 268.
— Hendersoni coccinea.
1875, April 24; Vol. VII., 346.
— Mrs. Garfield.
1883, April 7 ; Vol. XXIII., p. 312.
— Nestor and Splendent.
1887, Sept. 17 ; Vol. XXXII., p. 250.
— O'Brieni.
1879, July 12 ; Vol. XVI., p. 36.
— varieties of.
1878, October 12; Vol. XIV., p. 332.
Amasonia punicea.
1885, Feb. 14 ; Vol. XXVII., p. 130.
Andromeda fastigiata.
1885, Sept. 19; Vol. XXVIII., p. 292.
— japonica.
1877, Nov. 3 ; Vol. XII., p. 424.
Androsace foliosa.
1883, October 6 ; Vol. XXIV., p. 294
— lanuginosa.
1886, July 31 ; Vol. XXX., p. 100.
Anemone blanda.
1878, August 31 ; Vol. XIV., p. 200.
— Fannini.
1888, Sept. 1; Vol. XXXIV., p. 202.
— fulgens.
1877, March 17 ; Vol. XI., p. 214.
— japonica.
1886, August 21 ; Vol. XXX., p. 172.
— nemorosa, large white, and Robinson's blue.
1887, Oct. 15 ; Vol. XXXII., p. 344.
— palmata alba.
1882, Nov. 25 ; Vol. XXII., p. 466.
— Pulsatilla.
1887, Nov. 19; Vol. XXXII., p. 466.
— vernalis.
1884, April 19 ; Vol. XXV., p. 320.
Anemones, Chrysanthemum-flowered.
1886, Oct. 2 ; Vol. XXX., p. 316.
Annuals, two new.
1877, December 15; Vol. XII., p. 568.
Anthemis Aizoon.
1883, Oct. 20 ; Vol. XXIV., p. 342.
Anthericum liliastrum var.
1876, January 1 ; Vol. IX., p. 12.
Anthurium Andreanum.
1880, July 31 ; Vol. XVIII., p. 108.
— Rothschildianum and vars.
1886, Nov. 13 ; Vol. XXX., p. 454.
— Scherzerianum Wardi.
1878, January 5; Vol. XIII., p. 12.
Aphelandra fascinator.
1878, Sept. 7 ; Vol. XIV., p. 222.
Apple, Cornish Gilliflower.
1876, November 4 ; Vol. X., p. 446.
— Cox's Orange Pippin.
1876, May 27 ; Vol. IX., p. 500.
— Stone's.
1882, March 18 ; Vol. XXI., p. 180.
Aquilegia alpina.
1876, April 22 ; Vol. IX., p. 384.
— cœrulea.
1877, February 3 ; Vol. XI., p. 90.
— cœrulea and hybrids.
1879, Sept. 20 ; Vol. XVI., p. 264.
— glandulosa.
1879, April 5 ; Vol. XV., p. 278.
— Stuarti.
1888, Oct. 13 ; Vol. XXXIV., p. 344.
Araucaria at Dropmore.
1876, January 22 ; Vol. IX., p. 84.
Arctotis aureola.
1882, Oct. 14 ; Vol. XXII., p. 336.
Arenaria balearica.
1886, Jan. 16 ; Vol. XXIX., p. 50.
Aristolochia elegans.
1886, June 19 ; Vol. XXIX., p. 576.
Armeria setacea.
1878, Sept. 21 ; Vol. XIV., p. 266.
Arnebia echioides.
1880, Aug. 28 ; Vol. XVIII., p. 204.
Arum triphyllum.
1883, July 14 ; Vol. XXIV., p. 24.
Aster Townshendi and A. hispidus.
1880, April 17 ; Vol. XVII., p. 346.
Asters, a group of perennial.
1881, May 14 ; Vol. XIX., p. 498.
— new China.
1878, April 20 ; Vol. XIII., p. 364.
Auricula, forms of the florist's.
1878, Nov. 2 ; Vol. XIV., p. 398.
Auriculas Chas. Perry, Mrs. Moore and Prince of Greens.
1887, Oct. 1 ; Vol. XXXII., p. 296.
Azalea crispiflora.
1880, Sept. 18 ; Vol. XVIII., p. 280.
— Deutsche Perle.
1888, May 19 ; Vol. XXXIII., p. 460.
— mollis.
1877, May 26 ; Vol. XI., p. 428.
— Rollissoni.
1880, Sept. 11 ; Vol. XVIII., p. 254.
Azaleas, a group of hardy.
1879, April 19 ; Vol. XV., p. 318.
— group of new Indian.
1879, Sept. 13 ; Vol. XVI., p. 242.
— new hybrid.
1886, June 12 ; Vol. XXIX., p. 550.
— occidentalis vars.
1888, Nov. 3 ; Vol. XXXIV., p. 416.

B.

Barkeria Lindleyana var. Centeræ.
1885, May 2 ; Vol. XXVII., p. 396.
Batatas paniculata.
1881, Dec. 24 ; Vol. XX., p. 610.
Beaufortia splendens.
1883, May 5 ; Vol. XXIII., p. 404.
Beaumontia grandiflora.
1887, Sept. 24; Vol. XXXII., p. 272.
Begonia Frœbeli.
1877, Oct. 20 ; Vol. XII., p. 376.
— Roezli.
1883, Aug. 25 ; Vol. XXIV., p. 162.

Begonia socotrana.
1882, March 11 ; Vol. XXI., p. 162.
Begonias, a group of new.
1879, April 26 ; Vol. XV., p. 338.
— double-flowered.
1880, June 12 ; Vol. XVII., p. 518.
— two tuberous-rooted.
1888, Feb. 18 ; Vol. XXXIII , p. 146.
Bessera elegans.
1884, Jan. 19 ; Vol. XXV., p. 42.
Bignonia Cherère.
1884, Dec. 20 ; Vol. XXVI., p. 520.
— purpurea.
1886, Oct. 23 ; Vol. XXX., p. 388.
— venusta.
1882, April 22 ; Vol. XXI., p. 276.
Billbergia vittata.
1887, Aug. 6 ; Vol. XXXII., p. 106.
Blandfordia Cunninghami splendens.
1883, Oct. 27 ; Vol. XXIV., p. 366.
Bletia hyacinthina.
1879, Nov. 8 ; Vol. XVI., p. 416.
Bomarea Caldasiana.
1881, Aug. 6 ; Vol. XX., p. 138.
— conferta.
1883, Jan. 27 ; Vol. XXIII., p. 84.
— oculata.
1886, March 20 ; Vol. XXIX., p. 260.
Boronia elatior.
1876, Sept. 23 ; Vol. X., p. 312.
— heterophylla.
1887, Nov. 12 ; Vol. XXXII., p. 442.
Bouvardia President Garfield and B. Alfred Neuner.
1883, May 19 ; Vol. XXIII., p. 448.
Bouvardias, a group of.
1879, June 21 ; Vol. XV., p. 498.
Briers, Scotch.
1886, May 15 ; Vol. XXIX., p. 448.
Brodiæa coccinea.
1877, Feb. 10 ; Vol. XI., p. 110.
— laxa and vars.
1882, June 10 ; Vol. XXI., p. 406.
Browallia (Streptosolen) Jamesoni.
1884, July 5 ; Vol. XXVI., p. 6.
Brownea macrophylla.
1879, May 31 ; Vol. XV., p. 436.
Burtonia scabra and B. villosa.
1886, Feb. 13 ; Vol. XXIX., p. 142.

C.

Calandrinia grandiflora.
1881, April 9 ; Vol. XIX., p. 376.
Calanthe Regnieri.
1883, July 21 ; Vol. XXIV., p. 46.
— Veitchi.
1887, July 9 ; Vol. XXXII., p. 12.
Calceolaria fuchsiæfolia.
1879, March 29 ; Vol. XV., p. 258.
Calceolarias, a new race of.
1888, Oct. 27 ; Vol. XXXIV., p. 392.
Callicarpa purpurea.
1883, June 16 ; Vol. XXIII., p. 540.
Calochorti, a group of.
1884, April 26 ; Vol. XXV., p. 342.
Calochortus venustus.
1876, February 5 ; Vol. IX., p. 132.
Caltha leptosepala.
1886, Oct. 9 ; Vol. XXX., p. 340.
Camassia esculenta.
1881, Sept. 17 ; Vol. XX., p. 302.
Camellia C. M. Hovey.
1883, Sept. 22 ; Vol. XXIV., p. 248.
Camellias, group of new.
1878, Oct. 19 ; Vol. XIV., p. 354.
— group of single.
1885, Aug. 22 ; Vol. XXVIII., p. 202.
Campanula Allioni.
1882, May 27 ; Vol. XXI., p. 366.
— isophylla and var. alba.
1887, January 1 ; Vol. XXXI., p. 8.
— macrostyla.
1879, May 3 ; Vol. XV., p. 356.
— turbinata.
1886, Aug. 28 ; Vol. XXX., p. 196.
Canna iridiflora.
1876, October 21 ; Vol. X., p. 406.
— iridiflora Ehemanni.
1882, Jan. 21 ; Vol. XXI., p. 42.
Cantua dependens.
1885, Sept. 12 ; Vol. XXVIII., p. 270.
Carnation Apricot.
1888, March 17 ; Vol. XXXIII., p. 244.
— Belle Halliday.
1885, Jan. 10 ; Vol. XXVII., p. 26.
Carnations, a group of Tree.
1880, May 22 ; Vol. XVII., p. 450.
— a group of yellow.
1878, Dec. 28 ; Vol. XIV., p. 580.
— and Picotees.
1878, March 16 ; Vol. XIII., p. 234.
— group of Clove.
1884, Jan. 26 ; Vol. XXV., p. 62.
— three new Tree varieties.
1884, May 10 ; Vol. XXV., p. 388.
Carpenteria californica.
1887, Jan. 29 ; Vol. XXXI., p. 100.
Cassiope (Andromeda) fastigiata.
1885, Sept. 19 ; Vol. XXVII., p. 292.
Catasetum Bungerothi.
1888, April 28 ; Vol. XXXIII., p. 388.
Cattleya aurea.
1882, Feb. 4 ; Vol. XXI., p. 80.
— citrina.
1882, Sept. 23 ; Vol. XXII., p. 274.
— Dowiana.
1877, Nov. 10 ; Vol. XII., p. 448.
— gigas.
1882, May 20 ; Vol. XXI., p. 348.
— Mendeli superbissima.
1881, Oct. 1 ; Vol. XX., p. 352.
— Trianæ, varieties of.
1882, July 22 ; Vol. XXII., p. 70.
Celsia cretica.
1882, Oct. 7 ; Vol. XXII., p. 314.
Cerasus Juliana floribus-roseis.
1876, Nov. 18 ; Vol. X., p. 486.
Cereus C. M. Hovey.
1881, Aug. 13 ; Vol. XX., p. 162.
Chevalliera Veitchi.
1881, June 25 ; Vol. XIX., p. 654.
Chionodoxa Luciliæ.
1880, July 3 ; Vol. XVIII., p. 12.
— sardensis.
1885, Aug. 15 ; Vol. XXVIII., p. 178.
Choisya ternata.
1877, Sept. 8 ; Vol. XII., p. 232.
Christmas Rose, Giant.
1878, Aug. 24 ; Vol. XIV., p. 178.
Chrysanthemum coronarium.
1884, Nov. 22 ; Vol. XXVI., p. 440.
— coronarium var.
1882, Jan. 14 ; Vol. XXI., p. 22.
Chrysanthemums, Japanese.
1878, Aug. 17 ; Vol. XIV., p. 156.
— Japanese, Anemone-flowered.
1887, June 18 ; Vol. XXXI., p. 558.
— new varieties of.
1883, June 23 ; Vol. XXIII., p. 564.
— three new.
1884, April 12 ; Vol. XXV., p. 298.
Cienkowskia Kirki.
1881, Nov. 19 ; Vol. XX., p. 504.
Cinerarias, a group of double.
1882, May 6 ; Vol. XXI., p. 312.
Cistus crispus.
1888, Sept. 15 ; Vol. XXXIV., p. 252.
— florentinus.
1885, June 20 ; Vol. XXVII., p. 570.
— formosus.
1884, Nov. 15 ; Vol. XXVI., p. 420.
— ladaniferus var. maculata.
1886, July 10 ; Vol. XXX., p. 30.
— purpureus.
1887, April 9 ; Vol. XXXI., p. 326.
Clematis coccinea.
1881, March 12 ; Vol. XIX., p. 284.
— indivisa lobata.
1887, Oct. 27 ; Vol. XII., p. 400.
— Jackmanni alba.
1884, Feb. 16 ; Vol. XXV., p. 126.
— Sieboldi and C. Jackmanni.
1882, Aug. 12 ; Vol. XXII., p. 142.
— Vesta.
1876, April 29 ; Vol. IX., p. 408.
Clematises, a group of new.
1879, Aug. 2 ; Vol. XVI., p. 128.
Clerodendron nutans.
1888, May 5 ; Vol. XXXIII., p. 412.
— speciosum.
1877, May 19 ; Vol. XI., p. 404.
Clethra alnifolia and C. Michauxi.
1881, Feb. 19 ; Vol. XIX., p. 208.
Clianthus Dampieri.
1881, July 23 ; Vol. XX., p. 86.
Cœlogyne cristata maxima.
1887, Feb. 26 ; Vol. XXXI., p. 190.
Colchicum speciosum.
1877, June 30 ; Vol. XI., p. 548.
Columbines, a group of hybrid.
1884, Oct. 11 ; Vol. XXVI , p. 320.
Comparettia macroplectron.
1883, April 21 ; Vol. XXIII., p. 356.
Coreopsis lanceolata.
1884, Nov. 29 ; Vol. XXVI., p. 460.
— Atkinsoni and Drummondi.
1886, May 29 ; Vol. XXIX., p. 498.
Cowslip, the Virginian.
1885, Dec. 26 ; Vol. XXVIII., p. 652.
Cratægus tanacetifolia.
1885, Dec. 19 ; Vol. XXVIII , p. 632.
Crinodendron Hookerianum.
1880, Nov. 27 ; Vol. XVIII., p. 542.
Crinum Moorei.
1881, March 5 ; Vol. XIX., p. 260.
Crocus Imperati.
1875, March 20 ; Vol. VII., p. 242.
Crocuses, autumn.
1886, Nov. 20 ; Vol. XXX., p. 476.
— new.
1878 ; Nov. 9 ; Vol. XIV., p. 420.
Crossandra undulæfolia.
1883, Sept. 15 ; Vol. XXIV., p. 530.
Cupressus Lawsoniana.
1875, June 19 ; Vol. VII., p. 508.
Cyclamen cyprium.
1876, Aug. 19 ; Vol. X., p. 190.
— repandum.
1885, June 13 ; Vol. XXVII., p. 544.
Cyclamens, a group of.
1879, Aug. 2 ; Vol. XVI., p. 106.
— Coum and Atkinsi.
1886, Nov. 6 ; Vol. XXX., p. 432.
Cydonia japonica var. alba grandiflora.
1878, Feb. 16 ; Vol. XIII., p. 144.
Cymbidium Mastersi.
1884, May 24 ; Vol. XXV., p. 432.

Cypripedium cardinale.
1885, June 6; Vol. XXVII., p. 520.
— Godefroyæ.
1885, May 16; Vol. XXVII., p. 444.
— insigne Maulei and C. insigne var. punctatum violaceum.
1882, June 24; Vol. XXI., p. 444.
— macranthum.
1877, Jan. 13; Vol. XI., p. 30.
— Morganiæ.
1883, Jan. 20; Vol. XXIII., p. 58.
— niveum.
1876, June 3; Vol. IX., p. 524.
— spectabile.
1877, March 31; Vol. XI., 254.
— Spicerianum.
1883, March 3; Vol. XXIII., p. 202.
Cytisus nigricans.
1887, Aug. 27; Vol. XXXII., p. 176.

D.

Daffodil, the Welsh Peerless.
1885, Oct. 31; Vol. XXVIII., p. 458.
Daffodils, some new varieties of.
1879, Aug. 23; Vol. XVI., p. 174
Dahlia imperialis.
1877, Oct. 13; Vol. XII., p. 352.
— Yuarezi.
1881, May 7; Vol. XIX., p. 472.
Dahlias, bouquet.
1878, Aug. 3; Vol. XIV., p. 110.
— single.
1881, Feb. 5; Vol. XIX., p. 154.
— group of single.
1881, Dec. 31; Vol. XX., p. 630.
Daphne Blagayana.
1878, Aug. 31; Vol. XIV., p. 200.
— indica and white variety.
1885, July 4; Vol. XXVIII., p. 8.
— Mezereum vars.
1886, June 26; Vol. XXIX., p. 602.
— odorata var.
1878, Nov. 16; Vol. XIV., p. 442.
Delphinium cardinale.
1881, Feb. 26; Vol. XIX., p. 234.
— cashmerianum.
1880, Dec. 4; Vol. XVIII., p. 568.
Delphiniums, two.
1878, July 27; Vol. XIV., p. 86.
Dendrobium bigibbum.
1883, March 31; Vol. XXIII., p. 290.
— Boxalli.
1876, April 8; Vol. IX., p. 336.
— Goldiei.
1878, Sept. 14; Vol. XIV., p. 244.
— infundibulum.
1882, Dec. 23; Vol. XXII., p. 552.
— Leechianum.
1883, July 7; Vol. XXIV., p. 6.
— nobile nobilius and D. n. Wallichianum
1883, Sept. 8; Vol. XXIV., p. 206.
— suavissimum.
1878, Feb. 23; Vol. XIII., p. 166.
— thyrsiflorum.
1886, Dec. 11; Vol. XXX., p. 544.
Desmodium penduliflorum.
1876, Aug. 26; Vol. X., p. 216.
Dianthus alpinus.
1884, Aug. 30; Vol. XXVI., p. 184.
— Atkinsoni.
1884, Jan. 12; Vol. XXV., p. 22.
Digitalis, spotted variety.
1888, Nov. 24; Vol. XXXIV., p. 488.
Dipladenia Brearleyana.
1875, July 3; Vol. VIII., p. 8.
— profusa.
1881, Nov. 5; Vol. XX., p. 464.
Disa grandiflora (var. superba and Barrelli).
1882, Feb. 18; Vol. XXI., p. 114.
— macrantha.
1883, June 5; Vol. XVII., p. 494.
Dodecatheon integrifolium.
1876, Oct. 7; Vol. X., p. 360.
Dodecatheons, a group of.
1880, Nov. 17; Vol. XXIV., p. 438.
Doronicum plantagineum Harpur Crewe.
1885, Nov. 14; Vol. XXVIII., p. 512.

E.

Echinocactus Simpsoni.
1877, April 7; Vol. XI., p. 274.
Echinocereus gonacanthus.
1882, Nov. 18; Vol. XXII., p. 444.
Echium fastuosum.
1876, Dec. 9; Vol. X., p. 546.
Edraianthus Pumilio.
1877, April 21; Vol. XI., p. 314.
Edwardsia grandiflora.
1877, Aug. 18; Vol. XII., p. 160.
Elæocarpus cyaneus.
1883, Sept. 1; Vol. XXIV., p. 182.
Embothrium coccineum.
1876, Dec. 16; Vol. X., p. 566.
Epacris, new varieties of.
1884, July 26; Vol. XXVI., p. 68.
Epidendrum macrochilum album.
1887, Oct. 22; Vol. XXXII., p. 370.
— rhizophorum.
1883, Nov. 3; Vol. XXIV., p. 390.
Epigæa repens.
1882, July 15; Vol. XXII., p. 46.
Epilobium obcordatum.
1885, Sept. 5; Vol. XXVIII., p. 251.
Epiphyllums, group of.
1878, Aug. 10; Vol. XIV., p. 134.
Eranthemum cinnabarinum.
1880, Sept. 4; Vol. XVIII., p. 230.
Eremurus Bungei.
1886, March 13; Vol. XXIX., p. 236.
— robustus.
1886, Jan. 30; Vol. XXIX., p. 96.
Ericas, group of new.
1879, Feb. 1; Vol. XV., p. 102.
Erigeron aurantiacus.
1884, Sept. 20; Vol. XXVI., p. 254.
Eritrichium nanum.
1879, May 24; Vol. XV., p. 416.
Erodium macradenum.
1884, August 30; Vol. XXVI., p. 180
Eryngium Oliverianum.
1885, Mar. 21; Vol. XXVII., p. 238.
Erysimum pumilum.
1883, Nov. 24; Vol. XXIV., p. 462.
Erythronium dens-canis.
1886, Dec. 4; Vol. XXX., p. 520.
— giganteum, E. revolutum, and E. grandiflorum.
1881, August 20; Vol. XX., p. 186.
Eschscholtzia californica var.
1877, Dec. 15; Vol. XII., p. 538.
Eucharidium Breweri.
1881, July 9; Vol. XX., p. 34.
Eucharis amazonica.
1888, August 11; Vol. XXXIV., p. 130.
— candida.
1876, April 15; Vol. IX., p. 360.
— Sanderiana.
1884, March 29; Vol. XXV., p. 252.
Eucryphia pinnatifolia.
1877, Dec. 8; Vol. XII., p. 544.
Eulophia guineensis.
1881, March 16; Vol. XIX., p. 332.
Euphorbia jacquiniæflora.
1888, May 26; Vol. XXXIII., p. 486.
Eurycles australasica.
1877, Nov. 17; Vol. XII., p. 472.
Exacum macranthum.
1882, Nov. 11; Vol. XXII., p. 422.
Exochorda grandiflora.
1877, Feb. 24; Vol. XI., p. 152.

F.

Fig Negro Largo.
1877, Sept. 29; Vol. XII., p. 304.
Freesia refracta alba and F. Leichtlini major.
1882, July 29; Vol. XXII., p. 94.
Fremontia californica.
1886, Jan. 2; Vol. XXIX., p. 8.
Fritillaria kamtschatcensis.
1884, March 22; Vol. XXV., p. 232.
— Meleagris var.
1887, Dec. 10; Vol. XXXII., p. 536.
— Moggridgei.
1880, Aug. 7; Vol. XVIII., p. 132.
— pudica.
1878, June 22; Vol. XIII., p. 598.
— recurva.
1880, Nov. 6; Vol. XVIII., p. 458.
Fuchsia boliviana.
1837, Jan. 27; Vol. XI., p. 70.
Fuchsias, a group of new.
1880, April 10; Vol. XVII., p. 326.

G.

Gaillardia aristata grandiflora.
1884, Dec. 13; Vol. XXVI., p. 500.
Galanthus, new kinds of.
1886, Jan. 23; Vol. XXIX., p. 74.
Garden, an Oxfordshire cottage.
1883, Aug. 18; Vol. XXIV., p. 138.
Gentiana Andrewsi.
1885, Jan. 31; Vol. XXVII., p. 86.
— bavarica.
1879, April 5; Vol. XV., p. 276.
— Kurroo.
1880, March 20; Vol. XVII., p. 264.
Geranium armenum.
1877, June 9; Vol. XI., p. 478.
Gesnera longiflora.
1888, April 14; Vol. XXXIII., p. 340.
Geum coccineum fl.-pl.
1878, Dec. 21; Vol. XIV., p. 562.
Gladioli Blushing Bride, Rosy Gem, General Scott, Rosea maculata.
1888, Dec. 22; Vol. XXXIV., p. 520.
— early-flowering.
1880, Feb. 14; Vol. XVII., p. 156.
— La France, l'Alsace, Masque de Fer.
1886, July 24; Vol. XXX., p. 76.
— new hybrid.
1880, April 3; Vol. XVII., p. 306.

Gladiolus The Bride and G. cardinalis.
1885, Nov. 28; Vol. XXVIII., p. 566.
— Mrs. Bates.
1879, March 22; Vol. XV., p. 240.
— Saundersi.
1877, July 21; Vol. XII., p. 64.
Gloxinias, new varieties of.
1879, Feb. 22; Vol. XV., p. 162.
Grape Early Ascot Frontignan.
1876, Feb. 19; Vol. IX., p. 180.
— Pearson's Golden Queen.
1877, Dec. 22; Vol. XII., p. 600.

H.

Haberlea rhodopensis.
1886, Aug. 28; Vol. XXX., p. 196.
Habranthus pratensis fulgens.
1878, Dec. 7; Vol. XIV., p. 514.
Habrothamnus Newelli.
1888, Aug. 4; Vol. XXXIV., p. 106.
Hæmanthus Kalbreyeri.
1879, Nov. 15; Vol. XVI., p. 438.
Helenium autumnale pumilum.
1886, Feb. 27; Vol. XXIX., p. 190.
Helianthemum algarvense.
1887, March 12; Vol. XXXI., p. 234.
Helianthus multiflorus major.
1885, Jan. 24; Vol. XXVII., p. 66.
Hellebores, a group of spring-flowering.
1879, July 19; Vol. XVI., p. 60.
Hemerocallis Dumortieri.
1887, March 26; Vol. XXXI., p. 280.
Hepaticas, a group of.
1884, July 12; Vol. XXVI., p. 24.
Heuchera sanguinea.
1884, Oct. 25; Vol. XXVI., p. 360.
Hibbertia dentata.
1888, July 28; Vol. XXXIV., p. 82
Hibiscus grandiflorus.
1885, Feb. 7; Vol. XXVII., p. 108.
— rosa-sinensis fulgens.
1888, Feb. 4; Vol. XXXIII., p. 96.
— schizopetalus.
1879, Nov. 29; Vol. XVI., p. 486.
Hunnemannia fumariæfolia.
1887, June 11; Vol. XXXI., p. 536.
Hyacinthus (Galtonia) candicans.
1881, Jan. 15; Vol. XIX., p. 70.
Hydrangea paniculata grandiflora.
1876, Sept. 9; Vol. X., p. 264.
— the new white.
1879, Jan. 18; Vol. XV., p. 58.
Hymenocallis macrostephana.
1880, July 10; Vol. XVIII., p. 36.
Hypericum oblongifolium.
1886, Sept. 4; Vol. XXX., p. 220.
— olympicum.
1887, April 2; Vol. XXXI., p. 302.
— patulum.
1877, Sept. 22; Vol. XII., p. 280.
— triflorum.
1883, Feb. 17; Vol. XXIII., p. 158.
Hypocalymna robustum.
1882, Sept. 9; Vol. XXII., p. 230.

I.

Iberis gibraltarica.
1876, Sept. 16; Vol. X., p. 288.
Imantophyllum miniatum Martha Reimers.
1882, Oct. 21; Vol. XXII., p. 358.
Impatiens Hawkeri.
1887, March 19; Vol. XXXI., p. 256.
— Sultani.
1882, Sept. 2; Vol. XXII., p. 208.
Ipomæa Horsfalliæ.
1887, Aug. 20; Vol. XXXII., p. 512.
— rubro-cærulea.
1885, May 23; Vol. XXVII., p. 472.
Ipsea speciosa.
1882, Aug. 26; Vol. XXII., p. 188.
Iris aurea.
1887, Jan. 15; Vol. XXXI, p. 52.
— Darius and I. florentina var.
1879, July 26; Vol. XVI., p. 82.
— English.
1887, March 5; Vol. XXXI., p. 212.
— fimbriata.
1885, Aug. 1; Vol. XXVIII., p. 120.
— Histrio.
1888, June 16; Vol. XXXIII, 558.
— iberica.
1876, Dec. 2; Vol. X., p. 526.
— Kæmpferi var.
1876, May 20; Vol. IX., p. 476.
— Kæmpferi vars.
1882, June 17; Vol. XXI., p. 424.
— Kolpakowskiana.
1888, June 16; Vol. XXXIII., p. 558.
— Korolkowi.
1885, Nov. 7; Vol. XXVIII., p. 484.
— orientalis.
1881, Sept. 10; Vol. XX., p. 272.
— pallida.
1888, Jan. 14; Vol. XXXIII, p. 32.
— paradoxa.
1887, Dec. 24; Vol. XXXII., p. 584.
— persica.
1888, June 16; Vol. XXXIII., p. 558.
— reticulata.
1881, July 30; Vol. XX., p. 112.
— stylosa.
1883, July 28; Vol. XXIV., p. 68.
— Victorine.
1878, Jan. 26; Vol. XIII., p. 80.
Irises, a group of beardless.
1879, Dec. 20; Vol. XVI., p. 558.
— a group of hardy.
1878, July 6; Vol. XIV., p. 12.
— a group of winter-flowering.
1878, Nov. 30; Vol. XIV., p. 490.
— a group of Spanish.
1881, Oct. 29; Vol. XX., p. 442.
Ismene Andreana.
1884, May 31; Vol. XXV., p. 454.
Ixias, a group of.
1884, Oct. 18; Vol. XXVI., p. 340.
Ixiolirion Pallasi.
1880, Oct. 16; Vol. XVIII., p. 382.
Ixora Duffi.
1878, April 6; Vol. XIII., p. 312.

J.

Jasminum pubescens (gracillimum).
1881, June 18; Vol. XIX., p. 628.
Johnsonia lupulina.
1886, Feb. 13; Vol. XXIX., p. 142.

K.

Kæmpferia rotunda.
1888, Aug. 18; Vol. XXXIV., p. 154.
Kalmia latifolia.
1882, July 1; Vol. XXII., p. 6.
Kennedya coccinea.
1886, March 6; Vol. XXIX., p. 214.
— Marryattiana.
1885, July 18; Vol. XXVIII., p. 60.
Kniphofia carnosa.
1881, May 28; Vol. XIX., p. 548.

L.

Lachenalias, a group of.
1880, July 17; Vol. XVIII., p. 60.
Lælia anceps, varieties of.
1884, June 28; Vol. XXV., p. 534.
— autumnalis atrorubens.
1880, April 24; Vol. XVII., p. 368.
— autumnalis venusta.
1884, May 3; Vol. XXV., p. 366.
— elegans alba.
1880, Feb. 7; Vol. XVII., p. 132.
— harpophylla.
1883, Aug. 11; Vol. XXIV., p. 116.
Lapageria rosea, varieties of.
1878, Oct. 26; Vol. XIV., p. 376.
Lathyrus latifolius vars.
1878, June 8; Vol. XIII., p. 546.
— odoratus var.
1878, Jan. 12; Vol. XIII., p. 44.
Leonotis Leonurus.
1885, April 25; Vol. XXVII., p. 368.
Leptospermum lanigerum.
1881, Jan. 8; Vol. XIX., p. 42.
Leschenaultia biloba major.
1884, Oct. 4; Vol. XXVI., p. 298.
Leucojum vernum.
1875, Feb. 20; Vol. VII., p. 156.
Lewisia rediviva.
1887, Feb. 5; Vol. XXXI., p. 124.
Lilium auratum cruentum.
1879, Dec. 27; Vol. XVI., p. 576.
— Batemanniæ.
1879, May 17; Vol. XV., p. 456.
— canadense vars.
1886, May 8; Vol. XXIX., p. 426.
— giganteum.
1875, Dec. 11; Vol. VIII., p. 504.
— Hansoni.
1880, Jan. 31; Vol. XVII., p. 108.
— Humboldti and var.
1881, Dec. 10; Vol. XX., p. 568.
— japonicum.
1886, April 17; Vol. XXIX., p. 350.
— Krameri.
1876, August 12; Vol. X., p. 426.
— Leichtlini.
1882, April 8; Vol. XXI., p. 236.
— longiflorum Harrisi.
1886, August 7; Vol. XXX., p. 124.
— Martagon album and L. dalmaticum.
1883, Jan. 13; Vol. XXIII., p. 32.
— neilgherrense.
1885, April 18; Vol. XXVII., p. 342.
— pardalinum and its varieties.
1881, Nov. 26; Vol. XX., p. 526.
— pardalinum var. Warei.
1886, June 5; Vol. XXIX., p. 524.
— Parkmanni.
1879, June 7; Vol. XV., p. 456.
— Parryi.
1880, Dec. 25; Vol. XVIII., p. 652.
— polyphyllum.
1881, Feb. 12; Vol. XIX., p. 180.
— pomponium verum.
1881, Oct. 22; Vol. XX., p. 420.

Lilium speciosum var. Melpomene.
1884, Feb. 2 ; Vol. XXV., p. 82.
— **superbum.**
1886, July 3 ; Vol. XXX., p. 8.
— **Szovitzianum.**
1876, Feb. 26 ; Vol. IX., p. 204.
— **Thompsonianum.**
1877, Aug. 11 ; Vol. XII., p. 136.
— **tigrinum splendens.**
1885, Feb. 21 ; Vol. XXVII., p. 152.
— **Wallichianum.**
1876, Oct. 28 ; Vol. X., p. 426.
— **Washingtonianum and L. rubescens.**
1881, Nov. 12 ; Vol. XX., p. 484.
Limnocharis Humboldti.
1887, May 21 ; Vol. XXXI., p. 468.
Linaria alpina.
1885, July 25 ; Vol. XXVIII., p. 90.
Linum arboreum.
1886, March 27 ; Vol. XXIX., p. 282.
— **viscosum.**
1878, March 23 ; Vol. XIII., p. 260.
Lisianthus glaucifolius.
1881, April 23 ; Vol. XIX., p. 424.
Lonicera sempervirens minor.
1888, Sept. 29 ; Vol. XXXIV., p. 300.
Lycaste Skinneri and var. alba.
1884, May 17 ; Vol. XXV., p. 410.
Lychnis Lagascæ.
1884, June 21 ; Vol. XXV., p. 514.

M.

Mackaya bella.
1879, Aug. 16 ; Vol. XVI., p. 150.
Magnolia conspicua.
1888, Sept. 22 ; Vol. XXXIV., p. 276.
— **Halleana.**
1878, June 15 ; Vol. XIII., p. 572.
— **Lennei.**
1876, June 10 ; Vol. IX., p 548.
— **parviflora.**
1883, Dec. 8 ; Vol. XXIV., p. 508.
— **Soulangeana nigra.**
1884, April 5 ; Vol. XXV., p. 276.
Malus floribunda.
1876, Oct. 14 ; Vol. X., p. 384.
Malva lateritia.
1886, July 17 ; Vol. XXX., p. 52.
Maranta Warscewiczi.
1880, June 26 ; Vol. XVII., p. 560.
Marica cœrulea.
1888, Jan. 21 ; Vol. XXXIII., p. 58.
Mascarenhasia Curnowiana.
1882, Feb. 11 ; Vol. XXI., p. 98.
Masdevallia Lindeni.
1876, Sept. 2 ; Vol. X., p. 240.
Masdevallias, a group of.
1878, Feb. 2 ; Vol. XIII., p. 102.
Maxillaria Sanderiana.
1887, July 23 ; Vol. XXXII., p. 60.
Meconopsis Wallichiana.
1881, March 19 ; Vol. XIX., p. 308.
Megasea purpurascens.
1881, Sept. 3 ; Vol. XX., p. 242.
Mertensia sibirica.
1880, Nov. 20 ; Vol. XVIII., p. 514.
Mesospinidium vulcanicum.
1882, April 29 ; Vol. XXI., p. 292.
Micromeria piperella.
1887, Feb. 5 ; Vol. XXXI., p. 124.
Milla laxa and var.
1881, Jan. 22 ; Vol. XIX., p. 98.
Miltonia spectabilis and var. Moreliana.
1887, April 23 ; Vol. XXXI., p. 374.
Modiola geranioides.
1882, Jan. 28 ; Vol. XXI., p. 60.
Montbretia Pottsi.
1880, Jan. 24 ; Vol. XVII., p. 84.
Montbretias, new hybrid.
1887, May 28 ; Vol. XXXI., p. 490.
Moss Roses, bouquet of.
1880, July 24 ; Vol. XVIII., p. 84.
Muscari neglectum, M. Heldreichi, M. contaminatum, and M. botryoides album.
1884, Aug. 16 ; Vol. XXVI., p. 136.
Mutisia decurrens.
1883, Dec. 22 ; Vol. XXIV., p. 552.
— **ilicifolia.**
1876, Aug. 5 ; Vol. X., p. 134.
Myosotidium nobile.
1886, Dec. 18 ; Vol. XXX., p. 566.
Myosotis dissitiflora grandiflora.
1885, Oct. 24 ; Vol. XXVIII., p 430.
— **rupicola.**
1877, Feb. 17 ; Vol. XI., p. 130.

N.

Narcissi, a group of.
1879, March 8 ; Vol. XV., p. 202.
— **new hybrid.**
1883, Oct. 13 ; Vol. XXIV., p. 318.
— **of the poeticus group.**
1880, March 27 ; Vol. XVII., p. 286.
Narcissus bicolor Horsfieldi.
1888, Sept. 8 ; Vol. XXXIV., p. 226.
— **Broussoneti.**
1888, June 30 ; Vol. XXXIII., p. 610.
— **cyclamineus.**
1888, Aug. 25 ; Vol. XXXIV., p. 178.
— **incomparabilis var. Sir Watkin.**
1885, Oct. 31 ; Vol. XXVIII., p. 458.
— **maximus, N. Empress, and N. Emperor.**
1883, Sept. 15 ; Vol. XXIV., p. 226.
— **odorus and N. Jonquilla.**
1887, Oct. 29 ; Vol. XXXII., p. 394.
— **Tazetta vars.**
1887, Nov. 26 ; Vol. XXXII., p. 488.
— **triandrus var. albus and N. cyclamineus.**
1888, Aug. 25 ; Vol. XXXIV., p. 178.
Nectarines, three new.
1876, March 11 ; Vol. IX., p. 246.
Nepenthes Dormanniana, N. Williamsi, and N. Henryana.
1885, May 30 ; Vol. XXVII., p. 496.
— **Mastersiana, N. Chelsoni, and N. Morganiæ.**
1883, June 2 ; Vol. XXIII., p. 492.
— **Veitchi, N. bicalcarata, and N. albomarginata.**
1880, June 19 ; Vol. XVII., p. 542.
— **zanzibarensis.**
1884, March 15 ; Vol. XXV., p. 210.
Nerines, group of.
1882, March 25 ; Vol. XXI., p. 200.
Nymphæa alba var. rosea.
1879, June 28 ; Vol. XV., p. 516.
— **gigantea and flava.**
1883, April 14 ; Vol. XXIII., p. 334.
— **Marliacea.**
1888, March 31 ; Vol. XXXIII., p. 292.
— **tuberosa.**
1882, Feb. 25 ; Vol. XXI., p. 130.

O.

Ochna multiflora.
1882, Dec. 20 ; Vol. XXII., p. 574.
Odontoglossum Cervantesi decorum.
1887, Oct. 8 ; Vol. XXXII., p. 322.
— **citrosmum album and roseum.**
1883, Nov. 10 ; Vol. XXIV., p. 414.
— **cordatum vars.**
1885, Jan. 17 ; Vol. XXVII. p. 46.
— **crispum.**
1881, July 2 ; Vol. XX., p. 12.
— **elegans.**
1884, Sept. 27 ; Vol. XXVI., p. 276.
— **excellens and O. Pescatorei.**
1882, April 1 ; Vol. XXI., p. 216.
— **Harryanum.**
1888, Jan. 28 ; Vol. XXXIII., p. 76.
— **hebraicum.**
1882, June 3 ; Vol. XXI., p. 386.
— **Insleayi splendens.**
1884, Feb. 24 ; Vol. XXV., p. 148.
— **Œrstedi.**
1884, Aug. 23 ; Vol. XXVI., p. 160.
— **Pescatorei Veitchianum.**
1884, Aug. 9 ; Vol. XXVI., p. 112.
— **Roezli.**
1876, July 29 ; Vol. X., p. 106.
— **Roezli and variety album.**
1884, Sept. 13 ; Vol. XXVI., p. 232.
— **Rossi majus.**
1885, Aug. 29 ; Vol. XXVIII., p. 226.
— **vexillarium.**
1880, May 29 ; Vol. XVII., p. 474.
Œnothera marginata.
1884, Dec. 6 ; Vol. XXVI., p. 480.
Olearia insignis.
1888, Dec. 8 ; Vol. XXXIV., p. 534.
Omphalodes Luciliæ.
1885, March 7 ; Vol. XXVII., p. 194.
Oncidium concolor.
1878, Jan. 19 ; Vol. XIII., p. 58.
— **cucullatum giganteum.**
1882, Aug. 19 ; Vol. XXII., p. 166.
— **Jonesianum.**
1887, Feb. 12 ; Vol. XXXI., p. 148.
— **Lanceanum.**
1886, April 10 ; Vol. XXIX., p. 328.
— **macranthum.**
1883, Dec. 1 ; Vol. XXIV., p. 486.
Opuntia Rafinesquei.
1881, Dec. 3 ; Vol. XX., p. 548.
Orchis foliosa, varieties of.
1882, Dec. 16 ; Vol. XXII., p. 530.
Ornithogalum nutans.
1887, Nov. 5 ; Vol. XXXII., p. 418.
Orobus canescens.
1885, Dec. 12 ; Vol. XXVIII., p. 610.
Ostrowskya magnifica.
1888, Dec. 29 ; Vol. XXXIV., p. 604.
Oxera pulchella.
1888, June 2 ; Vol. XXXIII., p. 510.
Oxytropis Lamberti.
1887, April 16 ; Vol. XXXI., p. 350.

P.

Pæonia al iflora Adrian.
1886, Dec. 25 ; Vol. XXX., p. 588.
— **decora elatior, P. lobata, P. anemonæflora.**
1887, June 4 ; Vol. XXXI., p. 512.
— **Moutan Reine Elizabeth.**
1887, Jan. 22 ; Vol. XXXI., p. 76.
— **Venus.**
1888, Nov. 17 ; Vol. XXXIV., p. 464.

Pæonies, two herbaceous.
1881, Jan. 1 ; Vol. XIX., p. 14.
Pansies Abercorn Gem and Mrs. Kinnear.
1887, April 30 ; Vol. XXXI., p. 396.
— a group of.
1885, March 28 ; Vol. XXVII., p. 262.
— as they are.
1878, May 4 ; Vol. XIII., p. 416.
— (fancy) as they are.
1878, Feb. 9 ; Vol. XIII., p. 122.
— tufted, Quaker Maid and Jackanapes.
1888, Dec. 1; Vol. XXXIV., p. 512.
Papaver alpinum.
1883, Oct. 20 ; Vol. XXIV., p. 342.
— nudicaule, varieties of.
1884, Nov. 1 ; Vol. XXVI. p. 368.
Passiflora cœrulea Constance Elliott.
1887, May 7 ; Vol. XXXI., p. 420.
— insignis.
1876, July 1; Vol. X., p. 12.
— vitifolia.
1880, March 13; Vol. XVII., p. 242.
— Watsoniana.
1888, March 3 ; Vol. XXXIII., p. 194.
Pavonia Wioti.
1883, Aug. 4; Vol. XXIII., p. 92.
Pear Doyenné du Comice.
1877, Sept. 1 ; Vol. XII., p. 208.
— Pitmaston Duchess.
1877, March 24 ; Vol. XI., p. 234.
Pelargonium Leamington Lassie.
1877, April 28 ; Vol. XI., p. 334.
— Queen Victoria.
1875, June 5 ; Vol. VII., p. 466.
Pelargoniums, a bunch of zonal.
1878, June 1 ; Vol. XIII., p. 520.
— fancy.
1878, July 20 ; Vol. XIV., p. 64.
— Ivy-leaved.
1882, January 7 ; Vol. XXI., p. 6.
— Swanley White, single.
1888, July 7 ; Vol. XXXIV., p. 10.
— two new.
1878, June 29 ; Vol. XIII., p. 622.
Pentstemon diffusus.
1876, July 22 ; Vol. X., p. 80.
— humilis.
1879, May 24 ; Vol. XV., p. 416.
Pernettya mucronata, new varieties of.
1883, May 26 ; Vol. XXIII., p. 470.
Pescatorea Klabochorum.
1882, July 8 ; Vol. XXII., p. 24.
Petræa volubilis.
1877, July 14 ; Vol. XII., p. 40.
Phædranassa chloracea.
1879, Sept. 27 ; Vol. XVI., p. 286.
Phaius tuberculosus.
1884, July 19 ; Vol. XXVI., p. 46.
Phalænopsis intermedia Portei.
1882, March 4 ; Vol. XXI., p. 146.
— Lowi.
1876, April 1 ; Vol. IX., p. 312.
— Sanderiana.
1883, Sept. 29 ; Vol. XXIV., p. 270.
— Stuartiana nobilis and P. Schilleriana.
1882, August 5 ; Vol. XXII., p. 118.
Philadelphus, a group of.
1879, June 14 ; Vol. XV., p. 476.
Philesia buxifolia.
1883, April 28 ; Vol. XXIII., p. 380.
Phlox Beauty of Edinburgh.
1877, August 25 ; Vol. XII., p. 184.
— divaricata.
1883, July 14 ; Vol. XXIV., p. 24.
— subulata var.
1877, June 16 ; Vol. XI., p. 502.
— subulata vars.
1880, January 3 ; Vol. XVII., p. 12.
Phyteuma humile.
1885, July 25 ; Vol. XXVIII., p. 90.
Pinguicula caudata.
1881, August 22 ; Vol. XX., p. 212.
— grandiflora.
1887, Feb. 19 ; Vol. XXXI., p. 168.
— vallisneriæfolia.
1878, April 13 ; Vol. XIII., p. 338.
Pinks, a group of.
1879, Dec. 6 ; Vol. XVI., p. 510.
— (Chinese) Eastern Queen and Crimson Belle.
— 1877, December 1 ; Vol. XII., p. 520.
Pitcher plants, a group of.
1880, June 19 ; Vol. XVII., p. 542.
Platycodon grandiflorum Mariesi.
1885, March 14; Vol. XXVII., p. 216.
Pleione tricolor and P. humilis.
1880, August 21 ; Vol. XVIII., p. 180.
Plum, Transparent Gage.
1876, March 4 ; Vol. IX., p. 226.
Plumbago capensis and P. capensis alba.
1888, April 21 ; Vol. XXXIII., p. 364.
Podalyria sericea.
1885, Oct. 17 ; Vol. XXVIII., p. 402.
Poinsettia pulcherrima plenissima.
1876, March 25 ; Vol. IX., p. 288.
Polemonium confertum.
1876, November 25 ; Vol. X., p. 506.
Polygala Chamæbuxus purpurea.
1878, January 12 ; Vol. XIII., p. 36 ; and 1886, August 14 ; Vol. XXX., p. 148.
Pontederia azurea.
1880, March 6 ; Vol. XVII., p. 220.
Potentilla nitida.
1884, June 21 ; Vol. XXV., p. 514.
Potentillas, a group of.
1879, Nov. 22 ; Vol. XVI., p. 462.
Primrose, new forms of Japan.
1878, Nov. 23 ; Vol. XIV., p. 466.
— old double crimson.
1888, Oct. 20; Vol. XXXIV., p. 368.
Primroses, new double Chinese.
1880, Feb. 21 ; Vol. XVII., p. 176.
— yellow.
1885, Oct. 10; Vol. XXVIII., p. 374.
Primula capitata.
1879, Dec. 13 ; Vol. XVI., p. 534.
— intermedia.
1876, July 8 ; Vol. X., p. 36.
— luteola.
1880, Nov. 13 ; Vol. XVIII., p. 486.
— minima.
1885, Sept. 5 ; Vol. XXVIII., p. 250.
— obconica.
1884, Sept. 6 ; Vol. XXVI., p. 206.
— purpurea.
1887, May 14 ; Vol. XXXI., p. 444.
— rosea.
1879, July 5 ; Vol. XVI., p. 12.
— vulgaris var.
1877, Nov. 24 ; Vol. XII., p. 496.
Primulas, new single Chinese.
1885, August 8 ; Vol. XXVIII., p. 150.
— Chinese semi-double.
1886, Oct. 30 ; Vol. XXX., p. 410.
Prunus Pissardi.
1887, Sept. 10 ; Vol. XXXII., p. 224.
— triloba.
1885, Oct. 3 ; Vol. XXVIII., p. 346.
Pulmonaria virginica.
1885, Dec. 26; Vol. XXVIII., p. 562.
Puschkinia scilloides (Chionodoxa nana).
1878, Sept. 28 ; Vol. XIV., p. 288.
— scilloides.
1881, January 29 ; Vol. XIX., p. 126.
Pyrethrums, a group of hardy.
1879, Oct. 25 ; Vol. XVI., p. 370.
Pyrus coronaria.
1881, April 16 ; Vol. XIX., p. 400.
— Hosti.
1881, October 8 ; Vol. XX., p. 376.
— Maulei.
1878, April 27 ; Vol. XIII., p. 390.

R.

Ramondia pyrenaica.
1885, March 7 ; Vol. XXVII., p. 194.
Ranunculus anemonoides.
1882, Sept. 16 ; Vol. XXII., p. 252.
— Lyalli.
1887, Dec. 31 ; Vol. XXXII., p. 606.
Raphiolepis salicifolia.
1876, June 24 ; Vol. IX., p. 596.
Reinwardtia tetragynum.
1887, Sept. 3 ; Vol. XXXII., p. 200.
Rheum nobile.
1880, Oct. 23 ; Vol. XVIII., p. 406.
Rhexia virginica.
1877, April 14 ; Vol. XI., p. 294.
Rhododendron Aucklandi.
1881, Sept. 24 ; Vol. XX., p. 328.
— Aucklandi hybridum.
1877, June 2 ; Vol. XI., p. 452.
— cinnabarinum.
1879, March 1 ; Vol. XV., p. 182.
— Dalhousianum.
1885, Sept. 26 ; Vol. XXVIII., p. 318.
— Dennisoni.
1885, Sept. 26 ; Vol. XXVIII., p. 318.
— Kate Waterer.
1879, October 4 ; Vol. XVI., p. 308.
— lepidotum.
1879, January 11 ; Vol. XV., p. 36.
— Novelty.
1877, Dec. 22 ; Vol. XII., p. 592.
— Veitchi.
1880, Sept. 18 ; Vol. XVIII., p. 280.
Rhododendrons, new Javanese.
1879, Nov. 1 ; Vol. XVI., p. 394.
Richardia æthiopica.
1888, June 23 ; Vol. XXXIII., p. 584.
— hastata.
1880, Dec. 11 ; Vol. XVIII., p. 596.
Robinia Pseudacacia Decaisneana.
1876, January 8 ; Vol. IX., p. 36.
Romneya Coulteri.
1878, May 25 ; Vol. XIII., p. 494 ; and 1884, Nov. 8 ; Vol. XXVI., p. 400.
Rosa alpina pyrenaica.
1885, June 13 ; Vol. XXVII., p. 544.
— indica var.
1887, Aug. 13; Vol. XXXII., p. 128.
— rugosa alba.
1876, May 13 ; Vol. IX., p. 452.
Rose Alfred K. Williams.
1882, Sept. 30 ; Vol. XXII., p. 296.
— Catherine Bell.
1876, March 18 ; Vol. IX., p, 266.
— Catherine Mermet.
1883, March 24 ; Vol. XXIII., p. 268.
— Charles Lefebvre.
1883, Feb. 13 ; Vol. XXIII., p. 110.
— Comtesse de Serenye.
1877, January 20 ; Vol. XI., p. 50.
— Duchess of Edinburgh.
1876, January 15 ; Vol. IX., p. 60.
— Edith Giffard.
1888, April 7 ; Vol. XXXIII., p. 316.

Rose Jean Ducher.
1879, Sept. 6; Vol. XVI., p. 220.
— La France.
1883, Feb. 24; Vol. XXIII., p. 180.
— Madame de Watteville.
1888, March 10; Vol. XXXIII., p. 220; and July 14; Vol. XXXIV., p. 34.
— Maréchal Niel.
1883, May 12; Vol. XXIII., p. 426.
— Marie Baumann.
1883, June 9; Vol. XXIII., p. 516.
— Sultan of Zanzibar.
1876, Feb. 12; Vol. IX., p. 156.
— Wm. Allen Richardson.
1886, April 24; Vol. XXIX., p. 374.
Roses Duke of Connaught, Pearl, and Beauty of Stapleford.
1880, May 15; Vol. XVII. p. 430.
— La France and Mme. Lacharme.
1876, Dec. 23; Vol. X., p. 586.
— Marie Van Houtte and Comtesse de Nadaillac.
1879, Jan. 25; Vol. XV., p. 80.
— May Quennell, Duchesse de Vallombrosa, and La Rosière.
1878, March 30; Vol. XIII., p. 286.
— Mignonette and Paquerette.
1886, Feb. 6; Vol. XXIX., p. 118.
— Mons. E. Y. Teas and Jean Liabaud.
1879, March 8; Vol. XV., p. 298.
— New single and semi-double.
1886, Jan. 9; Vol. XXIX, p. 28.
— Reynolds Hole and François Michelon.
1877, May 5; Vol. XI., p. 356.
— Souvenir d'Elise Vardon and Marie Van Houtte.
1879, Oct. 11; Vol. XVI., p. 330.
— three new English.
1880, Feb. 28; Vol. XVII., p. 198.
Rubus deliciosus.
1880, Oct. 9; Vol. XVIII., p. 358.
Ruellia macrantha.
1887, July 2; Vol. XXXI., p. 604.

S.

Sagittaria montevidensis.
1885, Jan. 3; Vol. XXVII., p. 8.
Salpiglossis, a group of.
1886, Feb. 20; Vol. XXIX., p. 166.
Salvia farinacea.
1876, May 6; Vol. IX., p. 430.
— Pitcheri.
1881, June 11; Vol. XIX., p. 600.
Salvias, a group of winter-blooming.
1882, May 13; Vol. XXI., p. 328.
Sarracenia Moorei.
1886, Oct. 16; Vol. XXX., p. 366.
— Popei.
1886, Oct. 16; Vol. XXX, p. 366.
Saxifraga Burseriana.
1877, Sept. 15; Vol. XII., p. 256.
— cæsia.
1885, July 11; Vol. XXVIII., p. 30.
— Fortunei.
1887, July 16; Vol. XXXII., p. 36.
— oppositifolia pyrenaica maxima.
1878, Oct. 5; Vol. XIV., p. 310.
— peltata.
1876, Sept. 30; Vol. X., p. 336.
Schizostylis coccinea.
1884, March 8; Vol. XXV., p. 188.
Schubertia grandiflora.
1887, July 30; Vol. XXXII., p. 84.
Scilla bifolia, varieties of,
1885, April 4; Vol. XXVII., p. 286.
Scotch Briers.
1886, May 15; Vol. XXIX., p. 474.
Scutellaria Mocciniana.
1876, Dec. 30; Vol. X., p. 606.
Sedum corsicum.
1885, April 11; Vol. XXVII., p. 315.
— sempervivoides.
1881, April 2; Vol. XIX., p. 354.
— spathulifolium.
1883, Nov. 24; Vol. XXIV., p. 462.
Sempervivum arachnoideum.
1884, March 22; Vol. XXV., p. 232.
Senecio macroglossus.
1884, Aug. 2; Vol. XXVI., p. 90.
— pulcher.
1876, June 17; Vol. IX., p. 572.
— speciosus.
1880, Aug. 14; Vol. XVIII., p. 156.
Sibthorpia europæa variegata.
1875, Jan. 23; Vol. VII., p. 70.
Silene Pumilio.
1877, Jan. 6; Vol. IX., p. 10.
Sisyrinchium grandiflorum and white variety.
1883, June 30; Vol. XXIII., p. 588.
Snowdrops.
1877, March 10; Vol. XI., p. 194.
— and winter Aconite.
1888, July 21; Vol. XXXIV., p. 58
— eight kinds of.
1886, Jan. 23; Vol. XXIX., p. 74.
Sobralia xantholeuca.
1882, Dec. 9; Vol. XXII., p. 508.
Sonerila margaritacea var. argentea.
1885, May 9; Vol. XXVII., p. 420.
Sophronitis grandiflora rosea.
1884, June 7; Vol. XXV., p. 474.
Sparaxis pulcherrima
1881, Dec. 17; Vol. XX, p. 588.
Spathoglottis Lobbi.
1882, Aug. 26; Vol. XXII., p. 188.
Speedwell, New Zealand.
1885, Sept. 19; Vol. XXVIII., p. 292.
Spigelia marilandica.
1877, March 3; Vol. XI., p 174.
Spiræa Douglasi.
1883, March 17; Vol. XXIII., p. 246
— palmata.
1880, Jan. 10; Vol. XVII., p. 36.
Squills, two new.
1878, Dec. 14; Vol. XIV., p. 538.
Stanhopea platyceras.
1888, June 9; Vol. XXXIII., p. 534.
Stenorrhynchus speciosus.
1884, June 14; Vol. XXV., p. 494.
Sternbergia lutea and S. angustifolia.
1887, June 25; Vol. XXXI, p. 582.
Stigmaphyllon ciliatum.
1888, Feb. 25; Vol. XXXIII., p. 170.
Stobæa purpurea.
1879, Jan. 4; Vol. XV., p. 12.
Streptocarpus, vars. of.
1886, May 22; Vol. XXIX., p. 474.
Stuartia virginica.
1878, July 13; Vol. XIV., p. 38.
Sweet Pea Violet Queen.
1877, Dec. 15; Vol. XII., p. 568.

T.

Tecophylæa cyanocrocus.
1881, July 16; Vol. XX., p. 62.
Telopea speciosissima.
1882, Nov. 4; Vol XXII., p. 400.
Thalictrum anemonoides.
1883, July 14; Vol. XXIV., p. 24; and 1885, July 11; Vol. XXVIII., p. 31.
Thunbergia laurifolia.
1886, Sept. 25; Vol. XXX., p. 292.
Tigridia Pavonia alba.
1884, Jan. 5; Vol. XXV., p. 6.
— Pavonia grandiflora.
1879, Feb. 15; Vol. XV., p. 142.
Tillandsia Lindeni (vera).
1876, Nov. 11; Vol. X., p. 466.
— Lindeni.
1880, Jan. 17; Vol. XVII., p. 60.
Toad-flax, Alpine.
1885, July 25; Vol. XXVIII., p. 90.
Torenia Bailloni.
1879, Feb. 8; Vol. XV., p. 122.
— Fournieri.
1877, Dec. 29; Vol. XII., p. 616.
Toxicophlæa spectabilis.
1877, July 7; Vol. XII, p. 14.
Tritoma Macowani.
1877, Aug. 4; Vol. XII., p. 112.
Trillium grandiflorum.
1883, July 14; Vol. XXIV., p. 24.
Triteleia uniflora.
1885, Dec. 5; Vol. XXVIII., p. 588.
Tropæolum Hermine Grashoff.
1881, Oct. 15; Vol. XX., p. 398.
— polyphyllum and speciosum
1878, May 11; Vol. XIII., p. 442.
Tulipa australis.
1887, Dec. 17; Vol. XXXII., p. 561.
— elegans, T. retroflexa, and T. viridiflora.
1887, Dec. 3; Vol. XXXII., p. 514.
— Greigi.
1877, May 12; Vol. XI., p. 380.
Tulips, old garden.
1888, Oct. 6; Vol. XXXIV., p. 324.
Tydæa Madame Heine.
1888, Nov. 10; Vol. XXXIV., p. 440.
— Robert le Diable.
1879, May 10; Vol. XV., p. 376.

U.

Urceolina pendula.
1888, May 12; Vol. XXXIII., p. 436.
Utricularia Endresi.
1880, Oct. 30; Vol. XVIII., p. 432.
— montana.
1882, Dec. 2; Vol. XXII, p. 486.
Uvularia sessilifolia.
1883, July 14; Vol. XXIV., p. 24.

V.

Vallota purpurea magnifica.
1886, Sept. 11; Vol. XXX., p. 244.
Vanda cœrulea.
1882, April 15; Vol. XXI., p. 254.
— Hookeriana.
1883, Jan. 6; Vol. XXIII., p. 10.
— insignis and var. Schroederiana.
1884, March 1; Vol. XXV., p. 168.
— lamellata Boxalli.
1881, June 4; Vol. XIX., p. 574.
— Sanderiana.
1884, Feb. 9; Vol. XXV., p. 104.
— tricolor Patersoni.
1883, Feb. 10; Vol. XXIII., p. 134

Verbascum phlomoides.
1885, Feb. 28 ; Vol. XXVII., p. 172.
Verbenas, new.
1879, March 15 ; Vol. XV., p. 222.
Veronica longifolia subsessilis.
1881, April 30 ; Vol. XIX., p. 448.
— pinguifolia.
1885, Sept. 19; Vol. XXVIII., p. 292.
Vesicaria græca.
1880, Oct. 2 ; Vol. XVIII., p. 332.
Viola bicolor.
1882, Oct. 28 ; Vol. XXII , p. 378.
— pedata.
1887, Feb. 19 ; Vol. XXXI., p. 168.
Violets, double.
1885, June 27 ; Vol. XXVII., p. 598.

W.

Wahlenbergia saxicola.
1888, Dec. 15; Vol. XXXIV., p. 558.
Watsonias, a group of.
1880, May 1 ; Vol. XVII., p. 330.
Weigelas, group of.
1880, May 8; Vol. XVII., p. 410.

X.

Xanthoceras sorbifolia.
1875, Dec. 18 ; Vol. VIII., p. 524.

Y.

Yucca Treculeana.
1877, Oct. 6 ; Vol. XII., p. 328.

Z.

Zauschneria californica.
1887, Jan. 8 ; Vol. XXXI., p. 28.
Zenobia speciosa pulverulenta.
1883, Dec. 29 ; Vol. XXIV., p. 572.
Zephyranthes carinata.
1888, Jan. 7 ; Vol. XXXIII., p. 10.
— rosea and Z. tubispatha.
1877, July 28 ; Vol. XII., p. 88.
Zinnias, French Pompone.
1886, Sept. 18 : Vol. XXX., p. 270.

